# Market Structures

# Assessment Objectives

| Specific Expectations | |
|---|---|
| AO2 | Explain the main characteristics of perfect competition – many firms, free entry, homogeneous products |
| AO2 | Explain the main characteristics of monopoly – single or dominant firm, high barriers to entry, no close substitutes |
| AO2 | Explain the main characteristics of market structures in imperfect competition: varying degrees of market power , firm is price maker. Monopolistic competition – many firms, free entry, product differentiation. Oligopoly – few large firms, high barriers to entry, interdependence. |
| AO2 | Explain the meaning of market power |

# Market power and market failure

- **Firms** are organizations that employ the factors of production to produce and sell a good or service.
- A group of one or more firms producing identical or similar goods or services is an **industry**.
  - **Example:** The car industry consists of car manufacturer (Ford, Honda, Mercedes, etc.)
- Industries are analysed by use of models called **market structures**, which describe the characteristics of a market organization that determines the behaviour of firms.
- **Market power** is the extent to which each individual firm in the industry is able to control the price at which it sells its product.
  - **Perfect competition** where firms have no ability to control the price of their products; such firms have zero market power.

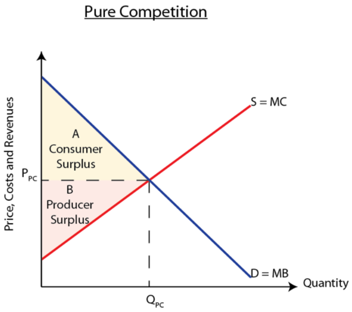
# Market power and market failure

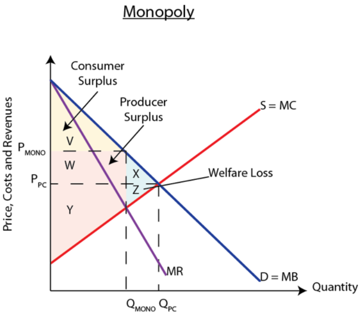
- Competition occurs when there are many buyers and sellers acting independently, so that no one has the ability to influence the price of the product.
- **Monopoly** where there is a single firm in the market; this firm has the greatest ability to control the price of its product, and therefore has the greatest amount of market power.
- In between the two extremes are two other market structures (monopolistic competition and oligopoly) where firms face some competition but also have market power, and for this reason they are known as **imperfect competition**.

- Firms in perfect competition, which have zero market power, do not result in market failure, and are the only market structure where firms achieve allocative efficiency.
- Firms in the other market structures result in market failure to varying degrees, with monopoly resulting in the greatest degree of allocative inefficiency.

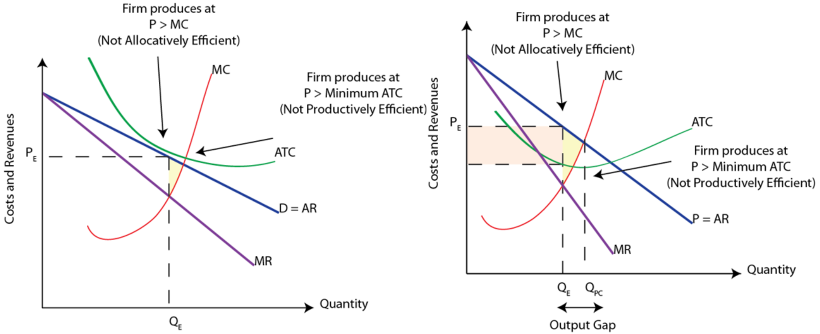
# Market power and market failure

- Monopolistic producers gain at the expense of consumers.
  - Consumer surplus shrinks from A to V in the monopoly
  - Producer surplus expands from B under perfect competition to W + Y under the monopoly
  - Triangle X represents the welfare loss to the consumer and Z the welfare loss to the producer (loss of surplus for producers)



- Imperfectly competitive firms achieve neither allocative nor productive efficiency.
  - P > MC (Allocative inefficiency)
  - P > Min ATC (Productive inefficiency)



# Market Structures

- Market structures can be defined on the basis of four main characteristics:

  1. **Market power**
     - The extent to which each individual firm in the industry is able to control the price at which it sells its product.
  2. **Number of firms in the industry**
  3. **Product differentiation**
     - Occurs when each firm in an industry tries to make its product different from those of its competitors; usually in order to create some market power (monopoly power).
     - Products can be differentiated by physical differences, quality differences, location, services and product image.
  4. **Barriers to entry**
     - Anything that can prevent a firm from entering an industry and beginning production, as a result limiting the degree of competition in the industry. **Free entry** occurs where there are no barriers to entry.

