Basic Economic Problem & Opportunity Cost

The Purpose of Economic Activity

To produce goods and services to meet our needs and wants
Need: something you must have to survive or to do something
Want: something you desire but it is not essential

Basic Economic Problem

The **basic economic problem** is that there are infinite wants and finite resources. Resources are **scarce** in relation to wants.
Choices need to be made about how to **allocate** resources among competing uses: **What to produce? How to produce? For whom to produce?**

Resources = Factors of production

Resources are used in the production process:
Land – natural physical resources
Labour – human input
Capital – man-made resources, eg machinery
Enterprise/Entrepreneurship - the ability and willingness to organize, coordinate, and take risks in the production process

Rewards to Factors of production

Land = rent
Labour = wages
Capital = interest
Enterprise = profit

Microeconomics v Macroeconomics

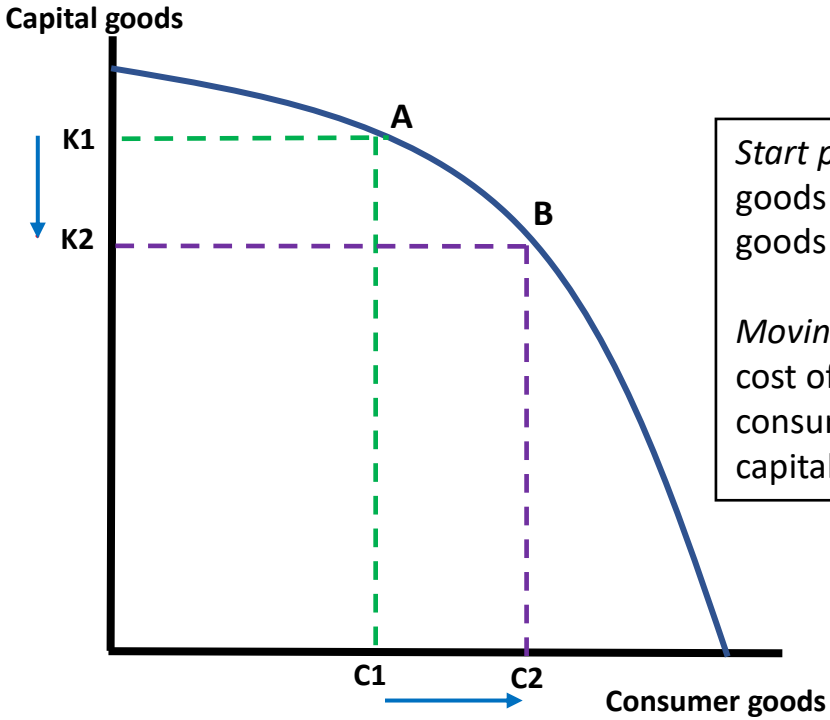
Microeconomics is a branch of economics that studies the behaviour of individuals and firms in the market.
Macroeconomics considers the economy as a whole

Economic agents and rational decision-making

What rational economic agents aim to maximise:
Consumers: total utility
Workers: wages and benefits from work
Producers: profit
Government: social welfare

Opportunity Cost

Opportunity cost is the value of the next best alternative foregone (given up) when a ***choice*** is made



Start point A: K1 capital goods and C1 consumer goods are produced.

Moving to B: The opportunity cost of producing C1-C2 more consumer goods is the K1-K2 capital goods foregone

Positive and normative statements

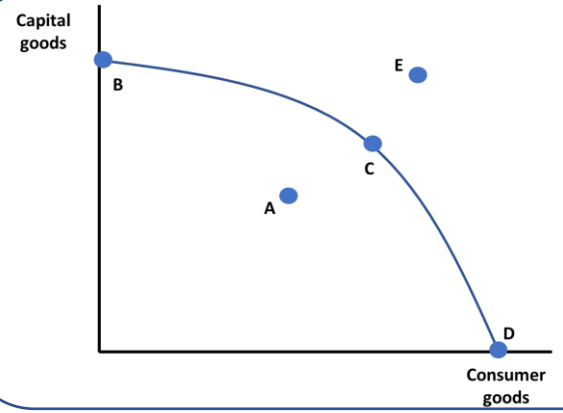
Positive statements describe the world as it is, without making any value judgements. They are based on **objective facts**, and they can be proven or disproven.
Example: A rise in the minimum wage decreases employment.

Normative statements express an opinion about what ought to be. They are subjective statements - i.e. they carry **value judgements**.
Example: The government should increase spending on healthcare.

Production possibility frontiers/curves/boundaries

Production possibility frontier (PPF)

A **production possibility frontier (PPF)** shows the maximum possible output combinations of two goods or services an economy can achieve when all resources are fully and efficiently employed



PPFs are usually curved because of the **Law of Diminishing Returns** – the marginal (extra) output of consumers goods diminishes as more factor resources are allocated to it.

PPFs and productive efficiency

Using the diagram above:

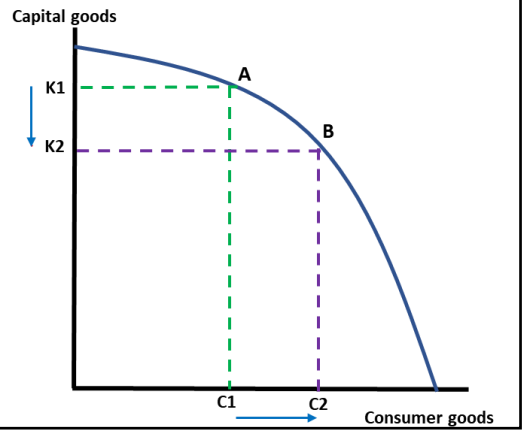
- Point A – inefficient, some resources unemployed
- Points B, C & D – efficient, all resources fully employed
- Point E – unattainable with current resources and state of technology

Movements along the PPF and opportunity cost

Start point: K1 capital goods and C1 consumer goods are produced.

