Production and Productivity

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Production

Production: the process of converting inputs, including the services of factors of production such as capital and labour, into final output

Inputs: these are the resources or factors of production, land, labour, capital and enterprise, used in the production process

Output: the goods and services produced

Productivity: a measure of the efficiency with which inputs are transformed into outputs

Labour productivity: output per worker or output per labour hour

Total product, average product, marginal product

Total product TP: total output of goods and services produced by a firm or a production process within a given period, using a specific amount of input

Average product AP: output per unit of input (AP = TP/L where labour L is the variable factor of production)

Marginal product MP: the change in total product when one more unit of the variable factor is added (MP = change in TP/change in L, where L is the variable factor)

Law of Diminishing Marginal Returns

Law of Diminishing Marginal Returns: as the use of one variable input increases while others are held constant, the additional output gained will eventually diminish.

Increasing returns to the variable factor: as units of the variable factor are added to fixed factors, total output (TP) rises at an increasing rate

Diminishing returns to the variable factor: as units of the variable factor are added to the fixed factor, total output (TP) increases at a decreasing rate

Law of DR is a **short run** concept – at least one factor of production is fixed. (In the **long run,** all factors are variable and the scale of production can be changed)

## The relationship between TP, AP & MP

TP increases at an increasing rate as the quantity of labour rises to A = increasing returns to labour; MP increases (to D)

TP increases at a decreasing rate from A to C as L increases = **diminishing returns** to labour; MP is positive but decreasing (D to F)

TP decreases after C as labour increases = negative returns to labour; MP is negative

AP (=TP/L) increases while output grows faster than the labour input, i.e. up to B When TP grows more slowly than L after B, AP falls.


- MP is the gradient of the TP curve
- MP cuts AP at its maximum: if the additional to total product (MP) is greater than the average, (AP) the average will rise; if the additional to the total is lower than the average, the average falls.
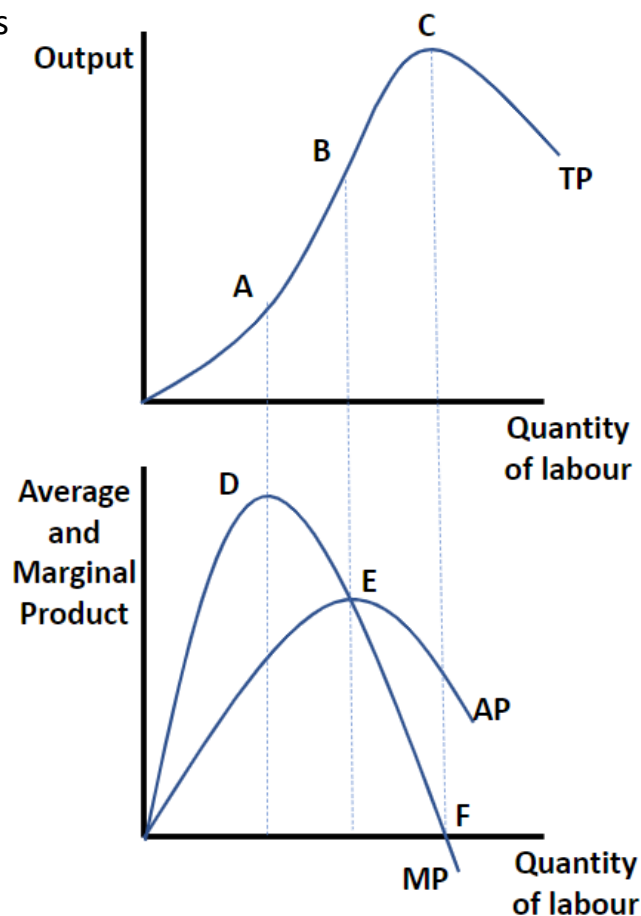
Short Run Costs

Short Run Costs: types, SR and LR

Fixed costs: costs that do not vary with output; the total costs incurred when output is zero

Variable costs: costs that vary directly with output

Short-run: the period of time in which at least one factor of production is fixed

Long-run: the period of time in which all factors of production are variable
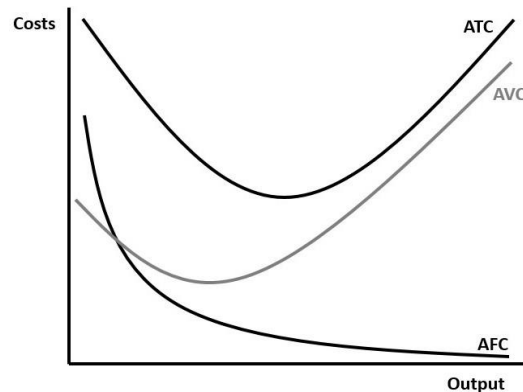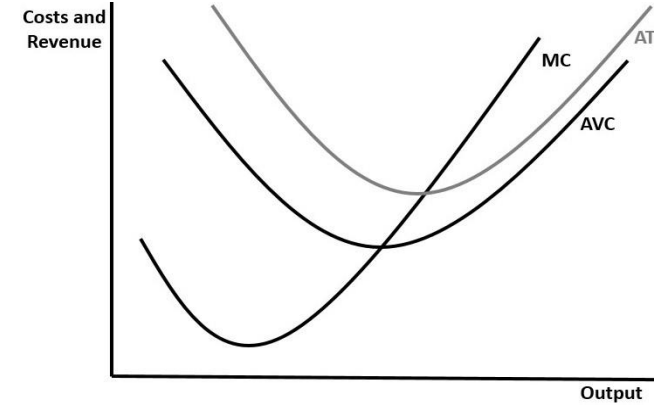
Total costs in the short run
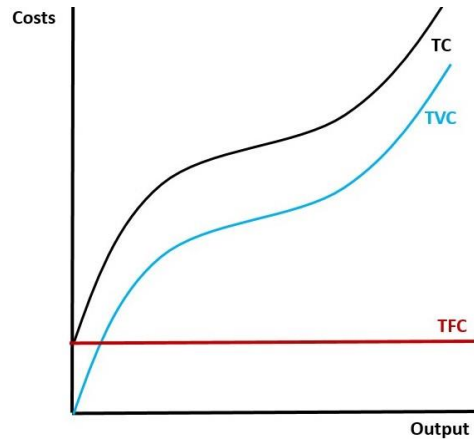
Total fixed costs TFC do not change with output

Total variable costs TVC increase as output rises, but the relationship is not linear because of the *Law of Diminishing Returns*

Total costs TC = TFC + TVC

Average costs in the short run

Average fixed costs AFC = TFC/Q; AFC decreases with output

Average variable costs AVC ; the curve is U-shaped, at lower outputs output rises faster than TVC; at higher outputs, TVC rise faster than output

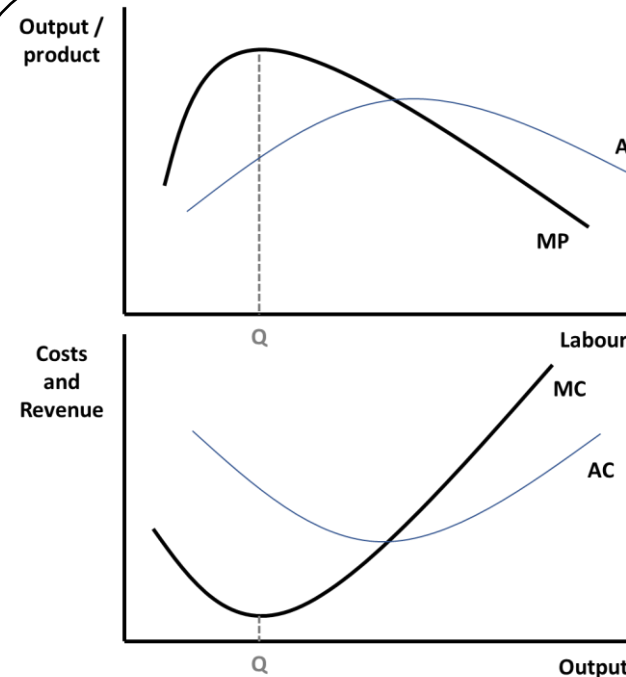**Average total costs ATC = AFC + AVC**

Marginal costs

Marginal cost MC is the change in total costs when output increases by one unit.

MC = change in total costs/change in output

- Marginal costs are variable costs; MC is the gradient of the TC

The relationship between AC and MC

Short-run explanation: LAW OF DIMINISHING RETURNS as extra variable factors are added to fixed factors, the fixed factors (e.g. capital) become increasingly scarce and marginal product falls (from Q), causing marginal cost to rise

MC always cuts AVC and AC curves at their minimum point.

- If you add more to the total than the current average, the average rises; if you add less to your total than the current average, the average falls

Economies of Scale

In the long run, all factors of production are variable, so a firm can 'scale up'. There can be *cost advantages when operating at a larger scale* known as **economies of scale** or increasing returns to scale; EoS = falling long run average costs (LRAC)

Internal v External Economies of Scale

Internal economies of scale arise because of the growth in output of the firm itself as it expands its own operations; efficiencies in production are gained reducing LRAC

External economies of scale arise from factors outside the firm because of the growth in the size of the industry or the business environment in which the firm operates, reducing LRAC for individual firms (small or large)

Internal Economies of Scale

Technical EoS = use of specialised equipment, automated manufacturing; law of increased dimensions e.g. containerisation,

Purchasing EoS = lower price per unit from bulk buying, larger firm can use its monopsony power

Managerial EoS = using specialist staff, a form of the division of labour, e.g. specialist production manager

Financial EoS = bigger firms are often less risky and can get bigger loans at lower interest rates than smaller firms

Risk-bearing EoS = larger firms can diversify to spread risk; makes business more resilient to changes in market conditions

External Economies of Scale

Sometimes called **agglomeration economies or clustering**

Infrastructure: industries cluster geographically to benefit from shared infrastructure, e.g. Media City in Salford; fishing industry in Grimsby

Knowledge & labour pool: in some regions there may be a strong knowledge sharing environment e.g. City of London, Cambridge Uni & Science Park

Supplier networks: clusters of related businesses can lead to a strong supplier network e.g. specialised components in automotive industry

Long run average cost (LRAC) curve

LRAC curve is drawn assuming there is an infinite number of plant sizes that a business can use:
- If LRAC is falling when output is increasing, then the firm is experiencing **economies of scale**.
- Conversely, when LRAC eventually starts to rise then the firm experiences **diseconomies of scale**
- If LRAC is constant, the firm is experiencing **constant returns to scale**
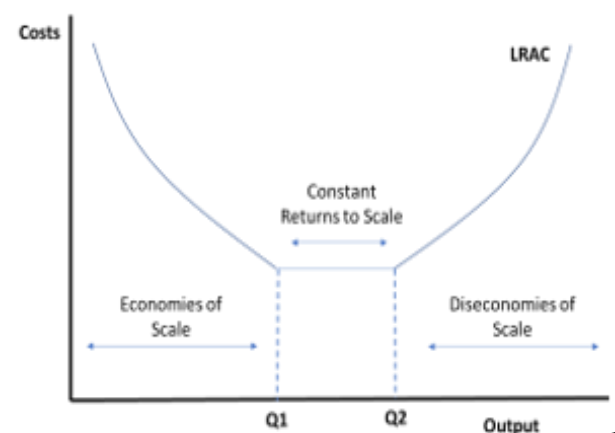
External economies of scale; shift down in LRAC

External EoS cause the firm's LRAC to shift down – lower average costs at every output level.
External diseconomies of scale would shift it up
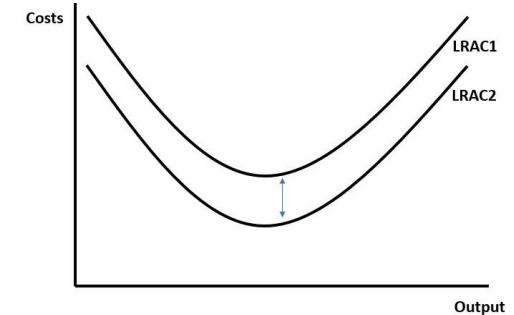
Minimum efficient scale MES)
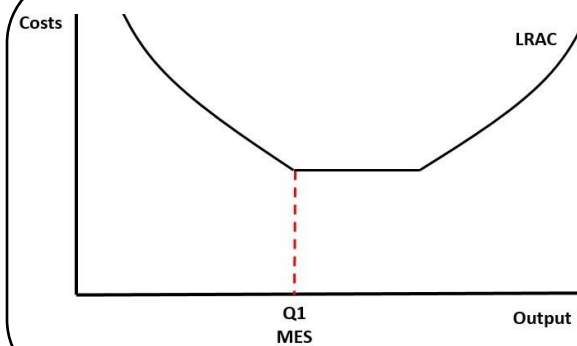
MES: the lowest output Q1 where the firm is at the **lowest point on the LRAC** The business achieves **productive efficiency**.
If the MES is low relative to total market output, then it is likely there will be a large number of small firms in the industry and vice versa

Revenue & Profit

Revenue: AR, MR and TR, for price-makers and price-takers
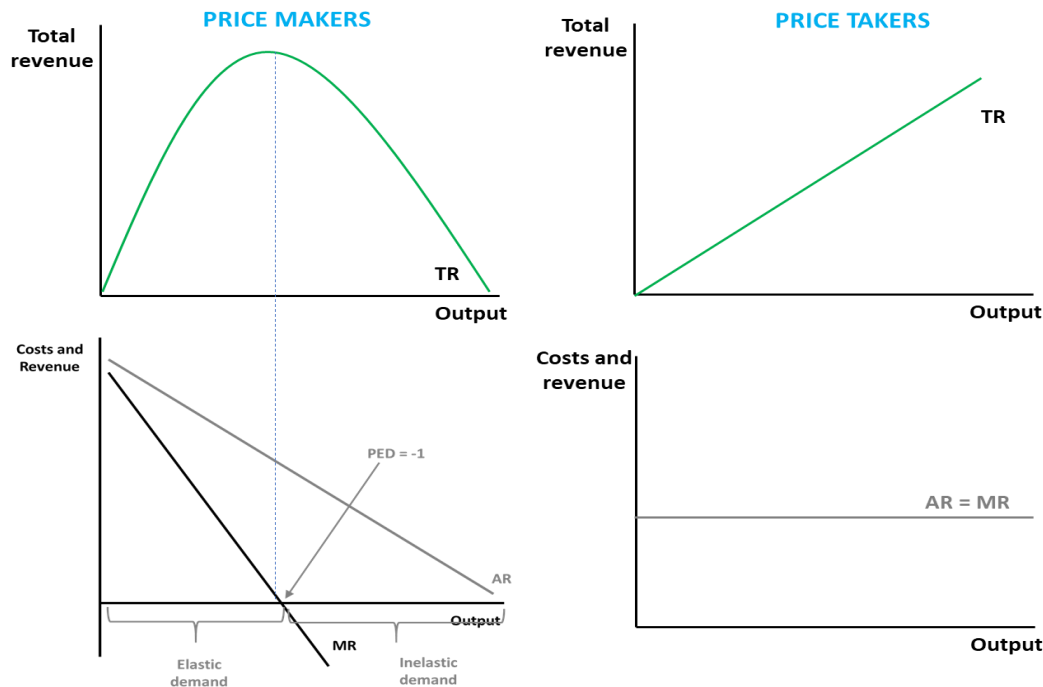
Total revenue: quantity sold x price; **TR = Q x P**

Average revenue: revenue per unit sold; **AR = TR/Q**

Marginal revenue: the change in TR when one more unit is sold; **MR = change in TR/change in Q**

Price-maker: a firm with some market power that can alter prices

Price-taker: a firm with no market power, selling at the market price only

For **price makers:** Marginal Revenue (MR) is less than Average Revenue (AR), because to sell additional units, the price of **all** units needs to be lowered. TR is max when MR = 0.