# Entry Barriers

- **Entry Barriers** – are economic or institutional obstacles to businesses entering an industry.
  - There are six main entry barriers in **imperfect competition**:
    1. Increasing returns to scale
    2. Market experience
    3. Restricted ownership of resources
    4. Legal obstacles (**Example:** Patents)
    5. Market abuses (**Example:** Predatory pricing)
    6. Advertising (most common in oligopolies)

# Perfect Competition

- **Perfect Competition** is a market structure in which the decisions of buyers and sellers have no effect on the market price.
  - There is a very large number of firms in the industry.
  - All firms in the industry sell **homogeneous** products; this means the products are identical (undifferentiated); there are no brand names.
  - There are no barriers to entry; any firm that want to enter the industry and begin producing the good or service can do so freely.
    - Perfect competition is highly unrealistic and it is difficult to find markets in the real world that meet the characteristics.
    - **Example(s):** Agriculture market, commodity market and foreign exchange market.

# Monopolistic Competition

- **Monopolistic Competition** is a market type in which a large number of firms compete with each other by making similar but slightly different goods and services.
  - There is a fairly large number of small or medium-sized firms in the industry.
  - There are no barriers to entry; any new firm can enter the industry.
  - There is product differentiation; each firm tries to make its product different from those of the other firms in the industry in terms of various characteristics like the quality, servicing or packaging.
  - These firms use product differentiation to gain some control over the price of their products. However, the existence of other similar products limits the degree of its power to control the market prices.
  - **Example(s):** Shoe, clothing, detergent, computer, and restaurant industries.

# Oligopoly

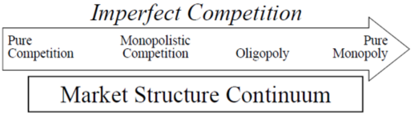
- **Oligopoly** is a market structure in which small numbers of producers compete with each other and face strategic interdependence.
  - There is a small number of large firms in the industry; because of their small number, the firms are interdependent, because the action of one firm affects others.
    - This means that each firm tries to predict what the rival firms will do.
    - Firms base their actions on the observed or anticipated actions of rival firms.
  - Products may be either differentiated or undifferentiated.
  - There are high barriers to entry; it is difficult for a new firm to enter the industry.
  - **Example(s):** Car industry, airlines, electronic equipment and the oil, steel, aluminum, copper and cement industries.

# Monopoly

- **Monopoly** a market structure with a single supplier that comprises the entire industry. There is no competition and the product produced is unique.
    - Monopolists have significant control over the price of the good/service.
    - There is a single seller or dominant firm in the industry, so the single firm is the entire industry.
        - In the real world, a monopolistic industry may consist of one firm that dominates the market with a very large market share.
    - The firm produces and sells a unique good, with no close substitutes.
        - If substitute goods existed, then consumers could switch to buying the substitute, and there would no longer be a monopoly of the good.
    - There are high barriers to entry in the industry; the monopoly owes its dominance in the market partly to the inability of other firms to enter.
    - **Example(s):** Telephone, water and electricity companies in the areas where they operate as a single supplier (Natural monopoly).