The **opportunity cost** of producing C1C2 more consumer goods is the K1K2 capital goods foregone

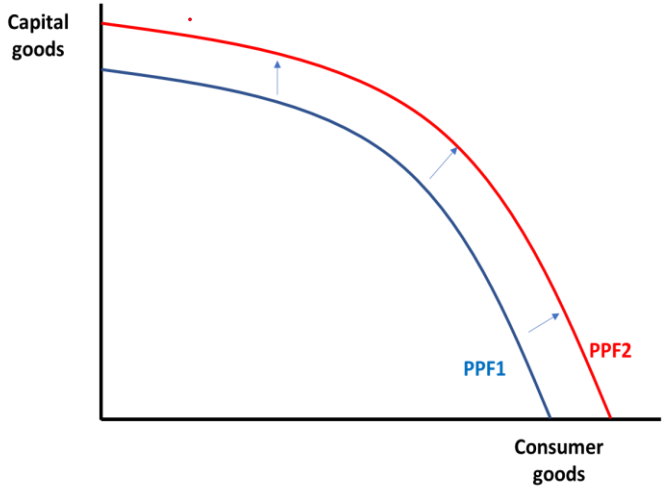
Opportunity cost increases as more consumers goods are produced



Shifts in PPFs

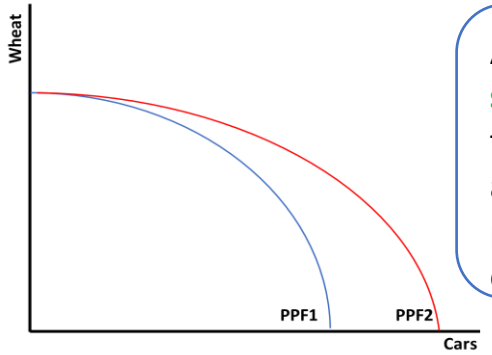
What causes an outward shift in the PPF?

- An increase in the quantity of the factors of production: eg. Discovery & extraction of new natural resources
- An increase in the quality of the factors of production: eg. Increase in labour productivity due to better management
- An advance in technology: eg. a new innovation in resource use



What causes an inward shift in the PPF?

- A decrease in the quantity of the factors of production: eg. War or conflict or natural disasters
- A decrease in the quality of the factors of production: eg. Capital scrapping or labour hysteresis (loss of workers' skills) in a prolonged recession



A **non-parallel shift**: A technological advance in car production only

A **straight line** PPF indicates resources are equally efficient at producing both goods shown on the PPF axes – opportunity cost is constant

Factor Mobility, Specialisation, Division of Labour and the Functions of Money

Factor mobility

Factor mobility occurs when factors of production can easily be moved from one use to another.
Geographical mobility – resources can move easily between regions / areas / countries.
Occupational mobility – resources can move easily between different types of work.

The immobility of labour

Geographical immobility of labour – in practice, labour may not be fully mobile because of regional house price variation, family & social ties, children in school etc.
Occupational immobility of labour – can occur because of insufficient education and training, a lack of transferable skills, inability to afford training etc.

Mobility / immobility of land and capital

Land is not geographically mobile but can be occupationally mobile, eg land used for agriculture or housing.
Capital can be both occupationally and geographically mobile, eg hand tools or vehicles, but heavy industry capital, eg a blast furnace, may not be mobile at all.

Specialisation & division of labour

Specialisation - the concentration of individuals, firms, or nations on producing a limited range of goods or services.
The **division of labour** - a form of specialisation where the tasks needed to produce an item are divided among workers.
Adam Smith argued that specialisation leads to increased productivity and economic growth in the *Wealth of Nations (1776)*

Advantages and disadvantages of specialisation and the division of labour

Advantages

Increased Productivity
- greater output from same resources
- allows workers to become more skilled & experienced in specific tasks, leading to higher efficiency
- develop specialist machinery, more automation

Lower Costs
- reduced training time and waste

Economies of Scale
- mass production possible including assembly lines
- larger quantities of identical goods can be produced more efficiently.

Disadvantages

Higher staff turnover
- workers may find repetitive tasks monotonous & unrewarding, leading to job dissatisfaction.

Dependency
- overreliance on one work/task/factory makes units vulnerable to staff illness or economic shocks.

Structural unemployment
- workers trained in fewer skills
- machines can replace some labour tasks (technological unemployment)

Lack of variety
- Mass produced goods can reduce consumer choice

Money and its role in exchange

Money – anything generally accepted in payment of a debt; removes the needs to barter, avoiding the double coincidence of wants
Characteristics of money: acceptable to all, portable, durable, easily divisible, uncounterfeitable and scarce in supply.

The Four Functions of Money

Medium of exchange –money facilitates transactions between buyer and seller; specialisation and the division of labour requires a means of exchanging goods and services; money promotes this.
Unit of account - a nominal unit of measure used to value/cost/price products, assets, debts, incomes and spending
Store of Value – an asset that holds value over time
Standard for deferred payment – the accepted way in each market to settle debt

Economic Systems: Free Market Economies

Economic system

Economic system is a network of individuals, organisations and institutions used by a society to resolve the basic problem of **what, how much, how** and **for whom** to produce.