For **price makers:** Marginal Revenue (MR) is equal to Average Revenue (AR), because every unit is sold at exactly the same price. TR is upwards sloping with constant gradient.

Profit (TR-TC = profit)

Profit = total revenue (TR) - total costs (TC)

Normal profit: the profit that the firm could make by using its resources in their next best use; it is the profit needed to keep the firm in business; it is effectively a cost of production. Normal profit is earned when TR=TC

Supernormal profit: also called abnormal profit; any profit over and above normal profit

Profit

Supernormal profit exists when TR>TC; it is maximised when the vertical difference between TR and TC is greatest
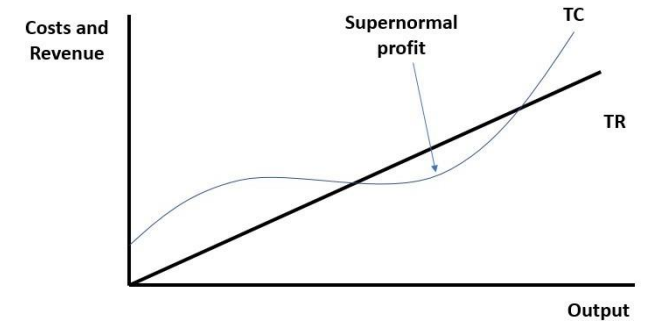
Profit maximisation MC=MR
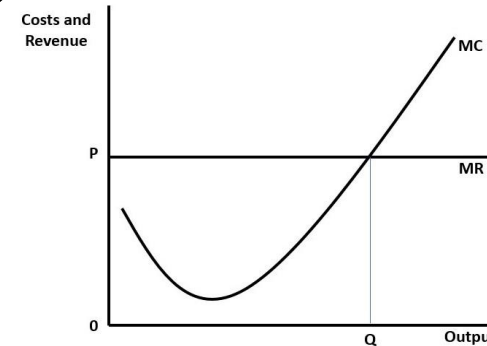
Up to output Q, **MR>MC** so for each extra unit produced more is added to revenue (MR) than is added to costs (MC) so profit rises.

Beyond output Q, **MR<MC** so for each extra unit produced less is added to revenue (MR) than is added to costs (MC) so profit falls

A common simplifying assumption is that a firm will aim to maximise its profits. (This assumption can be broken down in evaluation).

Profit-maximisation occurs at the out where MC=MR.

Technological change & business objectives

Invention & Innovation

Invention: creation of a new idea, concept, method, design or product, that is entirely original or a significant improvement over existing solutions

Innovation: process of taking an invention/new idea and applying it in a way that creates value, often by bringing it to the market, improving upon it, or finding new uses for it

Technological Change in Production

Automation: Technological advancements, such as robotics, have automated various production processes, improving precision and efficiency.

Digitalisation: Adoption of digital technologies streamlines production through data analysis and real-time monitoring to optimise production schedules and detect faults early.

Increased Productivity: technologies often lead to higher output per unit of input

Efficiency Gains: technologies can reduce waste and resource usage; costs may be lower and environmental impact may be reduced

Lower costs: enhanced production efficiency can result in economies of scale, lowering average costs.

Impact on Product Development and Markets

New products: Companies may invest in research and development (R&D) to create innovative products.

New markets:
Technological advancements can enable businesses to enter new markets.

New industries: New technologies can give rise to entirely new industries.

Creative Destruction: Innovation and technological advances may render existing products or industries obsolete.

Influence of technological change on Market Structure

Disruption of Traditional Markets: Innovative technologies can disrupt established market structures.

Creation of Oligopolies: Certain technologies may lead to the dominance of a few large firms.

Platform Markets: Technology facilitates the rise of new market structures such as platform-based markets such as App stores and social media platforms

Globalisation: Technology enables companies to operate on a global scale, impacting market dynamics e.g E-commerce

Types of business objectives

Profit-maximisation: firm aim to make the maximum profit possible (occurs where MC = MR; this is also the loss-minimising condition)

Revenue maximisation: firm aims to maximise total revenue (occurs where MR = 0)

Sales growth maximisation: firm aims to have largest market share without running at a loss (occurs where AC = AR)

Profit satisficing: managers aim to make enough profit to satisfy the shareholders

Diagram showing different business objectives

Profit-maximisation occurs at output Q1, where MC=MR

Revenue maximisation occurs at Q2, where MR=0

Sales maximisation occurs are Q3, where AC=AR
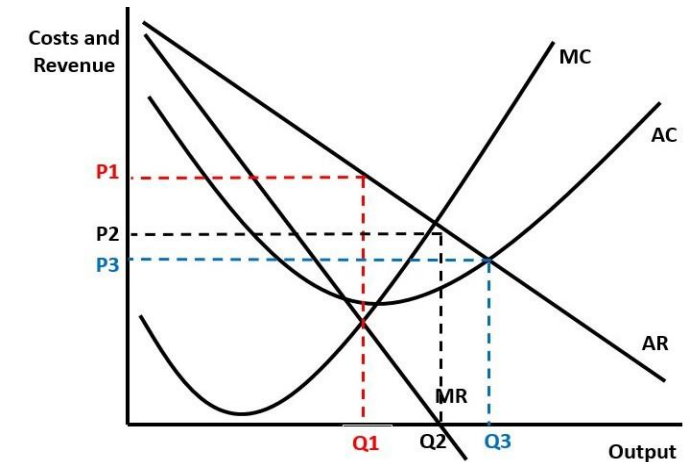
Profit satisficing
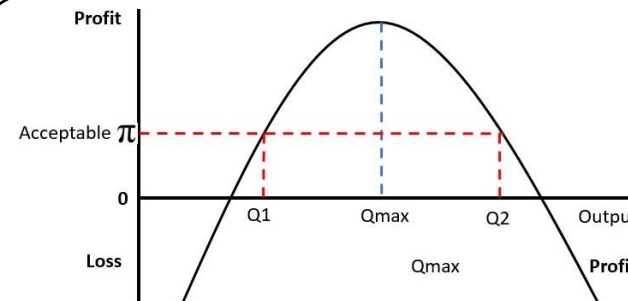
Managers can choose any output between Q1 and Q2, depending on their objectives, because between these output levels, there is enough profit to satisfy the shareholders.

Objectives of firms, profits & shut down points

Other business objectives

Business survival: many businesses struggle to survive in a recession ie when market conditions change in a negative way; the goal of survival becomes more important. This may include finding ways to rationalise and cut costs or require innovative ways of boosting revenues; covering their variable costs in the short run may prevent the need to shut down.

Quality: a firm may relax its short term profit-maximisation to improve the quality of its product; this could be beneficial for longer term profit.

Environmental and social obligations (sometimes called as Corporate Social Responsibility CSR): some companies set targets to reduce carbon emissions and become carbon neutral and aim for more waste reduction.

Other public interest objectives e.g **not-for-profit** organisations = firm that operate commercially but aims to improve social welfare & environmental goals; profits are reinvested for social purposes

Divorce of ownership from control

Divorce of ownership from control: separation between owners (shareholders) who invest capital and managers who make day-to-day decisions.

Conflict of objectives: Shareholders v managers

- Shareholders want high dividends and stock price appreciation, which may be achieved through short-term profit maximization.
- Managers may prefer long-term goals like growth, market share, or employee satisfaction, even if they sacrifice immediate profits.

Consequences of this divorce:

Short-termism: Pressure from shareholders can lead to decisions that neglect long-term investments in research and development or employee training, potentially hampering future growth.

Agency problems: Managers may act in their own self-interest, such as increasing executive compensation, even if it harms shareholders' profits.

Shut down points

If a firm is making losses it may decide to shut down. In the short run, it is assumed it will still have to pay its fixed costs.

The **firm will shut down in the short run** if:

Price per unit (AR) < average variable cost (AVC) or when total revenue (TR) < total variable cost (TVC)

In the long run, all costs are variable, so the **firm will shut down in the long run** if:

Price per unit (AR) < average total cost (ATC) or when total revenue (TR) < total cost (TC)

Diagrams showing short run shut down points

For a price taker

For a price maker
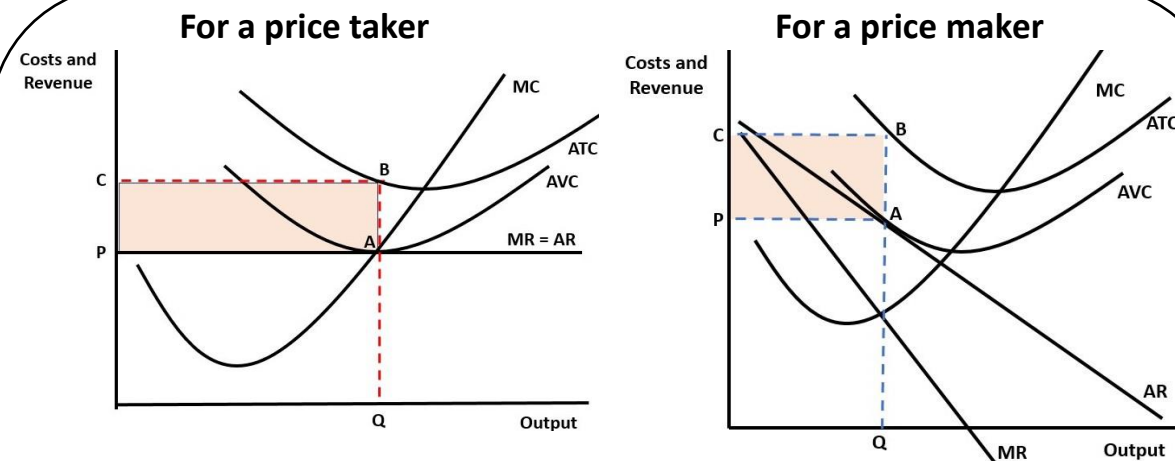
In both cases, the firm is minimising its losses by producing where MC=MR. Losses are area ABCP. Point A is the shut down point (where AVC = AR) If there was any increase in variable costs and/or decrease in revenue, then the firm would shut down.

In the long run, *there is no distinction between variable and fixed costs because all costs are variable; the diagrams would be the same, but without the ATC curves drawn on __AND__ the AVC curves would be labelled ATC*

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Economic efficiency

Efficiency is about a society making **optimal (best) use of our scarce resources** to help satisfy changing wants and needs.

Allocative efficiency

Allocative efficiency: Allocative efficiency occurs when the value that consumers place on a product (reflected in the price they are willing and able to pay) equals the marginal cost of factor resources used up in production. The condition required for allocative efficiency in a market is that **price = marginal cost of supply (P = MC);** on a diagram this is where **AR = MC**

Allocative efficiency in a competitive market
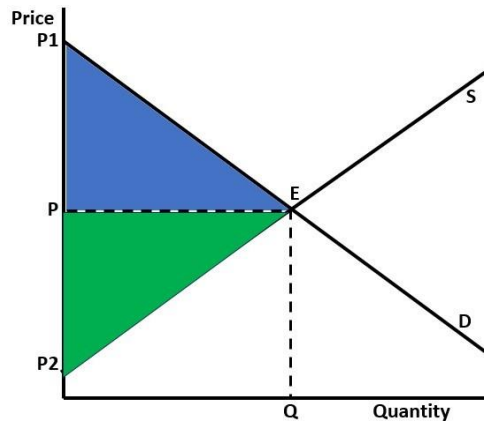
Up to output Q, the price consumers are willing to pay (shown by the demand curve) is higher than the cost of the scarce resources used to produce the good (shown by the supply curve), so it is efficient to allocate scarce resources to produce these units. For output units beyond Q this is no longer the case.

In a competitive market, social welfare (**consumer surplus** + **producer surplus**) is maximised at when the equilibrium quantity is produced
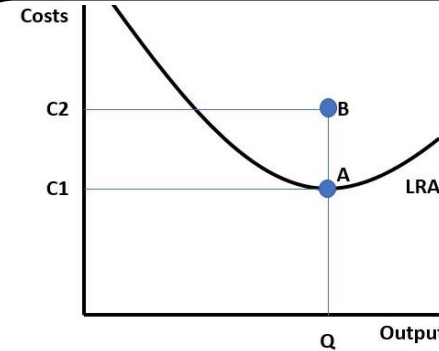
Productive efficiency

Productive efficiency: when a firm is producing goods or services at the lowest possible average cost, using the fewest possible resources.
- Firm produces the maximum output with the given inputs, without any waste or inefficiencies.

Productive efficiency is achieved at an output that **minimises the unit cost (AC) of production**

X-inefficiency

X-inefficiency: when a firm is not operating at its optimal level of efficiency due to internal factors such as poor management, lack of motivation, and bureaucratic inefficiencies.

Diagrams showing productive efficiency and X-inefficiency

Productive efficiency is achieved at output Q because the firm is operating at its minimum LRAC (at A or cost per unit C1)
If the firm faced average costs at C2 when its output was Q, it would be **X-inefficient**

Dynamic efficiency

Dynamic efficiency: achieving efficiency over time; it refers to ongoing *innovation* of products and production techniques and is all about long-term growth and development.

Product Innovation: when companies invest in R&D and introduce new products or services to increase their competitive advantage, reduce costs, and improve the quality of their offerings.

Process innovation: the improvement of existing processes or the development of new ones to increase efficiency and productivity e.g. automation

Creative destruction: Schumpeter's concept that states that innovation and technological change lead to the replacement of old technologies and products with new ones, leading to economic growth and progress.

Static v Dynamic efficiency

**Static efficiency:** the optimal allocation of resources at a specific point in time; optimising existing resources and processes, focused on efficiency and cost reductions

Dynamic efficiency: efficiency over time i.e. the long-term allocation of resources and the potential for continuous improvement and adapting to changing conditions; emphasis is on innovation, adaptability, and continuous improvement.