# Market Structure: Summary

| | Number of firms | Type of product | Ease of entry | Market power | Degree of competition | Examples |
|---|---|---|---|---|---|---|
| Perfect competition | Many | Homogeneous | Very easy | None | Perfect | Agriculture |
| Monopolistic competition | Relatively many | Differentiated | Very easy | Some | Good amount | Restaurants |
| Oligopoly | Few | Ambiguous | Very difficult | Significant | Some | Cars |
| Monopoly | One | Unique | Very difficulty | Very Significant | None | Utilities |



# Profit Maximization

# Assessment Objectives

| Specific Expectations | |
|---|---|
| AO2 | Explain cost, revenue and profit concepts<br>- Total revenue, average revenue, and marginal revenue<br>- Total cost, average cost, marginal cost<br>- Abnormal profit, normal profit, loss |
| AO4 | Calculations from data of profit, marginal cost, marginal revenue, average cost, average revenue |

# Revenue

- **Revenues** are payments firms receive when they sell the goods and services they produce. There are three fundamental revenue concepts.

  1. **Total Revenue (TR)** is obtained by multiplying the price at which a good is sold (P) by the number of units of the good sold (Q).

  $$\mathrm{TR} = \mathrm{P} \times \mathrm{Q}$$

  2. **Average Revenue (AR)** s revenue per unit of output sold, or total revenue (TR) divided by the units of output (Q)

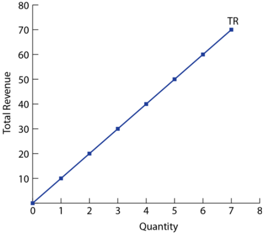
  $$\mathrm{AR} = \frac{\mathrm{TR}}{\mathrm{Q}}$$

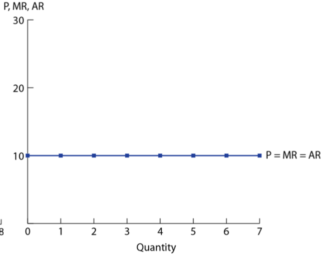
  3. **Marginal Revenue (MR)** is the additional revenue arising from the sale of an additional unit of output.

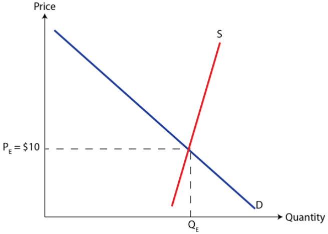
  $$\mathrm{MR} = \frac{\Delta \mathrm{TR}}{\Delta \mathrm{Q}} = \frac{\partial \mathrm{TR}}{\partial \mathrm{Q}}$$

- Perfectly competitive firms are unable to control price; price is constant as output varies.

| Output (Q) | Price (P) | Total Revenue (TR) | Marginal Revenue (MR) | Average Revenue (AR) |
|---|---|---|---|---|
| 1 | 10 | 10 | 10 | 10 |
| 2 | 10 | 20 | 10 | 10 |
| 3 | 10 | 30 | 10 | 10 |
| 4 | 10 | 40 | 10 | 10 |
| 5 | 10 | 50 | 10 | 10 |
| 6 | 10 | 60 | 10 | 10 |
| 7 | 10 | 70 | 10 | 10 |



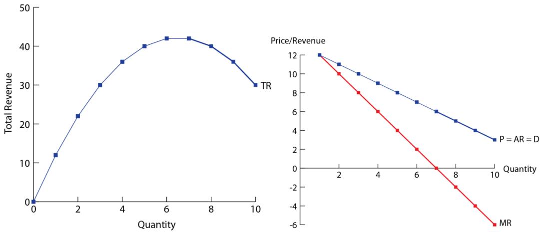



# Revenues: Imperfect Competition

- Imperfectly competitive firms have control over price; price varies with output varies.

| Output (Q) | Price (P) | Total Revenue (TR) | Marginal Revenue (MR) | Average Revenue (AR) |
|---|---|---|---|---|
| 1 | 12 | 12 | 12 | 12 |
| 2 | 11 | 22 | 10 | 11 |
| 3 | 10 | 30 | 8 | 10 |
| 4 | 9 | 36 | 6 | 9 |
| 5 | 8 | 40 | 4 | 8 |
| 6 | 7 | 42 | 2 | 7 |
| 7 | 6 | 42 | 0 | 6 |
| 8 | 5 | 40 | −2 | 5 |



# Costs of Production: Short-run

- **Costs of production** are payments by firms to obtain and use factors of production in their production processes.
  - When the firm uses resources it does not own, it buys them from outsiders and makes payments of money to the resource suppliers.
    - Such payments made by a firm to outsiders to acquire resources for use in production are known as **explicit costs**.
    - **Example:** A firm hires labour and pays a wage.
  - On the other hand, when the firm uses resources it owns there is still a cost, which consists of the income that is sacrificed when the firm uses such self-owned resource.
    - The sacrificed income arising from the use of self-owned resources by a firm is an **implicit cost** (opportunity cost).
    - **Example:** In the case of an office building owned and used by the firm, the cost is the rental income that could have been earned if the building were rented out.