Characteristics of a free market economy

Also known as a laissez-faire, market or capitalist economy:

- Private ownership of resources
- Owners of resources and producers are free to buy/sell
- Economic agents are motivated by self-interest
- Consumers have sovereignty – they determine what is produced by being willing and able to buy goods and services
- Income depends on the market value of an individual's work
- Resources are allocated by the **price mechanism** (market mechanism)

Free market economies still require the allocation of property rights and a legal system to protect them.

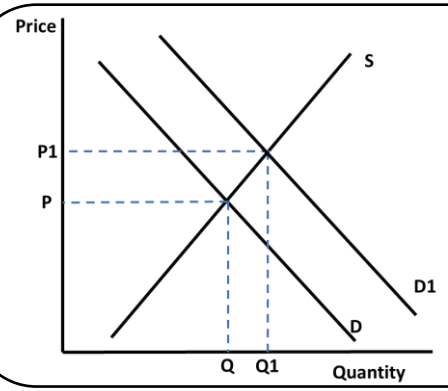
Advantages of free market economy

- Resources can be bought and sold
- Consumer sovereignty
- Freedom of choice
- Profit-motive and self-interest incentivises
- Incentive to worker harder for higher wages; productivity rises
- Firms face competitive forces driving down prices
- Incentive to innovate and invest in new ideas (dynamic efficiency)

The invisible hand

Adam Smith's 'invisible hand' - if economic agents act in their own best interests, the forces of demand and supply in the market can promote an efficient allocation of scarce resources for society

The price mechanism in action



- If consumers exercise their sovereignty and are willing and able to buy more of a good, the market demand curve shifts right
- Suppliers are incentivised to extend supply to meet the demand and can increase price to reduce the excess demand
- This causes the market price and quantity to increase
- The market has allocated more scarce resources to the production of this good – the quantity has increased.

Disadvantages of a free market economy

- Income/wealth inequality, and poverty
- Market failure can reduce social welfare
- Lack of provision of public goods
- Over-provision of goods with negative externalities
- Under-provision of goods with positive externalities
- Information gaps may cause market failure
- Unemployment/worker exploitation/low pay for some
- Environmental depletion/degradation
- Resources may be wasted on advertising and marketing
- Firms may develop monopoly power and push up prices
- Macroeconomic instability

Friedrich Hayek

Hayek came from the *Austrian School* of economics. He had a strong belief in the individual in an economy rather than government. In the 1930s **Keynes** supported active government intervention to stimulate growth, whereas Hayek did not. Hayek favoured market economies – he thought a small group of individuals in government would never have enough information to meet people's needs.

Economic Systems: Command Economies & Mixed Economies

Characteristics of a Command Economy (Centrally planned)

- Government owns and allocates resources deciding what, how and for whom to produce
- Government sets productions targets and growth rates according to its view of people's wants
- Goods are allocated through rationing
- Workers are given job by the government
- Market prices do not inform resource allocation
- Queuing is used to ration scarce goods

Advantages of a Command Economy

- Resources are allocated by the government to maximise social welfare
- Relatively even distribution of income/wealth
- Workers are given jobs by the state; there is no unemployment
- Adequate provision of public goods
- Government should take externalities into account in decision-making
- Environmental protection possible
- Government can invest in economy's infrastructure easily
- Policies to manage the macroeconomy
- Welfare safety net
- National interest considered rather than individual profits

Karl Marx

In his *Communist Manifesto*, **Marx** defined a command economy as *'common ownership of the means of production'* . **Marx** argued free markets are chaotic and there is often surplus labour; labour specialisation and population growth push wages down – workers are exploited (not paid the value they add to production). He argued that capitalism would eventually push workers towards revolution against the capital owners. Communism is not the same as Socialism, but both favour more government intervention in the economy.

Disadvantages of a Command Economy

- Danger of government failure
- Difficult for the government to set and correct output planning targets and fix prices appropriately
- Government may not have enough information to make good decisions eg malinvestment by state
- Very bureaucratic – lots of red tape which reduces efficiency
- Underemployment
- Lack of choice for consumers
- Lack of incentives to be innovative and entrepreneurial
- Lack of incentives to work hard, causing lower productivity
- Corruption is likely to develop
- Shadow market activity can flourish

Mixed economy

There is a **mix** of private and public (government) sectors
Resources are allocated by the **price mechanism,** when it works efficiently, but the **government intervenes** to correct market failures
Aims to achieve the best aspects for both free market and command economies while avoiding their disadvantages.

Traditional Economies

Traditional/subsistence economies are those characterised by family groups, low productivity, little specialisation, barter trade and no surplus production for investment
eg in world's most underdeveloped regions

Transition Economies

Transition economies are in the process of moving from a command economy to a mixed/free market economy. Markets are liberalised, state assets are privatised, state subsidies are removed. This can cause some short-term problems such as inflation and unemployment
eg Cuba, Eastern European countries