Perfect competition

Characteristics of perfect competition

- Large number of buyers and sellers (firms)
- Homogenous (identical) products
- Perfect information
- No barriers to entry or exit
- Firms are price takers - they cannot influence the market price; demand to the firm is perfectly elastic (horizontal) and P=AR=MR
- Supernormal profit is competed away in the long run

Perfect competition in the short run
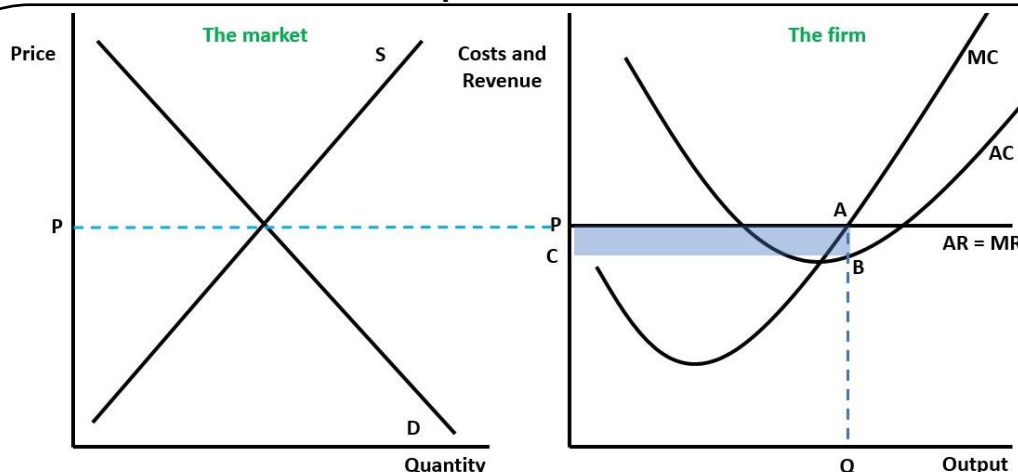
In perfect competition, the firm 'takes' the market price P. Assuming profit-maximisation, the firm will produce the output Q where **MC=MR**. At Q, AR is greater than AC, so profit per unit is AB. **Total supernormal profit is the shaded area ABCP**

Minimum losses in the short run

If the firm faced higher costs, so AC>AR at the output where MC=MR, then the firm is making losses.

- The firm will shut down if its revenue does not cover its variable costs (if AR< AVC) in the short run.
- The firm will stay open in the short run if AR>AVC

Perfect competition in the long run
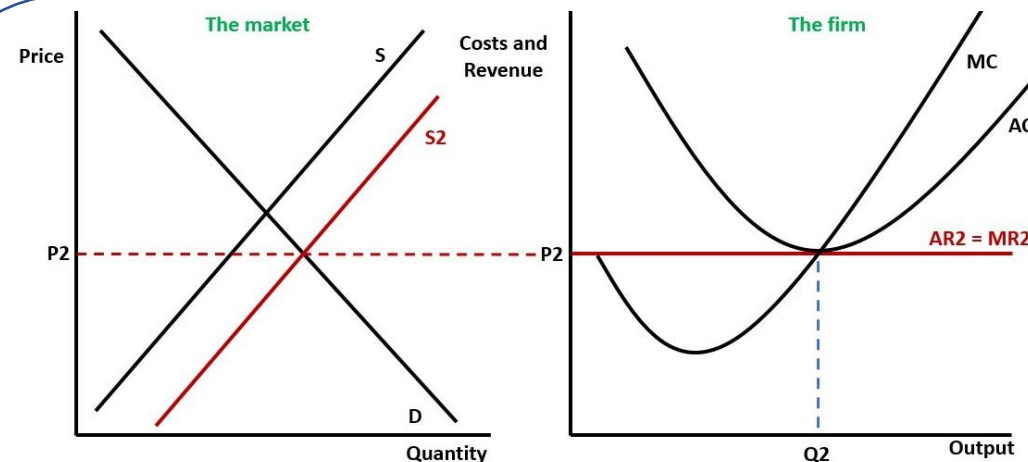
In the long run, because there are no barriers to entry, **new firms** will join the market to gain some of the supernormal profit. This causes the market supply curve to shift right and the **market price falls to P2.** The firm now has to take the new lower price P2: the profit-maximising output falls to Q2, where the firm is making **normal profit only**.
All supernormal profit is competed away by the entrance of the new firms
If the firm had been making losses in the short run, some firms would leave the market & market supply shifts left; the market price would rise until the long run equilibrium is restored

Perfect competition & efficiency

Allocative efficiency (P=MC): firms are allocatively efficient in both the short and long run; as a price taker P=MR so when MC=MR, P=MC
Productive efficiency (min AC): in the long run, the firm will produce where the AC curve is at its minimum, so firms are productively efficient
Dynamic efficiency; we assume firms make homogenous goods so there is little scope for innovation and differentiated to try to establish some market power.
However, it is worth noting that in the real world, firms in competitive markets often are very entrepreneurial and innovative, but these markets may not fully meet the theoretical criteria for perfect competition

Monopoly

Characteristics of monopoly

- Single seller
- Unique products (with no/few substitutes)
- High barriers to entry
- Firms are price makers - they can set the market price though are constrained by demand – a higher price means a lower quantity demanded. Demand slopes downwards to the right D = AR , but MR is twice as steep because to sell more the firm has to reduce the price
- Supernormal profit can be earned in the long because barriers to entry are high

Monopoly in the short run
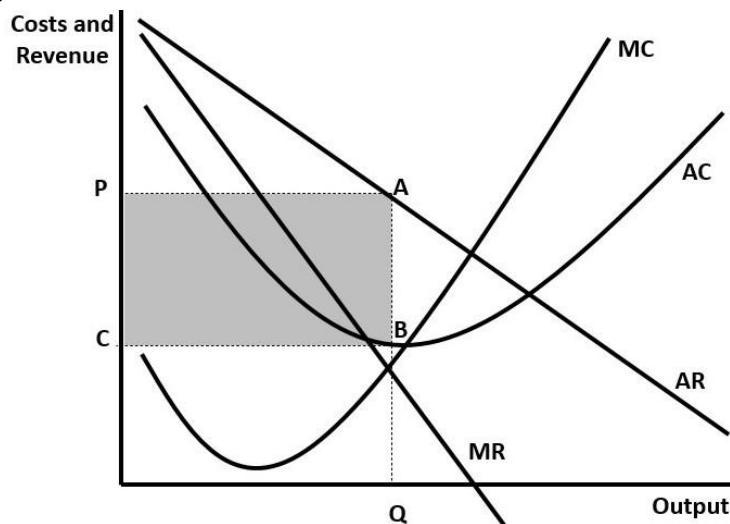
Assuming profit-maximisation, the firm will produce the output Q where **MC=MR**. It can charge price P according to the demand curve. At Q, AR is greater than AC, so profit per unit is AB. **Total supernormal profit is the shaded area ABCP**

Minimum losses in the short run

If the monopolist faced higher costs, so AC>AR at the output where MC=MR, then the firm is making losses.
- The firm will shut down if its revenue does not cover its variable costs (if AR< AVC) in the short run.
- The firm will stay open in the short run if AR>AVC

Monopoly in the long run

In the long run, because there are high barriers to entry, **no new firms** can join the market so the **monopolist can earn the supernormal profits in the long run.**
The diagram for the long run is the same as for the short run
If the firm had been making losses in the short run, it would have to shut down in the long run unless demand increases (boosting revenue) or the firm is able to cut its costs.

Monopoly v monopoly power

In theory, there is **one supplier** in a monopoly, but a firm that has more than 25% of a market can wield **monopoly power**

Natural monopoly

Natural monopoly: a single firm can efficiently serve the entire market due to significant *economies of scale* e.g. utilities, transportation networks
- High fixed costs relative to variable costs and **declining average costs**
- High minimum efficient scale

Natural monopolies can benefit consumers by providing services at lower costs than multiple competing firms would achieve, but they require regulation to prevent potential abuse of market power.

Monopoly and efficiency

Allocative efficiency (P=MC): a monopoly is NOT allocatively efficient in either the short nor long run; P>MC.
Productive efficiency (min LRAC): the monopoly is NOT productively efficient – it produces to the left of the minimum AC
Dynamic efficiency; the monopoly has supernormal profits it can reinvest in the business – it can use the profits for R&D and product and process innovation. The monopoly can therefore be dynamically efficient.
A monopoly that does not innovate may lose its market dominance and the barriers to entry in the market may weaken

Monopoly v competitive market
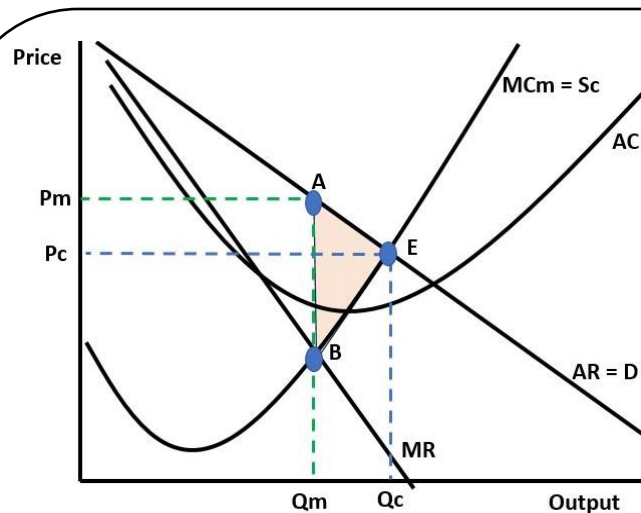
The monopoly produces where MC=MR; its chooses output Qm and charges price Pm.
If the market was competitive, the equilibrium is where D = Sc at price Pc and quantity Qc.
To maximise its profits, the monopoly restricts output and raises its price.

This creates a net welfare loss of ABE because the monopoly is not allocatively efficient. The units of output between Qm and Qc are all valued more highly by consumers than the marginal cost of producing them.

Monopoly costs v costs in competition

In the analysis above, there is a big *underlying assumption* that MCm = Sc i.e. that the cost structure faced by the monopoly is the same as the collective one for all the firms when the industry is competitive.
This may not be the case if the monopoly can gain **economies of scale**.
If Sc lies to the left of MCm due to higher costs because of smaller scale production by the competing firms, the monopoly price could be lower and its output higher than under perfect competition.
For a natural monopoly, the most productively efficient scale is the largest; it makes sense to gain the economies of scale, but the monopoly may need regulation or be nationalised to prevent profiteering from high pricing strategies

Disadvantages of monopoly

Higher prices: Prices are higher in monopoly than under competition Loss of allocative efficiency (P > MC); net welfare loss compared to competition
Inequality: may worsen because higher prices may affect those on lower-incomes harder (regressive)
X-inefficiencies: e.g. wasteful marketing spending because of the absence of market competition
Diseconomies of scale: may cause a loss of productive efficiency in the long run
Lack of choice for consumers: lower consumer welfare
Monopsony power: firms with market power can often use this to apply pressure on their suppliers to reduce prices
Supernormal profit: this may not be reinvested in the business but distributed to shareholders and/or used to increase CEO/manager pay

Advantages of monopoly

Supernormal profit: can be used to fund extra capital investment & research projects that spark innovation; dynamic efficiency
Economies of scale: monopoly may have much lower costs than if industry was made up of smaller firms; this is especially the case for a natural monopoly
Increase international competitiveness: a domestic monopoly with economies of scale can compete more successfully on price and cost in international markets
Regulation: laws and industry regulators can ensure monopolies do not exploit consumers with excessive prices and that they maintain quality
**Enables price discrimination:** can help some lower-income families. Indeed, some services might be provided free to consumers.

Monopolistic competition

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Characteristics of monopolistic competition

- Large number of buyers and sellers (firms)
- Differentiated products
- Low barriers to entry or exit
- Firms are price makers - they can influence the market price because products are not identical; demand to the firm slopes downwards to the right and MR is twice as steep as AR
- Supernormal profit is competed away in the long run

It is important to remember that the emphasis in monopolistic competition is on competition; the low barriers to entry enable firms to join easily and compete in the market

Monopolistic competition in the short run
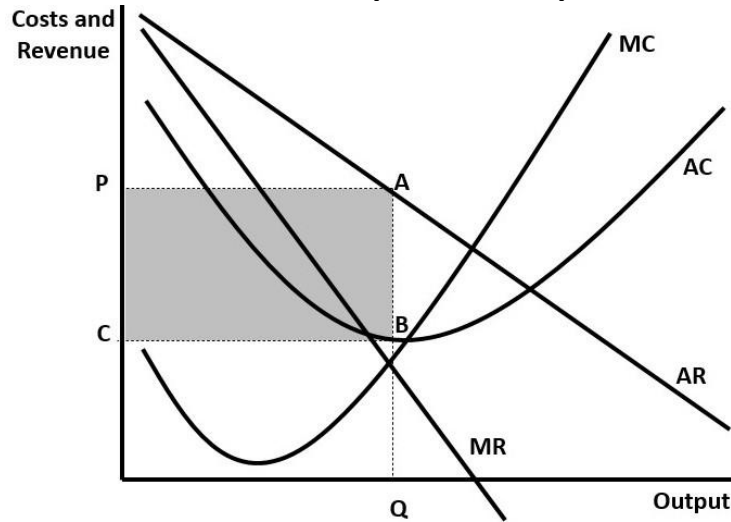
Assuming profit-maximisation, the firm will produce the output Q where **MC=MR**. It can charge price P according to the demand curve. At Q, AR is greater than AC, so profit per unit is AB. **Total supernormal profit is the shaded area ABCP**

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If the firm faced higher costs, so AC>AR at the output where MC=MR, then the firm is making losses.
- The firm will shut down if its revenue does not cover its variable costs (if AR< AVC) in the short run.
- The firm will stay open in the short run if AR>AVC

Monopolistic competition in the long run
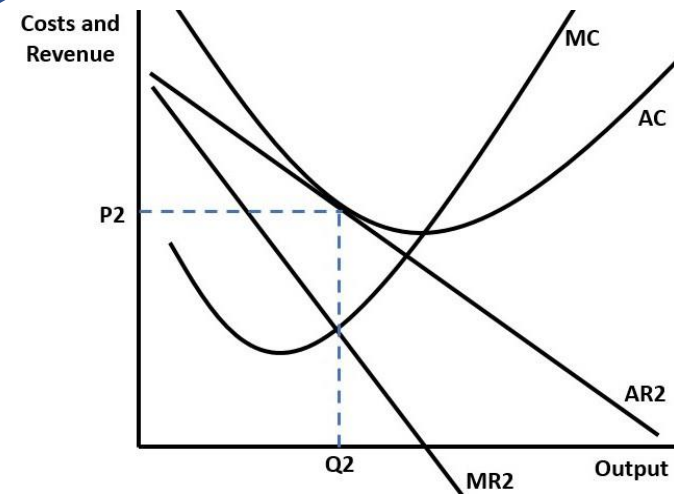
In the long run, because there are low barriers to entry, some **new firms** will join the market attracted by the supernormal profit Some consumers will switch to the new firm's product and demand for the existing firm will shift inwards to AR2

The existing firm's new the profit-maximising output is at MC=MR2. Output falls to Q2 and the price it charges falls to P2; At Q2 AC =AR2 so the firm is making **normal profit only**. **All supernormal profit is competed away** by the entrance of the new firms
If the firm had been making losses in the short run, some firms would leave the market & demand for the existing firm's product would increase

Monopolistic competition & efficiency

Allocative efficiency (P>MC): firms are not allocatively efficient in either the short nor the long run
Productive efficiency (min AC): in the long run, the firm is not producing where the AC curve is at its minimum, so firms are not productively efficient
Dynamic efficiency; supernormal profit is competed away in the long run making it more difficult for firms to be dynamically efficient
*One benefit to consumers is there is **product differentiation** – consumers have more choice than in perfect competition; firms are expected to advertise and aim to create brand loyalty (if they succeed the barriers to entry become stronger.*

Oligopoly

Characteristics of oligopoly

- Dominated by a small number of large sellers (firms)
- High concentration ratio
- Most likely differentiated products
- Barriers to entry or exit
- Firms are price makers - they can influence the market price because products are not identical; demand to the firm slopes downwards to the right and MR is twice as steep as AR
- Supernormal profit is possible in the long run

Concentration ratio

The **concentration ratio** measures the combined market share of a leading cluster of businesses in a clearly defined market. E.g. the five-firm concentration ratio is the sum of the market shares of the largest five firms as a %. (If the 5-firm CR is 60%+ this indicates an oligopoly)

Interdependence of firms

Firm in oligopoly are interdependent. They have to consider how the action of one firm affects other firms A firm's decision to change price, output, how it competes etc. can impact quickly on other firms. Firms try to anticipate their rivals' decisions; there is uncertainty

Competition v collusion

Competitive oligopoly – the firms compete
- Price war
- Stable/sticky/rigid prices & non-price competition

Collusive oligopoly – the firms act as a monopoly and make agreements together on pricing and output
- Tacit/informal; unspoken, hard to detect; may be due to **price leadership**
- Overt/formal/cartel; usually illegal; firms can face considerable consequences if caught

Price war (Competitive oligopoly)

Firms may engage in a price war (try to undercut each other's prices) to increase their market share.