# Costs of Production: Short-run

- The sum of explicit and implicit costs incurred by a firm for its use of resources, whether purchased or self-owned, are known as economic costs. When economists refer to “costs” they mean “economic costs”.

$$\text{Economic Costs} = \text{Explicit costs} + \text{Implicit costs}$$

- **Fixed costs (FC)** are costs that do not vary with changes in output.
  - **Example:** Rental payments, interest on a firm's debt, depreciation, and insurance premiums.
- **Variable costs (VC)** are costs that change with the level of output.
  - **Example:** Materials, labour, and fuel
- **Total cost (TC)** are all costs of production incurred by a firm. It the sum of all total fixed costs (FC) and total variable costs (VC) at each quantity of output.

$$TC = FC + VC$$

# Costs of Production: Short-run

- **Average cost (AC)** are costs per unit of output, or the cost of each unit of output on average. They are calculated by dividing total cost by the number of units of output produced.

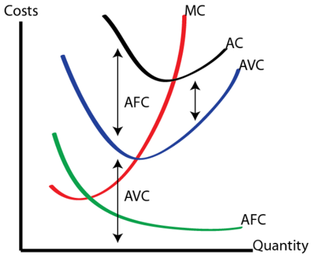
$$AC = \frac{TC}{Q}$$

- **Marginal cost (MC)** is the extra or additional cost of producing one more unit of output. It tells us by how much total costs increase if there is an increase in output by one unit.

$$MC = \frac{\Delta TC}{\Delta Q}$$

# Relationship between Marginal Costs and Average Costs

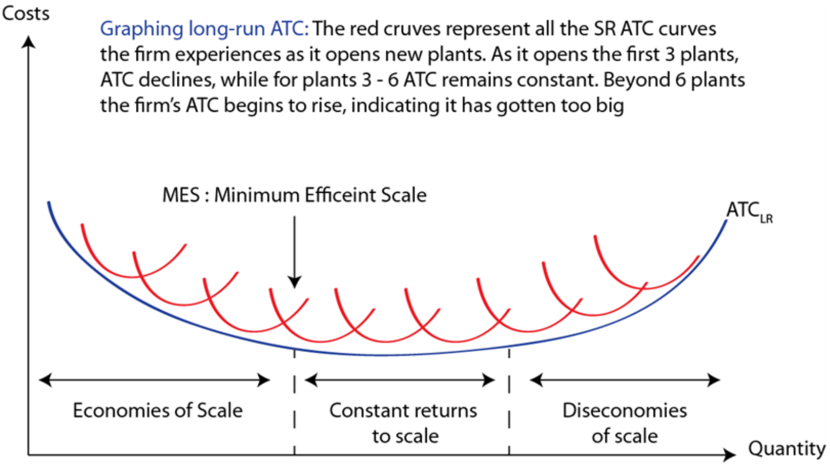
- It is important to note the relationship between the average cost and marginal cost curves.
  - When the marginal cost curve lies below the average cost curve (MC $<$ AC) then average cost is falling.
  - When the marginal cost curve lies above the average cost curve (MC $>$ AC) then average cost is increasing.
  - The marginal cost curve always intersects the average cost curve when this is at its minimum.