Demand

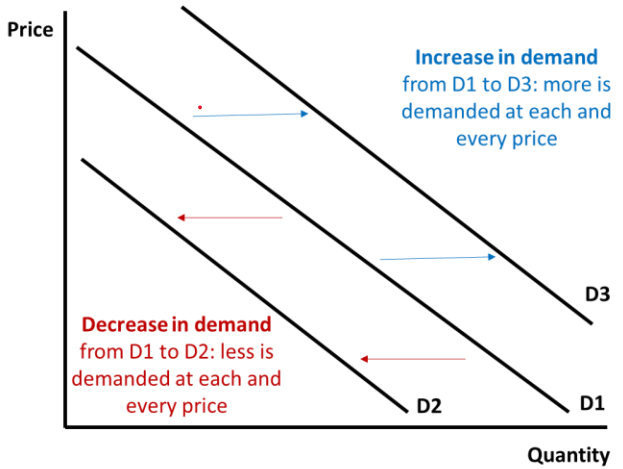
Demand concepts

Effective demand – demand supported by intention and ability to buy
Latent demand – willingness to buy but not yet ability to buy
Joint or complementary demand – demand for one good is closely linked to the demand for another, ie two or more goods that go well together
Competitive demand - two or more goods that are close substitutes for each other
Derived demand – when demand for one product drives the demand for another (eg demand for factors of production driven by demand for final goods)
Composite demand – good is demanded for more than one use
Individual demand – a consumer's demand for a good/service
Market demand – all consumers' demands in the market summed together

Shifts in demand (non-price determinants of demand)

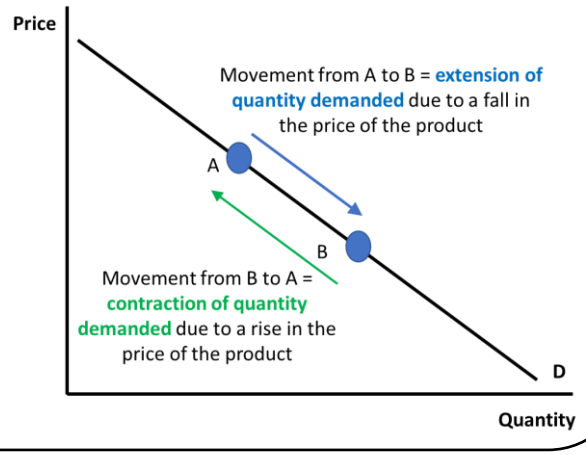
Factors causing a shift in demand:

- Change in tastes/preferences
- Change in incomes
- Change in the price of related goods (complements or substitutes)
- Change in size/structure of the population
- Changes in interest rates
- Changes in the law
- Changes in expectations



Movements along the demand curve

Law of Demand – as price falls, the quantity demanded increases and vice versa. **D**emand slopes **d**ownwards to the right
Extension in demand – a movement along the demand curve from A to B (lower P, higher Qd)
Contraction in demand – a movement along the demand curve from B to A (higher P, lower Qd)



Why the demand curve slopes downwards

Substitution effect – consumers substitute in favour of the good that become relatively cheaper; if price of good X falls, consumers buy more of good X
Real income effect – if the price of good X falls, the consumer buying good X will gain purchasing power; this extra 'income' available for spending can be used to buy more X

Ceteris Paribus

Ceteris paribus – all other influencing factors are held constant
The demand curve is drawn "ceteris paribus". Other factors affecting demand, such as income and tastes, are held constant to show how demand varies with price.

Law of Diminishing Marginal Utility

Total utility – the total satisfaction the consumer gets from purchasing units of a good. Rational consumers aim to maximise their total utility.
Marginal utility - the change in total utility from consuming an extra unit of a product.
Law of Diminishing Marginal Utility – as a consumer buys and consumes more units of a good, the extra satisfaction gained diminishes. This means at higher quantities, consumers are less willing to pay a higher price, helping to explain the downward sloping demand curve.

Supply

Supply concepts

Joint supply – two or more goods that derive from a single production process; a change in the supply of one good leads to a change in the supply of a by-product

Individual supply – a producer's supply of a good/service

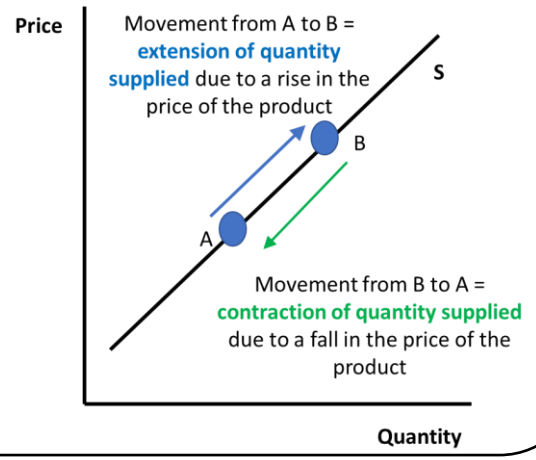
Market supply – all producers' supplies to the market summed together

Movements along the supply curve

Law of Supply – as price falls, the quantity supplied decreases and vice versa. Supply slopes upwards to the right

Extension in supply – a movement along the supply curve from A to B (higher P, higher Qs)

Contraction in supply – a movement along the supply curve from B to A (lower P, lower Qs)



Why the supply curve slopes upwards

Higher market prices motivated firms to supply more as they expect more profit

Producing more increases the marginal cost of production so firms need higher prices to cover these costs (assumes Law of Diminishing Returns)