Gainers in a price war
Consumers: lower prices, higher consumer surplus
Surviving firms: gain market share and increase longer term profit
Firms: may be able to use their monopsony power to depress the prices they pay to suppliers to cut costs and stop profit falling

Losers in a price war
Consumers: loss of choice if firm is forced to leave
Firms: lose profit in the short run
Firms: weakest firms may have to leave
Shareholders: may lose profit
Suppliers: may lose profit if they cannot charge such high prices

Stable prices (competitive oligopoly)

Oligopolistic firms may decide not to compete using price, but instead use **non-price competition** methods such as product differentiation, advertising and marketing, product innovation, loyalty schemes, customer service, special offers, free gifts etc. The **kinked demand curve** shows why prices may not adjust when the firm's costs change.

Kinked demand curve – explaining stable prices

The firm believes that if it raises price from P, others will not follow so its demand is elastic, but if it cuts if price, others will, so demand is inelastic.
This creates a kink in the D=AR curve; the MR curve will therefore have a disjointed section.
Normally if a firm's costs rise, the firm reduces output and increases price to maximise profits. Here the firm's costs can vary between MC1 and MC2 with no change in price; prices are sticky at P
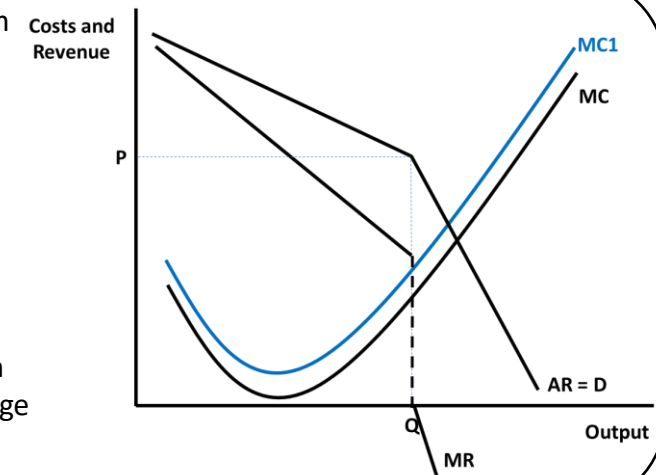
Collusive oligopoly

Oligopoly: Collusion and Cartels

Collusion: collective agreement between firms which restrict competition;
**Overt collusion:** firms openly fix prices, output etc; overt collusion is illegal and can result in big fines and prison sentences.
Tacit collusion: 'behind the scenes' agreements
Price leadership: firms adjust their prices in line with the actions of the market leader
Whistleblowing: a firm involved in cartel behaviour has an incentive to reveal the anti-competitive practices; it may avoid fines imposed on other firms.

Cartel diagram
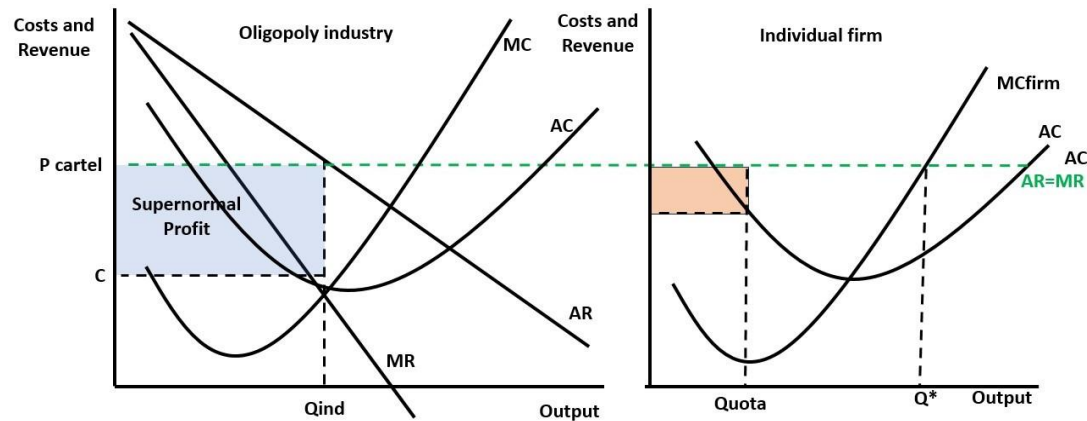
The colluding oligopolists act as a monopoly to maximise their joint profits; the industry as a whole makes maximum monopoly profits at price Pcartel.
To maintain this price and profits each firm is given an **output quota** so their joint output does not exceed Qind.
All firms are **'price takers'** at the cartel price Pcartel = AR=MR, the price they have agreed
The individual firm sets its output at the Quota, but this is not its profit-maximising output (which is Q* where its MC=MR); it has an incentive to produce more and break the cartel agreement

Conditions for an effective cartel

- Fewer, larger firms involved makes it easy to make an agreement
- High barriers to entry so cartel price cannot be undercut
- Strong branding so consumers stick with goods when price is high
- Easy to monitor each firms' output to ensure adherence to quotas
- Easier when demand is not volatile which could affect quotas chosen
- Easier if firms have similar cost structures (a very efficient firm could be reluctant to join a cartel)
- Demand is price inelastic; setting a high cartel price does not impact demand much
- Easier if there is a dominant firm leading the group
- Weak industry regulators and competition authorities

Why cartel behaviour is often unstable

- There is an incentive for a firm to 'cheat' (and increase output, which would bring the cartel price down) if there is no credible threat or risk
- Supernormal profits may attract new firms if barriers to entry are not high enough destabilising the agreement
- If market demand falls, there may be over-capacity putting downward pressure on the price
- Regulatory and competition authorities use the law to break them up
- There is an incentive to whistle-blow

Costs and benefits of collusive behaviour

Costs	Benefits
Damages consumer welfare (higher price)	Industry standards can increase some social welfare
Absence of competition reduces efficiency	Could help offset monopsony power by suppliers in cooperatives
Reinforces monopoly power	Profits may be used to improve dynamic efficiency

Game theory and competitive market practices
EXTENSION MATERIAL
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Game theory

Game theory can be used to model the behaviour of firms in oligopoly. It is about interdependence and strategy
Pay-off matrix: a table showing the possible outcomes of a game for the players depending on the strategies chosen
Duopoly: an industry with two firms

Pricing game

		Firm Y	
		£2	£1.80
Firm X	£2	10,10	5,12
	£1.80	12,5	8,8

Each firm has to choose between charging high price £2 or low price £1.80
- If they both choose £2, their profits will be £10m for Firm X and £10m for firm Y (Top left)
- If they both choose £1.80, their profits will be £8m for Firm X and £8m for firm Y (Bottom right)
- If Firm X prices at £2 and Firm Y prices at £1.80, Firm X gets £5m profits and Firm Y gets £12m (Top right)
- If Firm X prices at £1.80 and Firm Y prices at £2, Firm X gets £12m profits and Firm Y gets £5m (Bottom left)

Strategy:
- If Firm Y prices at £2 , firm X has to choose between price of £2 (would give £10m profit) or £1.80 (would give £12m), so it prefers £1.80
- If Firm Y prices at £1.80, firm X has to choose between prices of £2 (would give £5m profit) or £1.80 (would give £8m), so it prefers £.1.80
- By the same logic, Firm Y will also choose £1.80.
The **Nash Equilibrium** is (8,8), with both charging the lower price, but this is not the best outcome (10,10) which could be achieved if they collude

Use of game theory

Game theory can help explain the benefits of collusion (higher profits) and why collusive behaviour can be unstable (there will be a tendency towards the Nash Equilibrium); it helps analyse interdependent behaviour in oligopoly industries. Game theory can be used when firms are considering whether to produce a high or low output; whether to install new technology or not etc.
First mover advantage: games are not always played simultaneously by the players; one may move first giving it an advantage (or sometimes a disadvantage)

Dynamics of competition: pricing strategies

Predatory pricing: firm sets its price below average variable cost to force out a rival or prevent a new entrant (illegal)
Limit pricing: firm sets its price low enough to deter new entrants (AR=AC)
Price discrimination: firm charges a different price for the same good in different sub-markets
The goal for firms is to increase their profits; they may take a short term hit for a longer term gain

Dynamics of competition: non-pricing strategies
- Branding/loyalty
- Advertising
- Creative destruction
- New product/service development to improve quality
- New production methods to reduce costs
- Product service quality & differentiation
- Mergers/takeovers
- Collusion
Many of these can act as a barrier to entry or give a firm a competitive edge. Some may increase costs in the short term, but increase demand and revenue in the long term.

Price discrimination

Price discrimination

Price discrimination is charging different prices to different groups of consumers for an identical good or service for reasons *other than differences in cost.*

Price discrimination is possible when
- there are high barriers to entry & firms have some monopoly power
- the supplier has some pricing power
- the market can be split into two or more distinct groups of consumers, which have different PEDs
- there is no market seepage (consumers cannot buy in one sub-market and sell in another); the cost of keeping the markets separate should be low

It has potentially important *welfare and distribution effects*

Main aims of price discrimination

- **To increase revenue** - extracting consumer surplus and turning it into increased producer surplus for the seller
- **To increase profits** - total profit will rise providing the marginal profit from selling to extra customers is positive
- **To use spare capacity** - price discrimination can help a business make more efficient use of their supply capacity
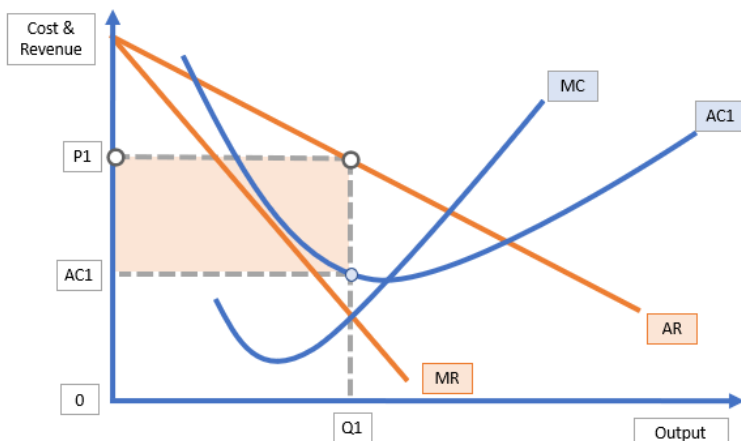
First degree price discrimination

First degree price discrimination or perfect price discrimination: charging each individual consumer, the maximum price that they are willing to pay; seller extracts all the consumer surplus
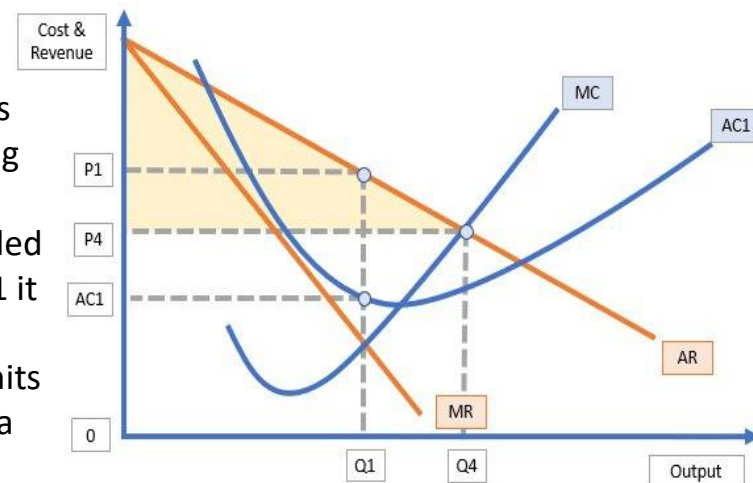
Without price discrimination:
Firm maximises profit by producing where MC=MR; profits = shaded area

Extracting the consumer surplus

With 1st degree price discrimination:
Firm charges consumers the price they are willing to pay and extracts the consumer surplus (shaded area); for units up to Q1 it can charge a higher price; it can also sell units between Q1 and Q4 at a profit (P>MC)

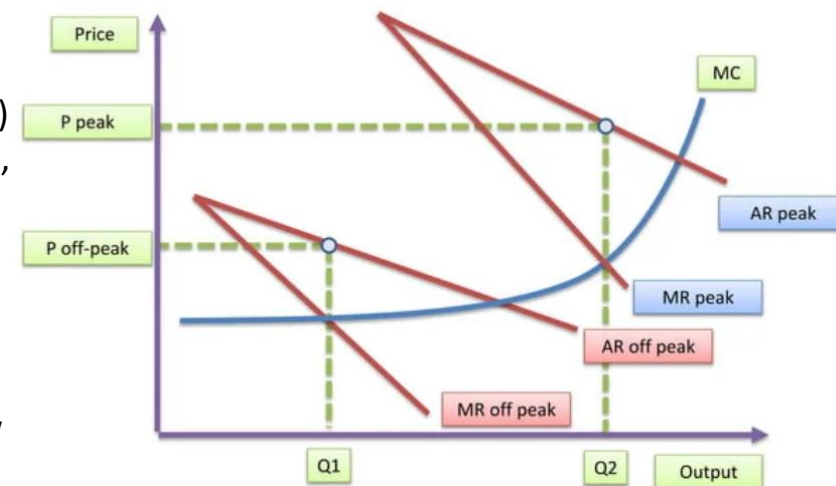

Second degree price discrimination

Second degree price discrimination: charging different prices depending upon quantity bought, time period, use of coupons

Peak and off-peak pricing

At non-peak times, there is spare capacity (MC is low) while at peak times, MC is higher as less capacity Demand (AR) is higher at peak times. This means high peak time prices and low non-peak prices

Price discrimination

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Third degree price discrimination
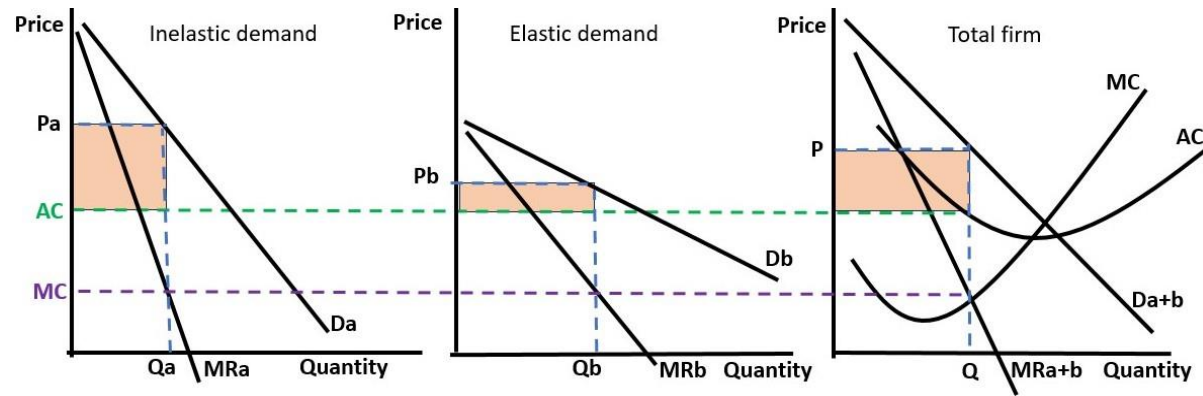
The price discriminating firm 's costs are determined in the whole market MC and AC are set at this level in each sub-market.