# Costs of Production: Long-run

- The long-run is the period of time when the firm varies (changes) all its factors of production.
  - We are interested in examining how the firm's average costs, or costs per unit of output, change when it grows larger by increasing all of its factors of production.
- At any moment in time, when the firm is in the short run, it has a particular short-run AC curve which we can call its short-run average cost (SRAC).
- When it grows over time, we can think of it as going into the long-run, increasing all of its factors of production, and then going into a new short-run with a new SRAS.
- The long-run average cost curve (LRAC) is derived from the locus of points created by the minimum of the SRAC curves at each level of output.
  - The U-shape of the LRAC curve can be found in **economies of scale** and **diseconomies of scale**

# Costs of Production: Long-run



## Economics of Scale

- **Economies of Scale** decreases in the average costs of production that occur as a firm increases its output by varying all its inputs
  - Explains the downward-sloping portion of the long-run average total cost curve.
  - As a firm increases its size, the costs per unit of output fall.

1. **Specialization of labour**
   - As the scale of production increases, more workers must be employed, allowing for greater specialization.
   - Each worker specializes in performing tasks that make use of skills, interests and talents, thus increasing efficiency and allowing output to be produced at a lower average cost.
2. **Bulk buying of inputs (factors of production)**
   - As quantities of inputs purchased increase, the price per unit drops.

# Economics of Scale

3. **Specialization of management**
   - Larger scales of production allow for more managers to be employed, each of whom can be specialize in a particular area (such as production, sales, and finance), again resulting in greater efficiency and lower average cost.
4. **Financing economies**
   - Larger firms may have lower interest rates, thus contributing to lower costs per unit of output.
5. **Spreading certain costs over larger volumes of output**
   - Costs of certain activities such as marketing and advertising, design, research and development, result in lower average costs if they can be spread over large volumes output.

# Diseconomics of Scale

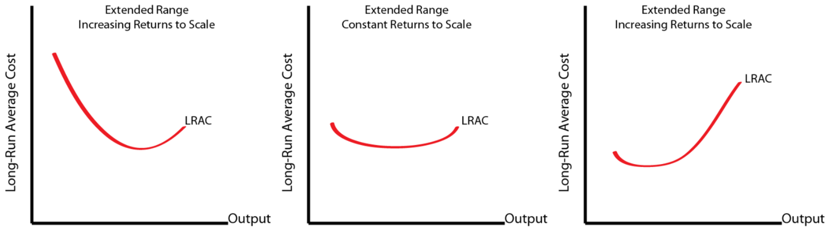
- **Diseconomies of Scale** are increases in the average costs of production in the long-run as a firm increases its output by increasing all its inputs.
  - They are responsible for the upward-sloping part of the LRAC curve
  - As a firm increases its scale of production, average costs increase.

  1. **Coordination and monitoring difficulties**
     - As a firm grows large, its management may run into difficulties of co-ordination, organization, cooperation and monitoring.
     - The result involves growing inefficiencies causing average costs to increase as the firm expands.
  2. **Communication difficulties**
     - A larger firm size may lead to difficulties in communication between various component part of the firm, resulting in inefficiencies and higher average costs.

# Diseconomics of Scale

3. **Poor worker motivation**

    - If workers begin to lose their motivation, to feel bored and to care little about their work, they become less efficient, resulting in higher average costs.



# Profits

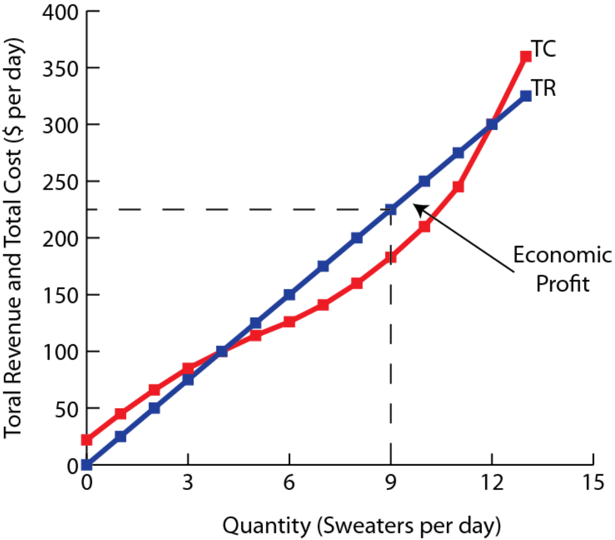
- Standard economic theory assumes that firms display rational behaviour by trying to maximize their profits.

$$
\begin{aligned}
\text{Profit} &= \text{Total revenue} - \text{Total cost} \\
&= \text{Total revenue} - \text{Explicir costs} - \text{Implicit costs}
\end{aligned}
$$

- **Profit maximization** involves determining the level of output that the firm should produce to make a profit as large as possible.
- There are two equivalent approaches to analysing profit maximization.