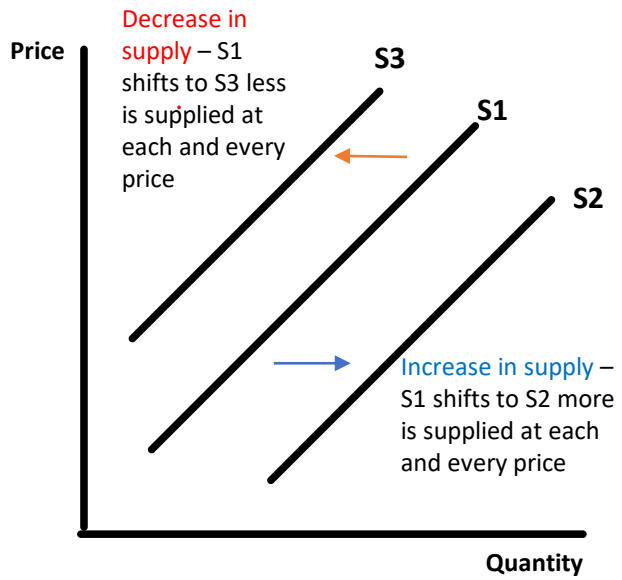
Ceteris Paribus

Ceteris paribus – all other influencing factors are held constant. The supply curve is drawn ceteris paribus. Other factors affecting supply, such as costs of production, are held constant to show how demand varies with price

Shifts in supply (non-price determinants of supply)

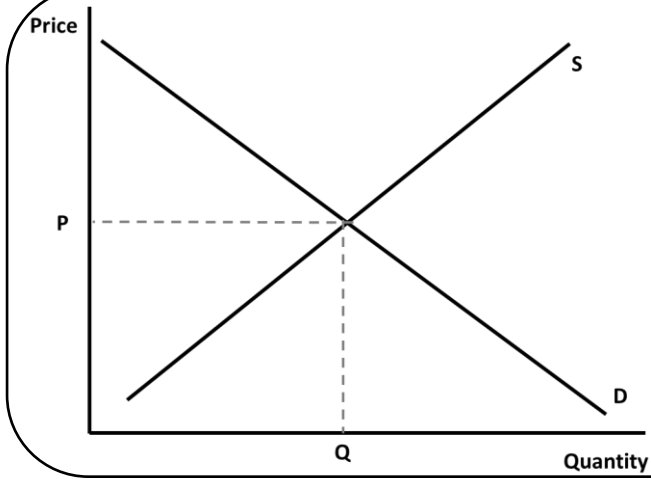
Factors causing a shift in supply:

- Change in the costs of production (raw materials, wages, energy....)
- Change in production technology
- Change in weather/climate
- Events such as strikes, pandemic
- Changes in indirect taxes
- Changes in producer subsidies
- Changes in the price of substitutes in production
- Changes in the number of firms supplying to the market



The Market

The market is created by the interaction of buyers (demand) and sellers (supply)

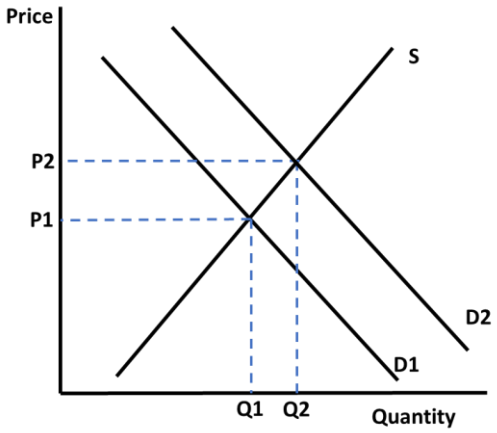


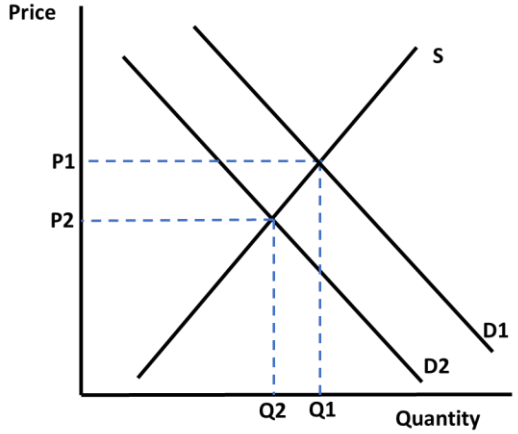
Equilibrium = a state of rest

- At equilibrium E1, there is one unique price P1, where the plans of producers match the plans of consumers
- The quantity demanded equals the quantity supplied at P1
- This is sometimes called the *market-clearing* price.

Market: shifts in demand and supply, & interrelated markets

Shifts in demand





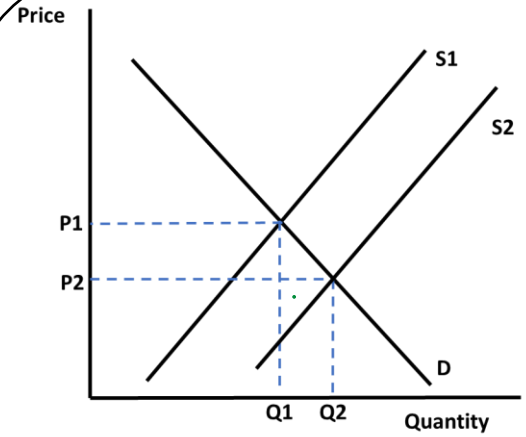
Increase in demand

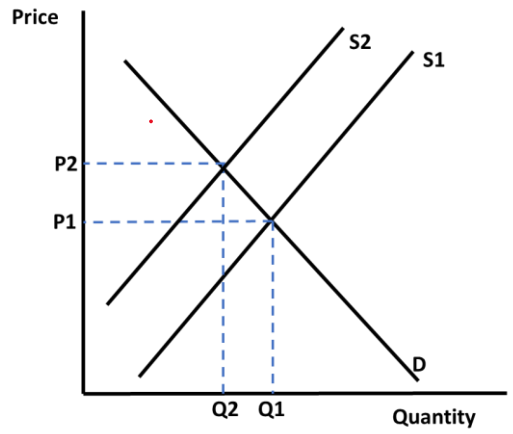
- Demand shifts right from D1 to D2
- At original price P1, there is now an excess demand.
- This signals to producers to increase price and extend their supply from Q1 to Q2 to restore the market equilibrium.
- The new equilibrium is at P2 and Q2