Price inelastic demand: the firm sets MC=MRa, it chooses output Qa and can charge price Pa in this sub-market.

Price elastic demand: the firm sets MC=MRb, it chooses output Qb and can charge price Pb in this sub-market.

The **combined profit area** of the two submarkets should exceed the profit in the whole market to make the price discrimination worth it.

Costs of price discrimination

- Consumers in the 'inelastic demand' sub-market pay a higher price
- There is a loss of consumer welfare (the firm extracts some of the consumer surplus); i.e. consumer exploitation
- Price discrimination may also firms to use predatory pricing tactics
- Can reinforce monopoly power
- Firms may not use the extra supernormal profit to improve the businesses; e.g. profits may be distributed to shareholders only

Impact on consumer welfare

- Higher prices for many people **reduces their consumer surplus** – an example is **"dual pricing"** in insurance where loyal customers were charged more than new customers.
- Reinforces **monopoly power of firms** which can then lead to higher prices in the long run and a **loss of allocative efficiency**
- **Algorithms** increase the potential to discriminate between consumers – there is now widespread use of **artificial intelligence driven price discrimination** leading to certain groups in society consistently paying more (such as online hotel bookings).
- Multi-purchase or volume discount purchasing **favours higher-income, larger families at expense of single people**. It can encourage food waste which creates **external costs**

Benefits of price discrimination

- Firm makes greater supernormal profits
- Firm **extracts some of the consumer surplus** to add to its profits
- Profits could be used to re-invest in the firm and increase dynamic efficiency; firm may use profit for R&D and innovation
- Firm may use profit to improve the quality of its good/service
- Firm may use extra profit to cross-subsidise loss-making services; extra profit could turn a loss-making firm into a profit maker ensuring the good/service continues to be supplied
- Some consumers in the 'elastic demand' sub-market may be able to afford the good at the lower price Pb
- Firm's market is greater as it absorbs some lower-income consumers
- It can help firm's use spare capacity (price can be lower at times when there is high capacity and high when there is no spare capacity)
- May enable a firm to break into a new market at home or abroad and make it more competitive

Impact on profit when costs & revenue change

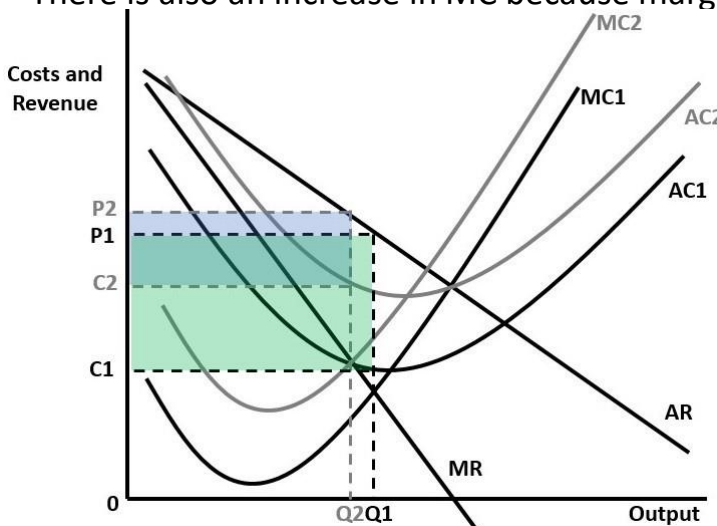tutor2u

Rise in fixed costs

A rise in fixed costs increases the total costs of a firm. ATC curve shifts up. There is no change in variable costs, so no change in MC.
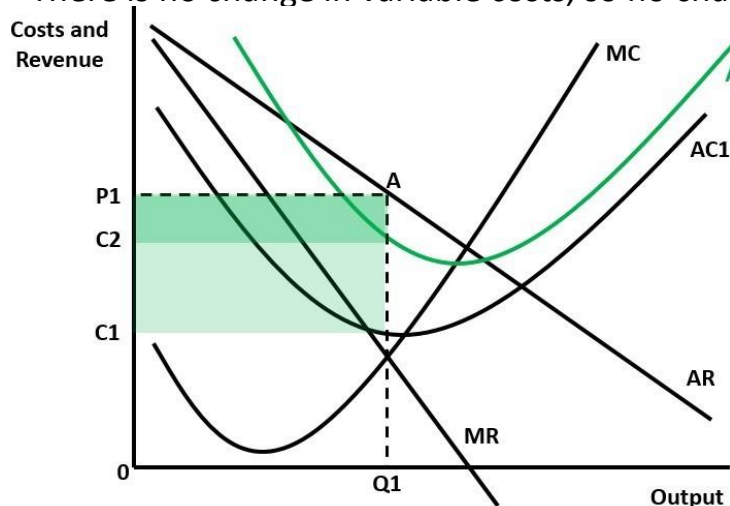
Original price is P1 and output Q1 to maximise profit (MC=MR). Supernormal profits = area 0Q1 x C1P1.
The rise in fixed costs shifts AC up from AC1 to AC2.
The profit-max output and price is unchanged, but supernormal profit falls to 0Q1 x C2P1

Rise in revenue

A rise in sales or demand increases the total revenue of a firm. AR shifts right and MR also shifts right (& is twice as steep as the new AR)

Original price is P1 and output Q1 to maximise profit (MC=MR)
Supernormal profits = area 0Q1 x C1P1
The increase in demand shifts AR1 out to AR2 and MR1 out to MR2.
The new profit-max output and price are Q2 and P2, and supernormal profit rises to 0Q2 x C2P2
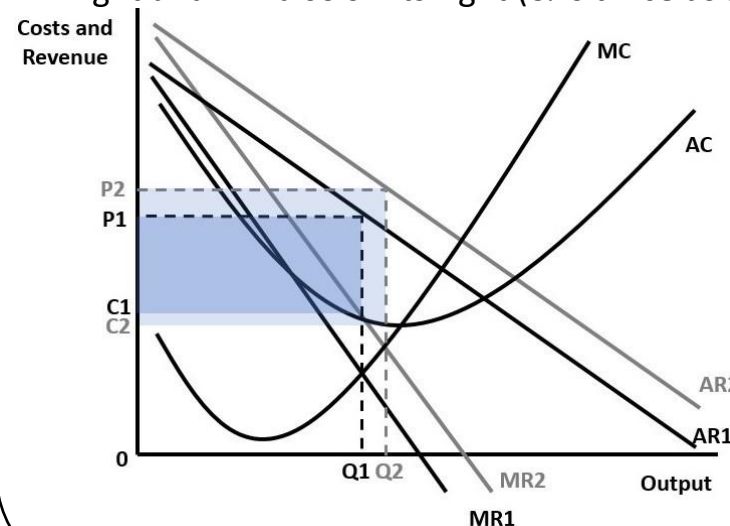
Rise in variable costs

A rise in variable costs increases the total costs of a firm. ATC curve shifts up. There is also an increase in MC because marginal costs are always variable.

Original price is P1 and output Q1 to maximise profit (MC=MR)
Supernormal profits = area 0Q1 x C1P1
The rise in variable costs shifts up AC1 to AC2 and MC1 up to MC2
The new profit-max output and price are Q2 and P2 and supernormal profit falls to 0Q2 x C2P2

Falling fixed and variable costs and fall in revenue

The analysis in the diagrams can be reversed for changes in the opposite direction:

Fall in fixed costs = AC shifts down
- No change in profit maximising output and price
- Increase in supernormal profits

Fall in variable costs = AC and MC shift down
- Profit maximising output increases, profit maximising price falls
- Increase in supernormal profits

Decrease in revenue = AR and MR shift inwards
- Profit maximising output falls, profit maximising price falls
- Decrease in supernormal profits

TIP: It is always worth thinking about the most likely outcome if costs rise and revenue fall, then a fall in profit seems likely, check your diagram shows this! (and vice versa)

Features of Market Structures

Number and size of firms

Competitive market structure: likely to have a large number of small firms and buyers, e.g. perfect competition

Uncompetitive market structure: a small number of large firms; high concentration ratio e.g. oligopoly or monopoly

Barriers to entry

Barriers to entry: factors that make it difficult or impossible for firms to enter an industry and compete with existing firms.

Natural barriers: the nature of the industry makes it efficient for one or a small number of large firms to operate in the industry.

Legal barriers: laws and regulations make it difficult for firms to join the industry.

Strategic/artificial barriers: barriers put in place by firms already in the industry to prevent an increase in competition. These can be anti-competitive and may be illegal.

Barriers to entry are important because they help determine how competitive a market is likely to be. The higher the barriers to entry, the more likely there will be less competition and more market concentration

Types of barriers to entry

Natural barriers include: high capital start-up costs or high sunk costs; high economies of scale (as for natural monopoly); geographical barriers

Legal barriers include: patents, copyrights & trademarks; licencing; public franchises; import controls

Strategic barriers include: ownership or control of the factors of production needed (via vertical integration); control of the technology needed; limit pricing, predatory pricing; marketing barriers e.g. brand proliferation; advertising barriers that create brand loyalty; other anti-competitive practices

Barriers to exit

Barriers to exit: make it difficult or impossible for firms to cease production and leave an industry

Examples include: asset write-offs, closure costs and lost reputation

If barriers to exit are high, this can act as a deterrent to enter an industry i.e. the barrier to exit = a barrier to entry

Homogenous (identical) or differentiated product

Competitive market structure: firms sell an identical or very similar product e.g. foreign exchange markets, market gardening, fishing

Uncompetitive market structure: firm's products are differentiated i.e. there are differences that can matter to consumers; a BMW car is not the same as a Toyota car

Product proliferation: large firms often produce several versions of the same good giving the consumer choice or the illusion of choice e.g. L'Oreal own many beauty brands

Limit pricing & predatory pricing

Firms operating in markets where there are high barriers to entry may use these pricing strategies:

Limit pricing: the monopolist cuts its price and increases output so it is making normal profit only (AC=AR = P), then a new firm with potentially higher AC will not be able to compete.

Predatory pricing: the monopolist cuts its price and increases output so it is running at a loss; a new firm with potentially higher AC will not be able to compete. *Once the threat of competition is gone, it puts its prices up again*

Monopsony

Monopsony: a single buyer

Buying power: a firm or group of firms have a dominant position as the buyer of a product/service

Firms can use their buying power to get better prices from their suppliers, helping to reduce costs; in labour markets, firm may use their monopsony power to keep wages lower

Contestability

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Traditional theory of the firm

	Perfect competition	Monopolistic competition	Oligopoly	Monopoly
Number & size of firms	Many small	Many small	Small number of large firms	One firm
Product	Homogenous	Differentiated	Either	Either
Barriers to entry	None	Low	High	Very high
Long run supernormal profit	No	No	Yes	Yes

Most competitive ➝ Least competitive

Traditional theory of the firm implies that as the number of firms in the industry gets smaller, there will be less competition, higher barriers to entry and potentially higher prices for consumers. Baumol's **contestable market** theory challenges this

Contestable market terms

Contestable market: where a new market entrant has equal access to all production techniques available to the incumbents and where entry decisions can be reversed without cost

Barriers to entry: block potential entrants from entering a market profitably

Barriers to exit: costs associated with leaving an industry

Sunk costs: sunk costs are costs that cannot be recovered (in whole or in part) if a business decides to leave an industry

Hit-and-run entry: when a business enters an industry to take advantage of temporarily high (supernormal) market profits

Limit pricing: firm sets its price low enough to deter new entrants (AR=AC)

Non-price competition: competing with product differentiation, quality, brand advertising, product design and packaging, customer service, and the provision of complementary products or services but not price.

Characteristics of contestable markets

- Low barriers to entry & exit and no sunk costs
- Equal access to technology – existing firms do not have an advantage
- No collusion
- Weak brand loyalty

It does not matter how many firms are in the industry, but there must be free/easy entry and exit into and out of the industry

How contestable markets work

- Existing or incumbent firms (i.e. firms already in the industry) are under constant **threat of competition** as there are no/ow barriers to entry and exit
- If this threat of potential competition is **credible**, firms (even a monopoly) will have to behave more competitively or new firms will join to try and compete for a share of the supernormal profits
- Existing firms might choose **limit pricing** over profit maximisation
- They may also focus on **non-price competition**
- New entrant(s) might go for **sales growth max** – in a bid to establish a market foothold; entry can also be **'hit-and-run'** from a challenger firm
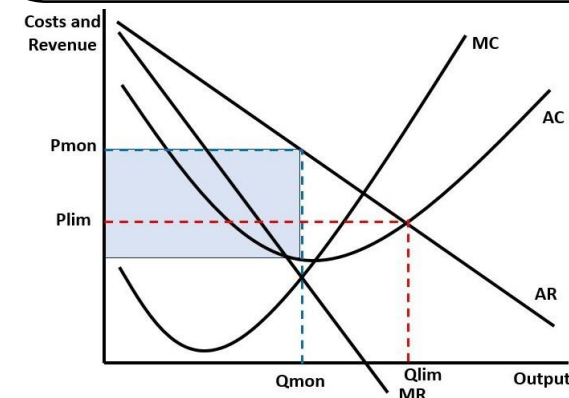
Under threat of competition, the monopoly may limit price; it increases output from Qmon to Qlim and cuts its price from Pmon to Plim; its supernormal profits (shaded) become normal profit only; it may reverse this if the threat of entry disappears

Contestable markets & efficiency

Contestable markets can bring benefits of competitive markets:
- **Lower prices** (improved allocative efficiency)
- **Incentives for firms to cut costs** (improved x-efficiency)
- **Incentives for firms to innovate** (dynamic efficiency)
- **Scope for economies of scale** (large firms can exist!)