1. **Total revenue** & **Total cost Approach** – profit maximization occurs at the level of output at which the difference between total revenue and the total cost is maximum.

# Profits

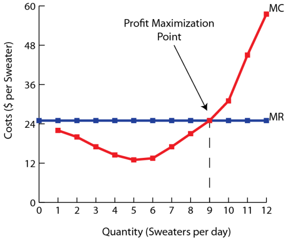


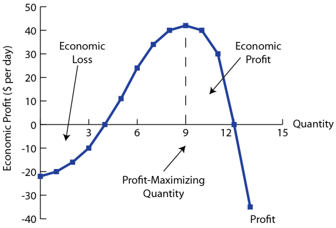
400
350
300
250
200
150
100
50
0
Toral Revenue and Total Cost ($ per day)
TC
TR
Economic Profit
0
3
6
9
12
15
Quantity (Sweaters per day)

2. **Marginal revenue** & **Marginal cost Approach** – firms maximize profits when they produce a quantity of output where MR = MC

- Where MR > MC if a firm increases its output by one unit, the additional revenue it would receive (MR) will be greater than it's additional costs so the incremental profit is positive and the firm should continue to increase output.

- If MR < MC the additional revenue it would receive for an extra unit of output is less than the additional cost, so it's incremental profit is negative and it should cut back output.



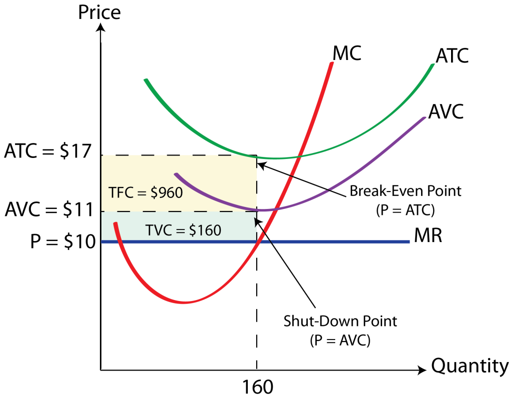



# Profits

- Firms do not always make a profit and the theory of the firm is also concerned about how much output a loss-making firm should produce in order to minimize its loss.
- **Abnormal profit** arises when total revenue of a firm is greater than its total costs; alternatively when price is greater than average cost.
  - $\text{TR} > \text{TC} \Leftrightarrow \text{P} > \text{ATC}$
- **Normal profit** arises when total revenue of a firm is equal to its total costs; alternatively when price is equal to average cost.
  - $\text{TR} = \text{TC} \Leftrightarrow \text{P} = \text{ATC}$
  - Normal profit is earned when abnormal profit is zero.
  - It is the minimum amount of revenue that the firm must receive so that it will keep the business running (as opposed to shutting down).

# Profits

- **Loss** arises when total costs of a firm are greater than its total revenue; alternatively when average cost is greater than price.
  - $\text{TR} < \text{TC} \Leftrightarrow \text{P} < \text{ATC}$



# Perfect Competition

# Assessment Objectives

| Specific Expectations | |
|---|---|
| AO2 | Explain firms in perfect competition as price takers having no market power |
| AO2 | Explain profit maximization in the short run and long run |
| AO2 | Explain the meaning of allocative efficiency in terms of it necessary conditions, P = MC or MB = MC or maximum social surplus |
| AO4 | Draw diagrams showing:<br>- The perfectly competitive firm as a price taker where P = D = AR = MR<br>- The perfectly competitive firm making abnormal profit, normal profit, loss<br>- Perfectly competitive market equilibrium showing allocative efficiency |
| AO3 | Discuss the advantages/disadvantages of perfect competition |