Decrease in demand

- Demand shifts left from D1 to D2
- At original price P1, there is now an excess supply.
- This signals to producers to reduce price and contract their supply from Q1 to Q2 to restore the market equilibrium.
- The new equilibrium is at P2 and Q2.

Shifts in supply





Increase in supply

- Supply shifts right from S1 to S2
- At original price P1, there is now an excess supply, so price falls.
- This signals to consumers to extend their demand from Q1 to Q2 to restore the market equilibrium
- The new equilibrium is at P2 and Q2.

Decrease in supply

- Supply shifts left from S1 to S2
- At original price P1, there is now an excess demand, price rises.
- This signals to consumers to contract their demand from Q1 to Q2 to restore the market equilibrium
- The new equilibrium is at P2 and Q2.

Interrelated markets

Substitutes - if supply of a good shifts left, this increases the market price, so the demand for a substitute will shift to the right

Complements/joint demand – if the supply of a good shifts right, this decrease its market price, which will cause demand for the complement to shift right

Composite demand – if the demand for a good increases, the quantity increases, this causes supply to shift left in the market for the good that is in composite demand

Interrelated markets

Joint supply – if the demand for a good decrease (left shift), then the market equilibrium quantity falls, so the supply of a good in joint supply will decrease (shift left).

Derived demand – if the demand for a final good increases, then the demand for the factors of production used to produce it will also increase.

ALL EXAMPLES CAN BE DONE 'VICE VERSA' and all assume CETERIS PARIBUS

Price Elasticity of Demand (PED)

Price Elasticity of Demand

Price elasticity of demand – the responsiveness of quantity demanded of a good to a change in its price

$$\text{PED} = \frac{\%\text{ change in quantity demanded}}{\%\text{ change in price}}$$

Values for PED

PED is ***negative*** because the quantity demanded is inversely related to price.

The values of PED ranges from 0 to – infinity. The mid-value is -1

Inelastic demand: quantity demanded is not responsive to price changes; the % change in Qd is < the % change in P; value is between 0 and -1

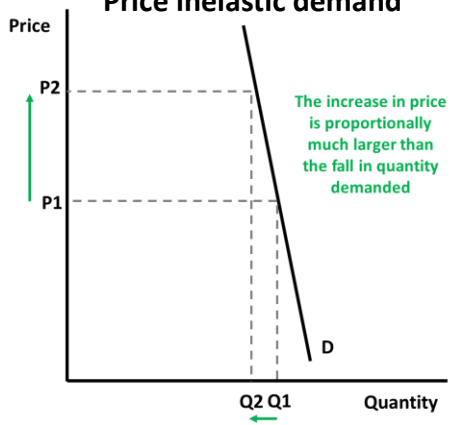
Elastic demand: quantity demanded is very responsive to price changes; the % change in Qd is more than the % change in P; value is between -1 and -∞

Unit or unitary demand: PED = -1; the % change in Qd is the same as the % change in P

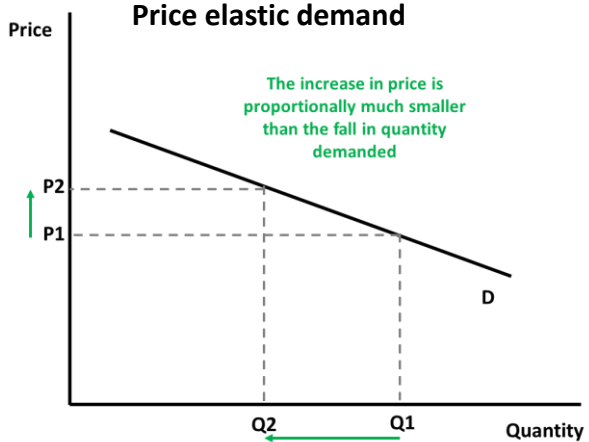
Perfectly elastic demand: PED = -infinity

Perfectly inelastic demand: PED = 0

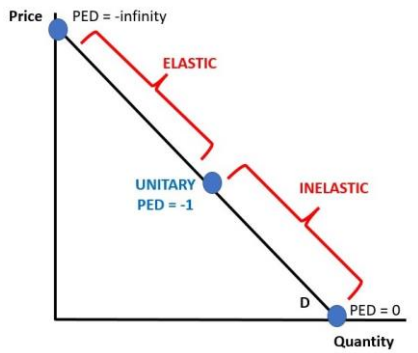
Price inelastic demand



Price elastic demand



PED along a straight-line demand curve



PED is NOT the gradient or slope of the demand curve

- PED = -1 at the mid-point of the demand curve
- PED is elastic at high prices
- PED is inelastic at low prices
- PED varies all the way along the demand curve

PED and total revenue (TR)

When PED is elastic:

- a rise in P leads to a more than proportionate fall in Qd, so TR falls
- a fall in P leads to a more than proportionate rise in Qd, so TR rises