Labour markets: labour demand and MRP

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Labour demand

Businesses employ people, so too the government
Demand for labour is **derived demand** – it is linked to the demand for final goods/services
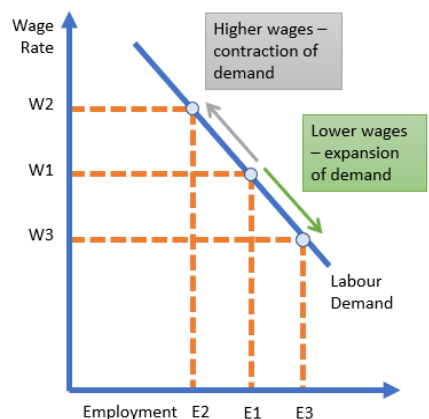
- There is usually an inverse relationship between demand for labour & the market wage rate
- If the wage rate is high, then it is more costly for a business to hire extra employees and vice versa

Firms will demand more labour at lower wages than at higher wages; the labour demand curve slopes downwards to the right

Shifts in labour demand

Firms increase their demand for labour:
- If *demand for their output* increases
- If workers are *more productive (higher MRP)* i.e. labour becomes more cost efficient
- If the price of substitute resources e.g. if *capital* becomes more expensive
- If the price of the product that labour is making increases
- If an employment subsidy cuts labour costs

These factors can be reversed to explain a decrease in labour demand

Wage elasticity of demand

Wage elasticity of demand: the responsiveness of quantity of labour demanded to a change in the wage

WED = % change in Q. of labour demanded/% change in wage

WED depends on: what % of total costs are labour costs; the ease and cost of factor substitution, the PED of the final product and the time period
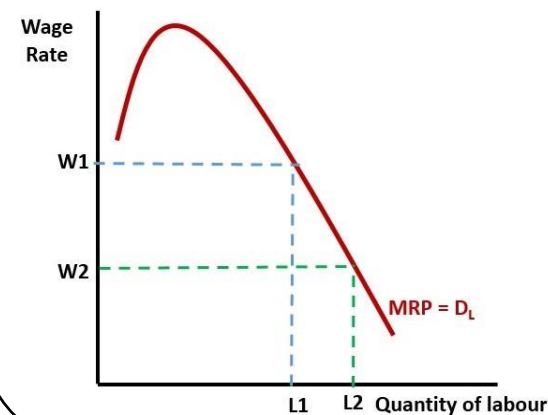
Marginal revenue product of labour MRPL

In the theory of competitive labour markets, the demand curve for labour comes from the estimated marginal revenue product of labour (MRPL)
Marginal revenue product of labour (MRPL): the extra revenue generated when an additional worker is employed
MRPL = marginal product of labour x marginal revenue

MRPL curve and the labour demand curve

Firms are assumed to be **profit maximisers** and they will choose a level of employment that maximises profit. The MRPL curve is the demand curve for labour. MRPL falls when **diminishing returns** set in.

A profit maximising firm employs workers up to the point where the **marginal revenue product of labour = the marginal cost of labour**.
The wage = marginal cost of labour; at W1, L1 workers are employed; at W2, L2 workers are employed.

Limitations of MRPL concept

- Difficult to measure productivity for many jobs
- Labour productivity can depend on other inputs e.g. quality of capital
- Some work is collaborative – hard to work out an individual's productivity
- Some workers. E.g. self-employed, set their own pay

Labour markets: labour supply

Labour supply

Labour supply curve: the relationship between the wage rate and the number of workers willing to work in a particular occupation
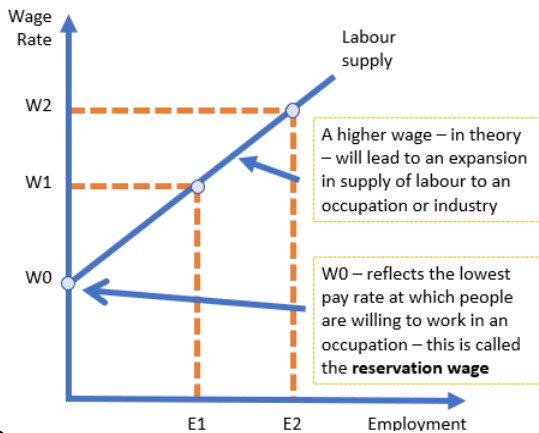
The supply of labour is greater at higher wages than lower wages; the labour supply curve slopes upwards to the right
Supply of labour to a particular type of occupation depends on:

- Monetary rewards: wage, overtime pay, bonuses....
- Non-monetary rewards: job satisfaction, working conditions, holiday entitlement, status, working hours

A higher wage – in theory – will lead to an expansion in supply of labour to an occupation or industry

W0 – reflects the lowest pay rate at which people are willing to work in an occupation – this is called the **reservation wage**

Shifts in labour supply

- Changes in the non-monetary/non-pecuniary benefits of work
- Changes in working conditions
- Changes in taxation and welfare benefits
- Changes in the wages of different occupations
- The occupational and geographical mobility of labour
- The role of trade unions and professional bodies
- Net immigration

Wage elasticity of supply

Wage elasticity of supply: the responsiveness of quantity of labour supplied to a change in the wage

**WES = % change in Q of labour supplied/% change in wage**

WES depends on: nature of skills and qualifications required to work in an industry, the vocational nature of work, the time period, the occupational and geographical mobility of labour.

Labour immobility

Occupational immobility: when there are barriers to people being able to switch between one job and another. Causes include skills gaps, training gaps, experience gaps, confidence and motivation.

Geographical immobility: when there are barriers to people being able to move to a new location for work. Causes include housing and other living costs, family/social ties, lack of transportation etc.

Labour immobility can reduce the supply of labour to some occupations

Wage determination in competitive markets
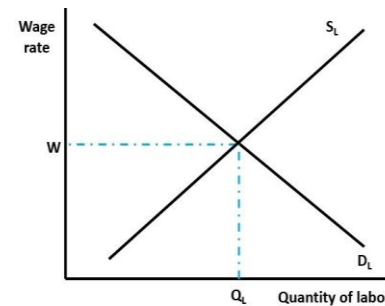
The wage is determined by the interaction of labour demand and labour supply,
If labour demand or labour supply shifts, the market will adjust to the new equilibrium wage and employment
In the real world, labour markets are highly unlikely to be perfect

Shifts in labour demand and supply
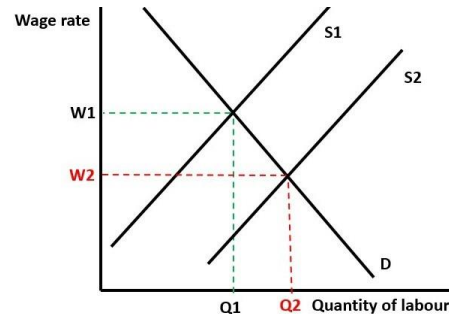
Labour supply shifts right from S1 to S2; there is an excess supply at original wage W1; the wage starts to fall and firms employ more workers (extension in labour demand) until the new equilibrium at Q2 and wage W2 is reached.
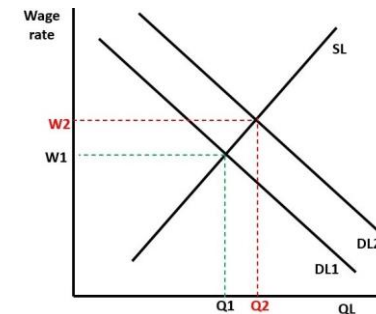
Labour demand shifts right from DL1 to DL2; there is an excess demand at original wage W1; the wage starts to rise and more workers extend their labour supply until the new equilibrium at Q2 and wage W2 is reached.

Monopsony

Monopsony: where there is only one major buyer or employer in a labour market e.g. NHS, Armed Forces, local governments.
The monopsonist could use its market power to pay lower wages because workers have limited alternatives

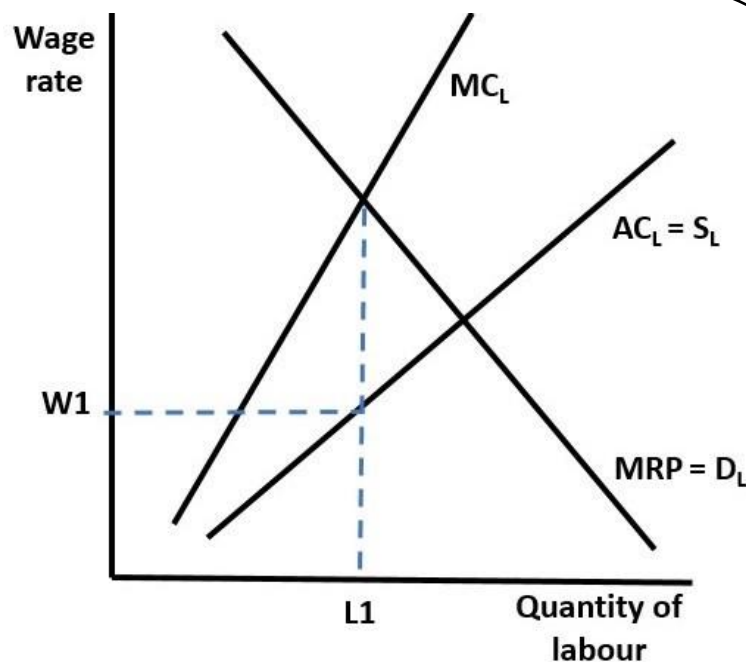### Wage determination in monopsony

For a monopsonist the marginal cost of labour (MC_L) exceeds the average costs of labour AC_L)
To employ one more worker, the employer has to pay the wage of the new worker **and** increase the wages of all employees to match the wage required to attract the latest employee.


Profit maximising employment level is where $MC_L = MRP_L$ where L1 number of people are employed.
- The firm will employ a worker as long as he/she adds more to the firm's revenue than he/she adds to costs.
- To attract L1 workers to supply their labour, the monopsonist only needs to pay W1, even though the value of their MRP is higher.

Monopsony exploitation

Profit maximising employment level is where $MC_L = MRP_L$ where L1 number of people are employed
Their marginal revenue product is valued at W3
Monopsony power allows the employer to pay a wage rate W1
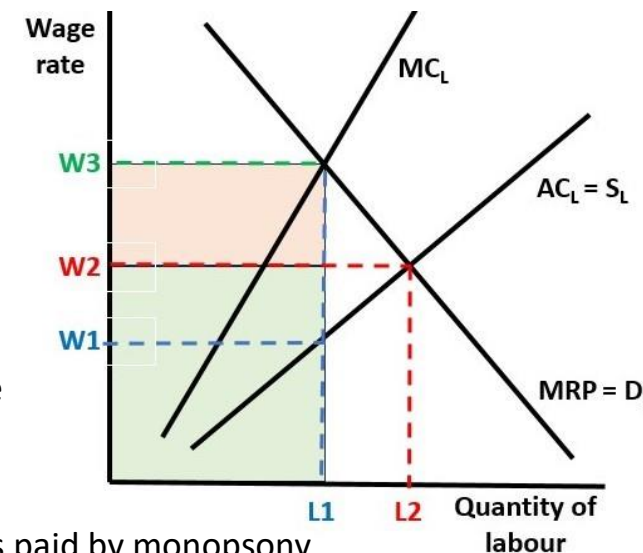
Blue shaded area: total wages paid by monopsony
Pink shaded area: the wages lost due to underpayment by employer

Monopsony v perfectly competitive labour market

- The monopsony employs L1 workers at W1
- If the market was perfectly competitive, the equilibrium wage and employment level would be L2 and W2 (where $D_L = S_L$)
- *The monopsony employs fewer workers at a lower wage*

Monopsony and labour market failure

Lower Wages: underpayment and a reduced standard of living for employees.
Reduced Employment: could lead to higher levels of unemployment or underemployment
Diminished Job Quality: Monopsonistic employers may provide suboptimal working conditions, fewer benefits, and less job security, negatively impacting the well-being and job satisfaction of workers.
Economic Inequality: Monopsony power can exacerbate income inequality as it concentrates bargaining power with employers increasing working poverty and welfare claims to the state

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National minimum wage in competitive labour market
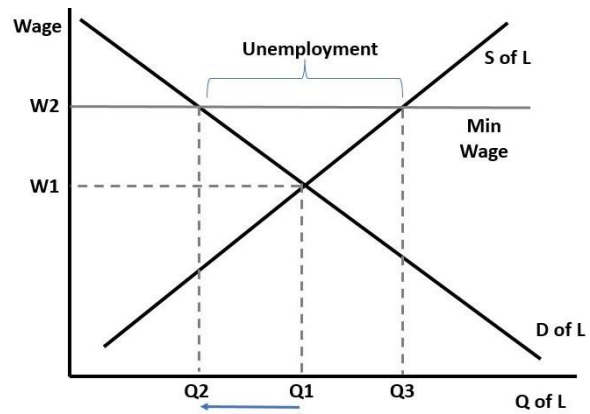
The NMW is a legally imposed price floor in labour markets. To have an impact in a labour market it must be above the market equilibrium. Initially the wage rate is W1 and Q1 is the quantity of labour. After the NMW, the wage rises to W2, but the demand for labour falls to Q2; there is a fall in employment of Q1Q2.

The NMW attracts more workers into the labour market – there is an extension along the labour supply; The overall impact is some real wage unemployment of Q2Q3

Benefits of NMW

- Fairer pay, less discrimination; less poverty, less worker exploitation
- May not cause unemployment if the economy is growing, if better pay boosts productivity or if it increases spending by lower paid (with a high MPC) in the economy (higher AD increases the demand for labour)
- Helps reduce income inequality
- Incentivises more workers to search for work & join labour market
- Lower costs of welfare for government

Costs of NMW

- May cause real wage unemployment
- Only covers employees; self-employed in the gig economy may be paid less
- Increases costs to businesses; may speed up automation causing technological unemployment
- Could become inflationary if other workers try to maintain pay differentials with lower paid workers
- Less international competitiveness (adds to business costs)
- Does not tackle many aspects of poverty reduction

National minimum wage in monopsony

Profit maximising employment level for monopsony is where MC_L = MRP_L where L1 number of people are employed and W1 is paid. After a NMW is introduced, the labour supply curve is perfectly elastic at the NMW until it hits the labour demand curve, when it is the same as before the NMW (Yellow $AC2_L = S2_L$)
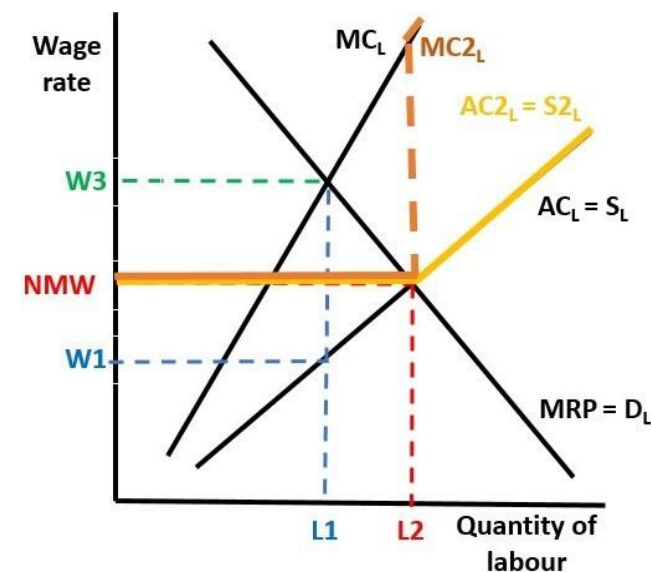
The MC_L is the same as AC_L up to L1 workers (everyone is paid the same wage = NMW); after L1 workers the MC_L reverts to the pre-NMW marginal cost of labour. It has a disjointed section. The post-NMW MC_L is $MC2_L$ After the NMW the monopsonist employs up to where $MC2_L = MRP,$ where employment is L2. *Therefore, the NMW has increased wages from W1 to NMW AND increased employment from L1 to L2*

- Setting the minimum wage between W1 and NMW: any minimum wage in this range will increase both wages and employment
- Setting the minimum wage between NMW and W3: any minimum wage in this range will increase the wages but employment will fall back from L2 towards L1
- Setting the minimum wage above W3: wages will rise but employment will fall

Labour markets: wage differentials & pay gaps

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Wage differentials

Wage differential: the difference in wages between workers with different skills in the same industry, or between workers with comparable skills in different industries or localities.