# Perfect Competition: Assumptions

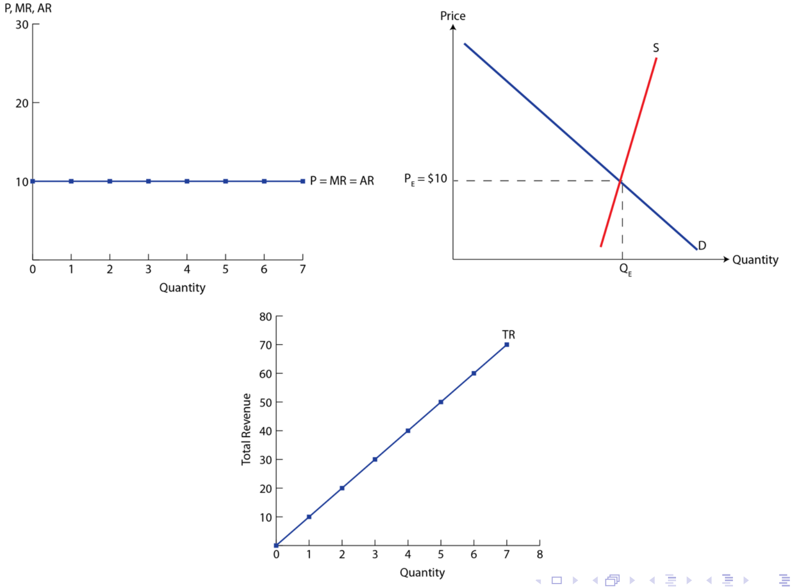
- The model of perfect competition is based on the following assumptions:

  1. **Large number of firms**
     - Each firm's output is small in relation to the size of the market. Consequently, firms are price takers and the demand curve is perfectly elastic.
  2. **Homogeneous products**
     - The products produced by the firms in each industry are identical.
  3. **Free entry and exit**
     - There are no barriers to entry into or exit from the industry.
  4. **Perfect information**
     - All firms and all consumers have complete information regarding products, prices, resources and methods of production.
  5. **Perfect resource mobility**
     - Resources can easily and without any cost be transferred from one firm to another.

# Perfect Competition: Assumptions

- The demand curve for a good facing the perfectly competitive firm is perfectly elastic (horizontal) at the price determined in the market for that good.
  - This means the firm is a **price-taker**, as it accepts the price determined in the market.
  - The firm has no ability to influence price therefore it has no market power.
  - No matter how much output the perfectly competitive firm sells, P = MR = AR and these are constant at the level of the horizontal demand curve.
  - This follows from the fact hat price is constant regardless of the level of output sold.

# Perfect Competition: Assumptions



# Profit Maximization: Short-run

- Even when the firm produces its profit-maximizing output, the firm may earn negative, zero or positive profits.

$$\begin{aligned} \text{Profit} &= \text{TR} - \text{TC} \\ &= \text{P} \times \text{Q} - \text{ATC} \times \text{Q} \\ &= (\text{P} - \text{ATC}) \times \text{Q} \end{aligned}$$

  - There are three possible cases when determining the profit maximizing or cost-minimizing output.

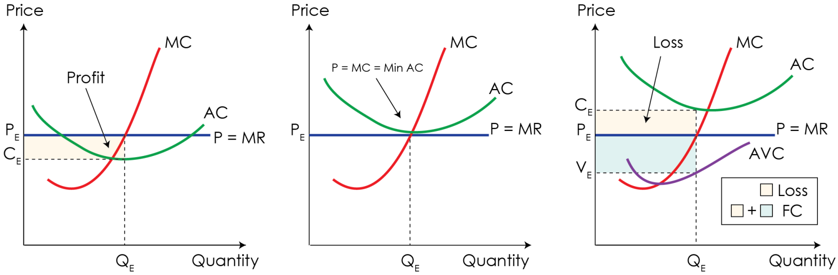
  1. **Abnormal (Supernormal) Profit**
     - When P $>$ ATC (TR $>$ TC) at the level of output where MC $=$ MR, the firm earns abnormal profit (positive profit)