When PED is inelastic:

- a rise in P leads to a less than proportionate fall in Qd, so TR rises
- a fall in P leads to a less than proportionate rise in Qd, do TR falls

When PED = unitary, TR will not change when price changes

Factors influencing PED

- Availability of close substitutes
- Cost of switching suppliers
- Breadth of product definition
- Degree of necessity
- Time frame when making choice
- Brand loyalty
- %of income spent on product
- Habitual demand

Uses of PED

- Determination of pricing policy/impact on revenue
- Indication of competition faced (number/closeness of substitutes)
- Price setting in price discrimination
- Government decision on which goods to tax indirectly

Price Elasticity of Supply

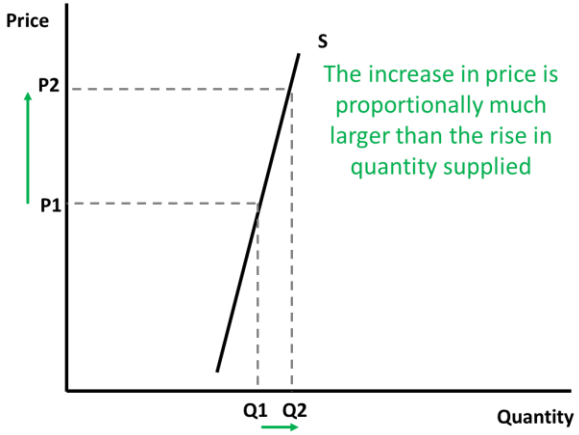
Price elasticity of supply – the responsiveness of quantity supplied of a good to a change in its price

$$\text{PES} = \frac{\%\text{ change in quantity supplied}}{\%\text{ change in price}}$$

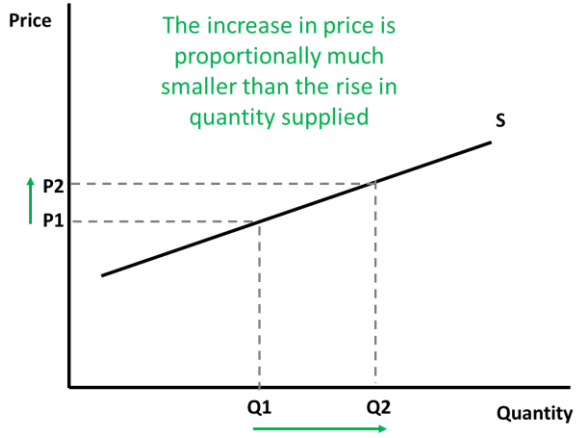
Values for PES

PES is ***positive*** because the quantity supplied is positively related to price
The values of PES ranges from 0 to + infinity. The mid-value is +1.
Inelastic supply: quantity supplied is not responsive to price changes; the % change in Qs is less than the % change in P; value lies between 0 and +1.
Elastic supply: quantity supplied is very responsive to price changes; the % change in Qs is more than the % change in P; value lies between +1 and +∞
Unit or unitary supply: PES = +1; the % change in Qs is the same as the % change in P
Perfectly elastic supply: PES = + infinity
Perfectly inelastic supply: PES = 0

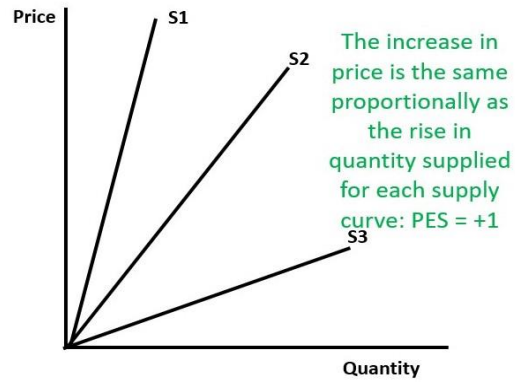
Price inelastic supply



Price elastic supply



Price Elasticity of Supply (PES)

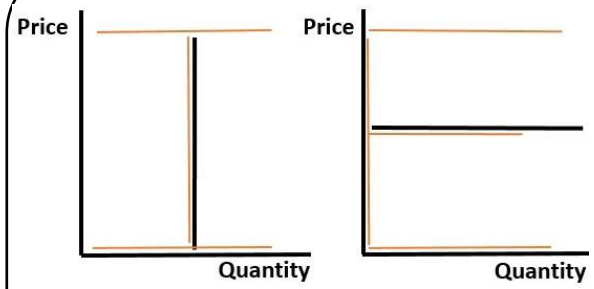


Any straight line supply curve that starts at the origin has PES = +1

Factors influencing PES

- Time period
- Bottlenecks in supply
- Breakdowns in supply chains
- Spare capacity
- Stock levels
- Availability of producer substitutes
- Ease of entry into the market

Elasticity diagram tips



Sketch a line across the top of your diagram
This creates an I for the Inelastic curve and an E for the Elastic one.
Applies to both demand and supply

Steep curves are relatively inelastic, shallow curves are relatively elastic

Income elasticity of demand (YED) and cross price elasticity of demand (XED)

Income Elasticity of Demand (YED)

Income elasticity of demand – the responsiveness of demand for a good to a change in income

$$\text{YED} = \frac{\%\text{ change in demand}}{\%\text{ change in income}}$$

Values for YED

YED is ***positive*** for normal goods (when income rises, the Qd increases)
YED is ***negative*** for inferior goods (when income rises, the Qd decreases)

Interpreting values of YED

Positive YED between 0 and +1: as income rises, there is only a relatively small increase in demand (and vice versa); this typically indicates the good is a necessity

Positive YED between +1 and + infinity: as income rises, there is a relatively large increase in demand (and vice versa); this typically indicates the good is a luxury

Negative YED: as income rises, there is a fall in the quantity demanded (and vice versa); this typically indicates the good is an inferior good

Normal v inferior goods

Normal goods are products or services for which demand increases as consumer income rises.