Compensating wage differentials: a reward for risk-taking, working in poor conditions and during unsocial hours.

Reward for human capital: differentials compensate workers for (opportunity and direct) costs of human capital acquisition.
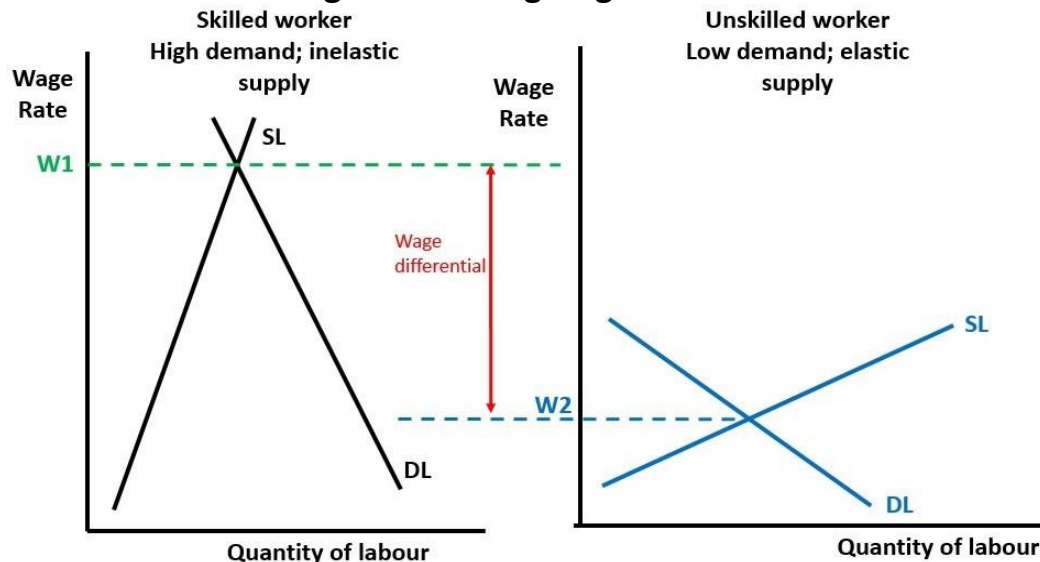
Differences in labour productivity and revenue creation: workers whose efficiency is high and generate revenue for a firm often have higher pay.

Trade unions' collective bargaining power: used to achieve a mark-up on wages compared to non-union members

Artificial barriers to labour supply: such as professional exams, migration controls

Employer discrimination: employers may perceive older workers as less able to learn new tasks, less flexible, and less ambitious & pay lower wages

Diagram showing wage differentials

Skilled worker
High demand; inelastic supply

Unskilled worker
Low demand; elastic supply

Wage Rate

Wage Rate

W1

SL

Wage differential

W2

DL

SL

DL

Quantity of labour

Quantity of labour

Pay gaps

Pay gap: the difference in earnings between different groups of people e.g women, ethnic minorities earning less

Gender pay gap: the difference between average hourly earnings (excluding overtime) of men and women as a proportion of average hourly earnings (excluding overtime) of men's earnings

Ethnic pay gap: disparities in income based on factors such as race and ethnicity

Disability pay gap: differences in earnings between individuals with disabilities and those without disabilities

Discrimination: due to gender, race, age, sexual orientation, socioeconomic groups

Causes of pay gaps

- Discrimination
- Occupational segregation
- Educational and occupational choices
- Work Experience and seniority
- Negotiation and salary transparency
- Unconscious bias
- Parental and caregiving responsibilities
- Lack of workplace flexibility and inclusion

Discrimination diagram

Wage rate

S_L

W

W*

D_L*

D_L

Q_L*

Q_L

Quantity of labour
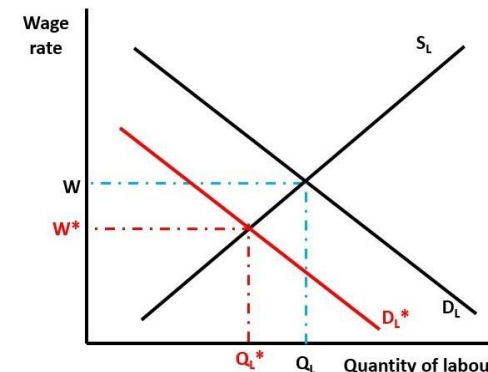
- DL is the labour demand curve without discrimination or unconscious bias; the wage is W
- With discrimination, employers 'assume' the group is less productive and so the demand is less at DL* reducing the wages for the group to W*

Trade unions

Trade union: an organised group of employees who work together to represent and protect the rights of workers, usually by using collective bargaining techniques.

Trade unions aim to gain better wages, protect jobs, improve non-monetary aspects of jobs eg pension rights, protect against unfair dismissal, ensure health and safety at work, counterbalance any monopsony power

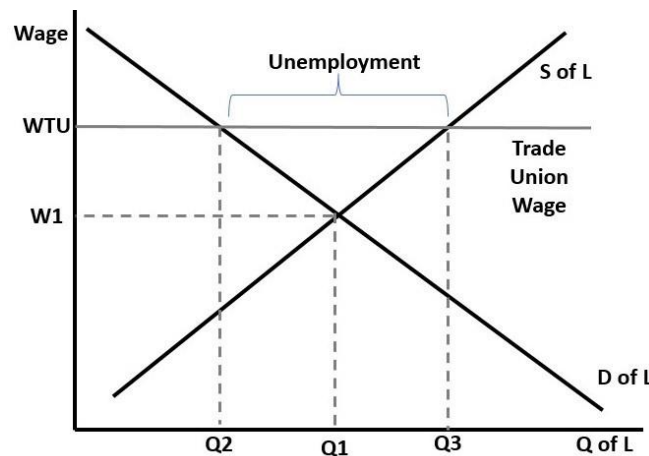## Factors influencing trade union power

- ☐ Macroeconomic climate
- ☐ Public support and sympathy
- ☐ Union density
- ☐ TU legislation
- ☐ Financial consequences of industrial action
- ☐ Globalisation (MNCs can outsource to other parts of the world)

Trade union wage effect: competitive labour market

If the trade union gains a wage above the market equilibrium, the wage for its members rises to WTU, but it may cause some real wage unemployment of Q2Q3.

The gap between wages of TU members and non-members = the **trade union wage premium**

Benefits of costs of trade unions

Arguments for TUs:
Better wages and working conditions
Trade union wage premium = higher wages
Lower wage inequality
Ensure real wages are not eroded
Counterbalances monopsony power of employers
Can improve industrial relations if union works well with management

Arguments against TUs:
Reduces employment flexibility
Prevents efficient working of labour markets
Adds to business costs if wage is higher with no improvement in productivity
Reduces profits of companies
Can delay introduction of new technology

Monopsony employers & trade unions

Just as a monopoly can increase its profits by reducing output and raising the price in a product market, a monopsonist can depress wages and restrict employment in a labour market to make more profit from employing workers.

- A trade union can push wages AND employment up in a monopsony labour market because it is effectively making it more competitive;(see the diagram for NMW in a monopsony)
- If the trade union negotiates a wage that lies between W1 and W3 (the **zone of bargaining**), it can increase wages without a fall in employment from the monopsony employment level.

TUs and the NMW can act as a way of **counterbalancing monopsony power** and achieving fairer pay and less exploitation of workers, though if the wage rise is rapid it can still cause unemployment

Factors making it easier for a trade union to gain a pay increase with no job loss

- Labour is a small percentage of total costs
- Impossible or difficult to substitute labour with other factors of production
- Demand for the final product is inelastic (costs can be passed on by firm to consumers) and/or increasing
- Trade unions control the supply of labour (closed shops)
- Firm is already making substantial profits
- Pay claim is accompanied by a productivity rise (labour demand may shift right too)

Labour market efficiency and labour market policies

Competitive labour market

For a labour market to be competitive it has:
- Many buyers (employers) and sellers (workers)
- Perfect Information
- Homogeneous Labour
- Mobility of Labour
- No Monopsony Power

Wages are determined by the interaction of demand and supply; the market will adjust to changes in the conditions of labour demand and supply

Non-competitive labour markets

Most labour markets are not competitive because:
- Monopsony employer
- Barriers to entry
- Information asymmetry between employer and workers
- NMW
- Trade Unions & collective bargaining
- Lack of labour mobility (geographical & occupational)
- Discrimination
- Employment laws/regulations

Policies to increase labour mobility

Geographical mobility is the ability of labour to move around an area, region or country in order to work.
Policies to improve geographical mobility: regional policy, investment in transport infrastructure, addressing difference in house prices.
Occupational mobility is the ability of labour to switch between different occupations. Occupational mobility is affected by the level of transferable skills and educational requirements of jobs etc.
Policies to improve occupational mobility: more & better education and training, investment in schools and universities.

Policies to reduce discrimination

Anti-Discrimination Laws and Regulations: enforce and strengthen existing anti-discrimination laws that prohibit discrimination the Equal Pay Act
Affirmative Action / Diversity Initiatives by employers
Access to Quality Education and Training: provide opportunities for individuals from marginalized groups to acquire the skills needed to access higher-paying jobs. Reform entry to universities.

The gig economy

Gig economy: businesses that operate digital platforms/apps – which allow individuals to undertake jobs, or 'gigs', for end-user e.g. Uber and Deliveroo.
The gig economy has grown with the rise of technology and the increased demand for flexible work arrangements, including **zero hours contracts**.
It benefits employers who can offer lower wages and reduce their costs.
It offers workers more flexible hours, but there is less employment protection and fewer employment benefits; a lack of job security.

Labour migration

Labour migration: cross-border migration of people from one country to another
Immigration: people entering a country to live/work/study
Emigration: people leaving a country to live/work/study
Benefits of net immigration: more skilled workers & higher productivity; increase in labour supply (LRAS shifts out); can drive innovation and entrepreneurship; migrants can add to AD; positive multiplier effects; fill skills gaps; remittances sent home may be used to buy exports; higher tax revenue
Costs of net immigration: welfare costs and greater demand for public services; possible displacement of some domestic workers; social tensions; higher demand for housing raising house prices and rents; risk of poverty and exploitation for migrants

Income & wealth inequality

Wealth – a stock of people's assets, including property, equities, material goods, private pension funds etc

Income – a flow from wages, dividends, rents

Income inequality: uneven allocation of income from employment, investments & savings, pensions, rent

Wealth inequality: uneven allocation of assets inc. property, financial assets, private pensions & rent

Wealth distribution is more unequal than income distribution in the UK and globally

EQUALITY: each individual or group of people is given the same resources or opportunities. - a *POSITIVE concept*

EQUITY: fairness - each person has different circumstances; the resources and opportunities are allocated to reach more equal outcome**s** - a *NORMATIVE concept*

Lorenz curve & Gini Coefficient

The green line is the line of perfect equality.
The blue line is the **Lorenz curve** showing the actual income distribution.
The **Gini coefficient = area A/areas A+B**
The Gini coefficient lies between O and 1 (or 100%); 0 means perfect equality; 1 means perfect inequality
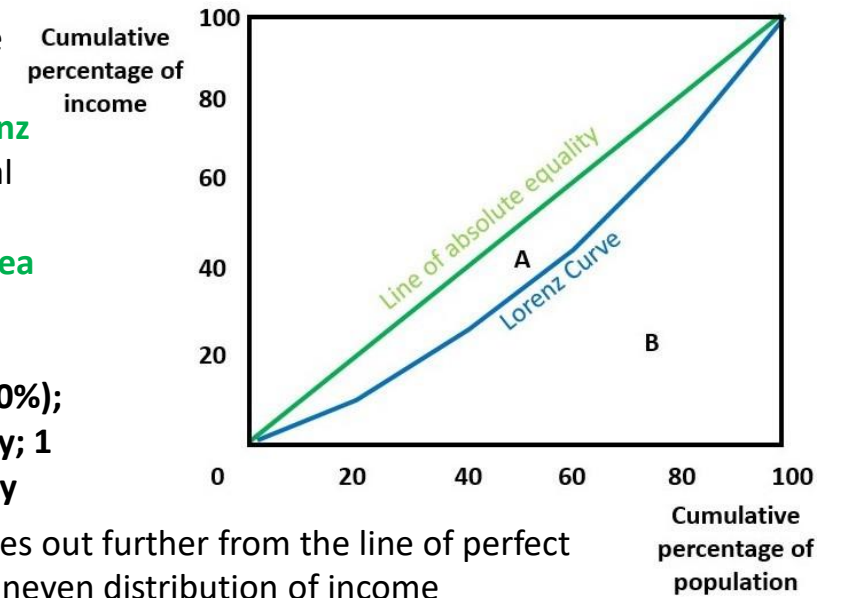
A Lorenz curve that bulges out further from the line of perfect equality shows a more uneven distribution of income

Differing views on inequality

Inequality acts as an **incentive** to work hard and take risks; passed on to future generations; part of capitalism

One human much the same as another; income should be distributed more evenly as people have **similar needs**

Income & wealth relationship

The relationship between income and wealth can perpetuate inequality:
- Wealth can generate more income, such as rent on properties, dividends on shares....
- Higher income allows people to build up more wealth by buying up more assets

Using the Gini coefficient to measure inequality

A useful 'snapshot' measure of inequality, but...
- Countries can have the same Gini coefficient and very different income distributions
- Statistics may be pre-tax, when a progressive tax system helps create a fairer distribution
- Different countries use different stats, making comparisons more difficult.

Causes of inequality

- Wage disparities: wage differentials, a low minimum wage
- Employment insecurity: gig economy, zero hours contracts
- Educational disparities: skills gaps, access to education opportunities
- Housing market dynamics: renting or home ownership
- Financial assets and investments: inheritance, access to finance
- Tax policies: progressive v regressive taxation; tax avoidance & evasion
- Globalisation: global market forces; offshoring and outsourcing
- Social and economic discrimination; gender and ethnic pay gaps, glass ceiling etc
- Pension disparities: those reliant on state pension only v those with private pensions
- Social welfare safety nets: cuts to benefits; below inflation increases; welfare caps
- High pay awards to CEOs and managers; % pay rises benefit highest paid more

Distribution of income and wealth

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Economic costs of inequality

Reduced economic growth: *underutilisation of talent and* human capital, as individuals from lower-income backgrounds may not have equal access to opportunities. Widening income gaps can lead to reduced consumer spending, negatively impacting economic growth.

Wealth concentration: restricts entrepreneurship opportunities for individuals from lower-income backgrounds, hindering economic dynamism and slowing down innovation and economic progress.

Workforce productivity: health disparities can lead to decreased workforce productivity and economic output. Income inequality can contribute to job dissatisfaction and reduced productivity among workers.

Public expenditure: higher levels of inequality may necessitate increased spending on social welfare programs *Strain on Public Services:* Unequal access to education and healthcare may lead to increased demand for public services, straining resources.

Human capital development: inequality may lead to a loss of potential talent/skills, as individuals from disadvantaged backgrounds may not have the same opportunities for education and training. Inequality can perpetuate across generations, creating a cycle of limited human capital development.

Social costs of inequality

Health disparities: lower-income individuals may have less access to healthcare services, leading to more stress & poorer physical and mental health outcomes.

Educational inequities: children from lower-income families may face challenges in accessing quality education, resulting in lower educational attainment and less social mobility,

Social cohesion: more social tensions in communities and greater mistrust of the 'system'

Crime and Violence: inequality can increase crime and & social unrest

Political instability: loss of trust in institutions and risk of corruption

Kuznets curve
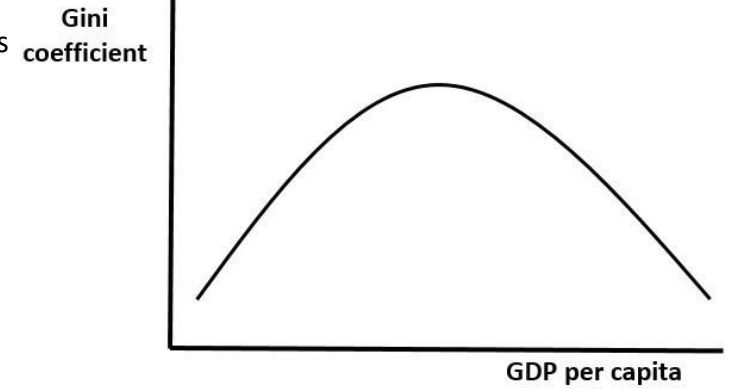
The Kuznets curve suggests that as a country develops from a largely subsistence economy and industrialises, income inequality increases as workers move from low-productivity, low-paid agricultural jobs to higher-productivity, better-paid manufacturing jobs.

At some point, income inequality starts to fall back, as governments have more resources (more tax revenue as per capita income rises, for example) to redistribute income and provide a better welfare safety net and better public services.

Policies to reduce inequality

- Higher marginal tax rates on income & wealth
- Increases in the statutory (legal) minimum wage
- Rise in the relative level of cash welfare benefits
- Measures to increase employment rates
- Subsidies on energy bills, tuition, childcare etc.
- Rent controls to tackle unaffordable housing
- Laws to tackle discrimination in labour market
- Universal Basic Income (UBI)

Free market v interventionist view

- Free market economists might argue that policies such as lower taxes to drive faster growth can help to reduce income inequality because of the **trickle-down effect** where growth creates extra jobs and lifts per capita incomes.
- Critics of this view argue that the evidence for trickle-down effects is weak and that **proactive pro-poor government interventions are needed** to make a significant difference to inequality.

Absolute v relative poverty

Absolute Poverty: If income is too low to ensure basic needs (food, shelter, clothing, access to clean water, sanitation facilities, education & information) are met.

Poverty line e.g. World Bank – living on less than $2.15 a day

Relative Poverty: Living below a certain threshold in a particular threshold, e.g. in UK, a household on less than 60% of median income is relatively poor; or not being able to afford what is normal in the society you live in

Causes of poverty

- Unemployment/worklessness/homelessness
- Working poor/low paid work/underemployment
- Single parenthood/family structure
- Lack of education/skills
- Old age/longevity/pensioner poverty
- Cuts to welfare benefits
- Poorer quality public services/poor health
- Rising income and/or wealth inequality
- Discrimination
- Lack of opportunity/lack of access to finance/credit

Poverty is often multi-causal – it is a combination of several issues that cause poverty for households and the people in them

Poverty types

Child Poverty: children living in households with an income below 60% of the median income

Persistent poverty: Persistent poverty is defined as experiencing relative low income both in the current year and at least two out of the three preceding years

Pensioner poverty: poverty for those after retirement and dependent on a pension income experience financial hardship

Fuel poverty: A household that spends at least 10 percent on its fuel costs

Effects of poverty

Health disparities: poverty often restricts access to healthcare; poor living conditions, inadequate nutrition, and lack of preventive healthcare contribute to higher rates of illnesses

Limited education opportunities: poverty can hinder access to quality education, leading to lower educational attainment and limited skills development

Unemployment and underemployment: a challenge in finding stable and well-paying employment opportunities; jobs may not fully use skills or have limited hours

Housing insecurity & homelessness: poverty can lead to substandard living conditions, including overcrowded housing, lack of basic amenities, and exposure to environmental hazards.

Food insecurity: lack of access to nutritious food leading to malnutrition and related health issues; may need to use food banks

Social exclusion: individuals living in poverty may face social stigma and discrimination, leading to feelings of isolation from mainstream society restricting participation in social and cultural activities, limiting opportunities for personal development and social integration.

Cycle of ooverty and limited upward mobility: poverty can become a cycle, as children born into impoverished families may face similar challenges, perpetuating the cycle across generations.

Increased crime rates: involvement in criminal activities as individuals may resort to illegal activities due to economic desperation.

Anti-poverty policies

- Topping up low pay with tax credits - working WTC and child CTC
- Increasing the NMW
- Increases in real value of child benefit CHB and other benefits
- Minimum income guarantees for pensioners (& triple lock)
- Training programmes to get youths & long-term unemployed back to work
- Expansion of childcare schemes for low-income parents who want to return to work.
- Support for key workers to get a mortgage and move on to the housing ladder
- Charity work/Food banks
- Redistribute income/wealth

Impact on efficiency and equity can vary depending on policy used; as poverty is multi-causal, a range of policies is likely to be more effective

Competition Policy & Regulation

Aims of Competition Policy

- **Promote competition** for the benefit of consumers
  - Consumers get lower prices and better quality
  - The most innovative, consumer-focused companies are the ones that survive; promotes dynamic efficiency
- Investigate (potential) **mergers** to ensure that the outcome won't reduce consumer welfare
- Investigate entire markets if there are problems for consumers, especially in **concentrated markets**
- Initiate action against companies involved in **cartels** or other illegal anti-competitive practices e.g. bid-rigging, collusion, predatory pricing
- Encourage **market liberalisation** e.g. deregulation, to improve contestability, make markets work more efficiently
- Analyse "**state aid**" measures to make sure it is fair and doesn't distort competition
- **Protect consumers** from "unfair" trading practices
- Encourage the government and regulators to promote competition

Competition Policy in the UK: Regulation

Overseen by the independent **Competition and Markets Authority (CMA)** and supported by a range of regulators, e.g. OFCOM, OFWAT, FCA, OFGEM etc.

The role of the CMA & the regulators is:
- Monitor & regulate prices via price caps
- Set standards for services/performance
- Ensure competition/contestability increases; reduce barriers to entry
- Correct market failure by acting as a 'surrogate competitor' to bring prices and profits to those similar to those in a competitive market
- Arbitrate between producers' and consumers' interests

Competition policy in UK

Approach is pragmatic – **case-by-case** regulation
- Tax incentives/grants to attract FDI and promote small business activity
- Deregulation/privatisation/competitive tendering
- Trade liberalisation
- Break-up monopolies (though may lose economies of scale)
- Nationalise; impose marginal cost pricing on natural monopolies
- Local sourcing and employment laws to reduce monopsony power
- Regulations and laws (e.g. Competition Act)
- Block/approve mergers

Price regulation

UK uses an **RPI-x formula** for pricing
- If business costs rise at RPI, then profits will fall incentivising greater productive efficiency
- For some industries, an RPI+k formula is used; encourages more investment
- RIIO = revenue = incentives, innovation and outputs

Advantages of price regulation: reduces monopoly power, less consumer exploitation; greater efficiency, helps control inflation

Disadvantages of price regulation: possible job loss, distorts price mechanism, there may be information failure & regulatory capture; lower profits may mean less investment

Profit regulation

Profit regulation considers the size of firms and evaluates a 'reasonable' rate of return from the capital base; more common in USA

If profit exceeds this rate, the regulator imposes price cuts or a one-off (windfall) tax

Advantages: prevents profiteering; less consumer exploitation

Disadvantages: discourages profits; encourages 'cost padding'; no efficiency incentive' scope for regulatory failure

Regulatory failure and nationalisation

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Policy interventions

Interventions can be evaluated by considering their impact on price, profit, efficiency, quality/performance, choice, jobs, the environment, R&D, investment

Regulatory failure

Key reasons why regulation may fail:
- **Regulatory capture:** a form of **government failure;** it happens when a government agency operates in favour of producers rather than consumers. Also known as a form of political capture or "cronyism."
- **Asymmetric information/information gap:** the industry may have more information than its regulators and use this to reduce regulation
- **Inadequate resources** for the regulators
- **Insufficient power** given to the regulators

Government intervention: nationalisation

Nationalisation: the transfer of ownership of assets/businesses from the private sector to the state (public) sector. Reasons for nationalisation include:
- Improve health & safety standards
- National interest / strategic industries
- Improve equality (of opportunity)
- "Too big to fail" i.e. collapse / failure would be too risky for the economy
- To gain economies of scale (productive efficiency)
- To increase allocative efficiency (MC pricing)
- May take externalities into account in decision-making
- Better industrial relations

Examples of industries that have been nationalised include public utilities such as water, energy, rail, though these are all currently privatised in the UK

## Arguments against nationalisation

- Diseconomies of scale
- Lack of competition (higher prices, less choice)
- Lack of incentives to minimise costs (X-inefficiency)
- Lack of supernormal profit (less innovation, less dynamic inefficiency?)
- Risk of moral hazard (e.g bail outs for banks post-GFC)
- Taxpayers 'fund' any losses
- Regulation of privatised industries may work better than full nationalisation

How marginal cost pricing works
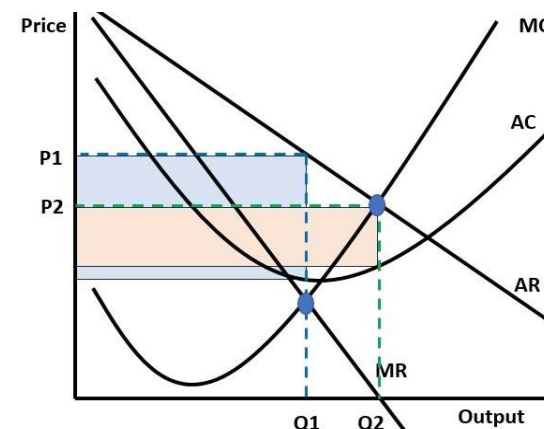
Private monopoly charges P1 and produces Q1 (at MC=MR); supernormal profit shaded blue
Nationalised monopoly sets P=MC; price falls to P2 and output increases to Q2, but supernormal profits are lower (pink shaded)

Natural monopoly has falling LRAC and MC curves. If private, it charges P1 and produces Q1 (at MC=MR); supernormal profit shaded blue
Nationalised natural monopoly sets P=MC; price falls to P2 and output increases to Q2, but minimum losses are shaded pink

Government Intervention: Privatisation

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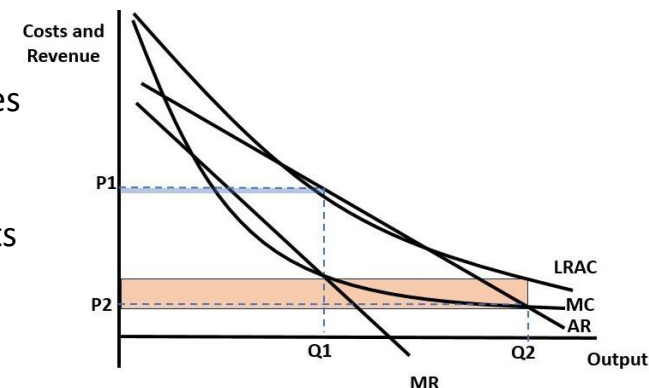
Privatisation

Privatisation: the transfer of ownership of assets / businesses from the state (public) sector to the private sector. It can be 'partial' or full. Forms of privatisation include:

- Contracting out/outsourcing
- Public Private Partnerships (PPPs)
- Private Finance Initiative (PFI)
- Competitive tendering

Advantages of privatisation

- Profit motive can lead to improved efficiency and more focus on consumer needs, which supports long-term growth
- Can lead to greater competition and in turn innovation
- Potential for lower prices, higher quality and more choice for consumers
- Potential for less bureaucracy
- Investment decisions are market-led
- May disperse share ownership; businesses have to deliver shareholder value
- Short term boost to government finances
- May create firms that can become global competitors

Disadvantages of privatisation

- Government can lose an important revenue source
- May lead to privatised natural monopolies which struggle to survive
- Risk of private monopolies exploiting consumers, and needing (expensive and often ineffectual) regulation
- May be a short-term focus because shareholders are focused on dividends
- Essential public services should arguably not be run for profit
- Externalities may be ignored in decision-making
- May be unclear whether objective is more competition or more profit

Deregulation

Deregulation of industries: reducing or removing government-imposed restrictions and regulations on businesses, with the aim of promoting competition, efficiency, and innovation

Advantages include increased competition, lower prices & better services for consumers, improved allocative efficiency; more innovation, improved dynamic efficiency; more economic growth, increased capital investment , new jobs, improved long run aggregate supply (LRAS); greater consumer choice, new companies can enter the market and existing companies can expand their offerings; contestability can lead to an improvement in economic welfare

Disadvantages include: reduced safety and quality as companies may prioritise profits; increased inequality, large companies may dominate the market and small businesses may struggle to compete; reduced consumer protection; environmental costs, negative externalities, such as pollution, and social problems, such as job losses, as companies may not be held accountable for their actions.

State ownership v private ownership

- Ownership of a business (state or private) is probably less significant than the extent to which an industry is genuinely contestable
- Quality of regulation is also important – a regulator can act as a surrogate consumer
- Distinguish between network (natural monopoly) and final mile service (can be more competitive) e.g. water & telecoms
- Try not to assume that the private sector is always more efficient & innovative than the state

Questions to consider about government interventions

- Does more competition always lead to benefits for consumers? Are there examples of where less competition might be better?
- Who gains and who loses from rising contestability?
- Why might competition authorities not always "get it right"?
- What are the best methods that competition authorities can use to improve consumer welfare in different markets?
- What is the impact of privatisation on markets, consumer welfare, equality and the wider economy?
- What factors might a government consider when thinking about nationalising an industry/firm?