- When people's incomes go up, they tend to buy more of these goods.
- Examples of normal goods include restaurant meals, vacations, and higher-end electronics.

Inferior goods are products or services for which demand decreases as consumer income rises.

- When people's incomes increase, they typically buy less of these goods and may shift to higher-quality alternatives.
- Examples of inferior goods often include lower-quality or generic foods, used or older-model cars, and certain low-cost, generic products.

Cross elasticity of demand (XED)

Cross elasticity of demand – the responsiveness of demand for a good to a change in the price of a related good

$$\text{XED} = \frac{\%\text{ change in demand for good A}}{\%\text{ change in price of good B}}$$

Values for XED

XED is ***positive*** for **substitute goods** (when price of good B rises, the demand for good A increases and vice versa)
YED is ***negative*** for **complementary goods** (when the price of good B rises, the demand for good A decreases and vice versa)

Interpreting values of XED

Positive XED between 0 and +1: goods are weak substitutes
Positive XED between +1 and + infinity: goods are strong substitutes
Negative XED between 0 and -1: goods are weak complements
Negative XED between -1 and - infinity: goods are strong complements

Substitutes and complements

Substitutes are goods that can be used in place of each other to satisfy a similar need or desire, eg tea and coffee
Complements are goods that are typically consumed or used together because they enhance each other's value, eg tennis rackets and tennis balls

Uses of YED

- Effect of recession/growth on demand
- Business planning for product range
- Helps firms anticipate future demand

Uses of XED

- Marketing strategies, eg selling complements together/in bundles
- If a competitor changes its price, firms can work out the effect on their demand

Functions of Price & Consumer and Producer Surplus

Functions of Prices

Prices in markets help ***ALLOCATE*** the scarce resources between their competing uses via their signalling, incentivising and rationing functions.

Signalling

SIGNAL – prices provide key information to buyers and sellers; if the price changes because of a shift in demand, this signals to producers to adjust their output levels; if the price changes because of a shift in supply, this indicates to consumers to re-think how much they will purchase.

Incentivising

INCENTIVISE – higher prices can incentivise producers to extend supply as they anticipate more profit; lower prices can incentivise consumers to extend demand as they pay less for a good yielding the same utility (and vice versa)

Rationing

RATION – if supply is limited, the price rises, which rations the good to those who are most willing and able to pay;

When the functions of prices may not work effectively

Signalling - can fail if there are externalities; if the government imposes a maximum or minimum price; if the price set by producers is not at the equilibrium; if there is imperfect information
Incentivising – may be missing for public goods
Rationing – may not work if the government sets the price

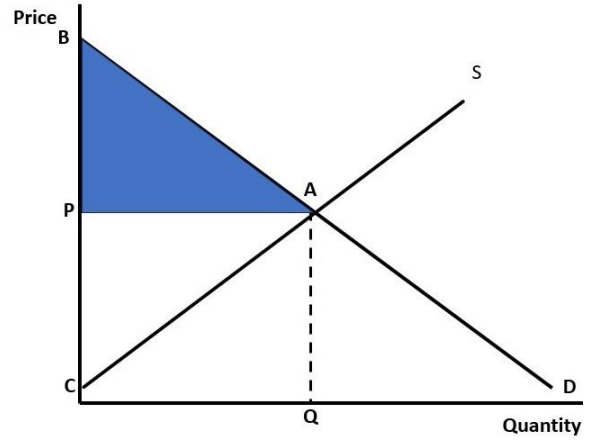
Consumer Surplus

Consumer surplus – the difference between the total amount that consumers are willing and able to pay for a good or service (indicated by the demand curve) and the total they pay (the market price). It is a measure of consumer welfare.

Producer surplus

Producer surplus - the difference between what producers are willing and able to supply a good for (indicated by the supply curve) and the price they actually receive (the market price). It is a measure of producer welfare.

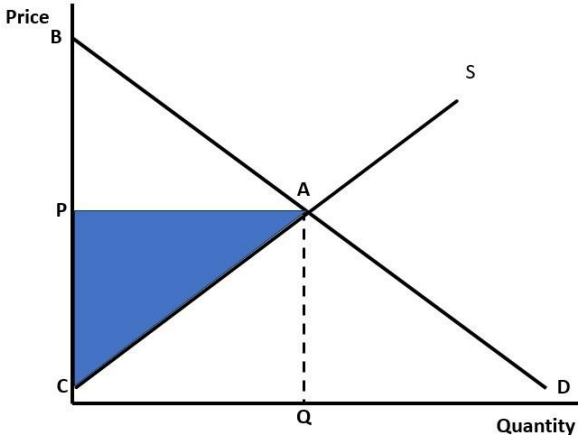
Diagram for consumer surplus



The consumer surplus is area APB.

If supply increases ie shifts right, the market price falls and the consumer surplus will increase (and vice versa)

Diagram for producer surplus



The producer surplus is area APC.

If demand increases ie shifts right, the market price rises and the producer surplus will increase (and vice versa)