2. **Normal Profit**

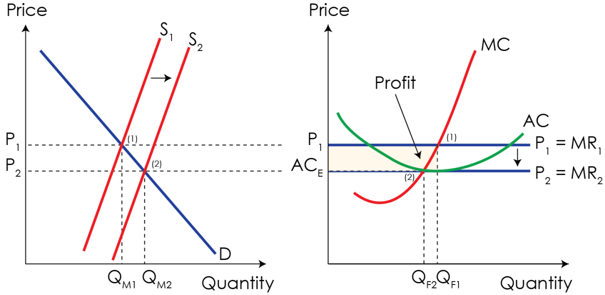
   - When P = ATC (TR = TC) at the level of output where MC = MR, the firm earns normal profit (zero profit)

3. **Loss**

   - When P < ATC (TR < TC) at the level of output where MC = MR, the firm makes a loss (negative profit)



- In a perfectly competitive long-run equilibrium, the entry and exit dynamic of firm ensures that profits and losses and eliminated, and revenues are just enough to cover all costs so that every firm earns normal profit.
  - In long-run equilibrium under perfect competition, the firm achieves allocative efficiency where P = MC (or where MB = MC) and productive efficiency where P = min ATC.



# Perfect Competition: Evaluation – Insights

1. **Allocative efficiency**
   - Perfect competition leads to the "optimal" allocation of resources, achieved through P = MC (or MB = MC) in the long-run equilibrium.
2. **Low prices for consumers**
   - Consumers benefit from low prices, due to the absence of abnormal profits, which would have led to a higher price.
3. **Closing down of inefficient producers**
   - Inefficient firms are those that produce at higher than necessary costs.
   - The revenues of inefficient firms are insufficient to cover all costs, leading to losses that force these firms to leave the industry in the long-run.
4. **Market responds to consumer tastes**
   - Changes in consumer tastes are reflected in changes in market demand and therefore market price.

# Perfect Competition: Evaluation – Limitations

1. **Unrealistic assumptions**
   - The model rests on strict and unrealistic assumptions that are rarely met in the real world.
2. **Cannot take advantage of economies of scale**
   - Economies of scale lead to lower average costs as a firm grows larger and larger.
   - In perfect competition firms are too small to grow to a size large enough to have economies of scale.
3. **Lack of product variety**
   - All firms within an industry produce identical or undifferentiated (homogeneous) products, however consumers prefer product variety.
4. **Limited availability to engage in new product development**
   - The lack of abnormal profits in the long run does not offer firms the necessary funds to pursue research and development.

# Monopoly

# Assessment Objectives

| Specific Expectations | |
|---|---|
| AO2 | Explain the monopolist's market power using a diagram where $P > MC$ |
| AO2 | Explain profit maximization by the monopolist with diagrams showing abnormal profit, normal profit, and loss. |
| AO2 | Explain the monopolist's allocative inefficiency illustrating market failure. |
| AO4 | Explain welfare loss compared to perfect competition with a diagram showing lower output, higher price, and welfare loss. |
| AO2 | Explain natural monopoly and draw a diagram for natural monopoly. |
| AO3 | Discuss the advantages and disadvantages of monopoly. |

## Monopoly: Assumptions

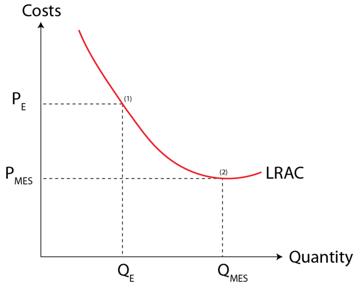
- **Monopoly** a market structure with a single supplier that comprises the entire industry. There is no competition and the product produced is unique.
  - Monopolists have significant control over the price of the good/service.
  - There is a single seller or dominant firm in the industry, so the single firm is the entire industry.
    - In the real world, a monopolistic industry may consist of one firm that dominates the market with a very large market share.
  - The firm produces and sells a unique good, with no close substitutes.
    - If substitute goods existed, then consumers could switch to buying the substitute, and there would no longer be a monopoly of the good.
  - There are high barriers to entry in the industry; the monopoly owes its dominance in the market partly to the inability of other firms to enter.
  - **Example(s):** Telephone, water and electricity companies in the areas where they operate as a single supplier (Natural monopoly).

# Barriers to Entry

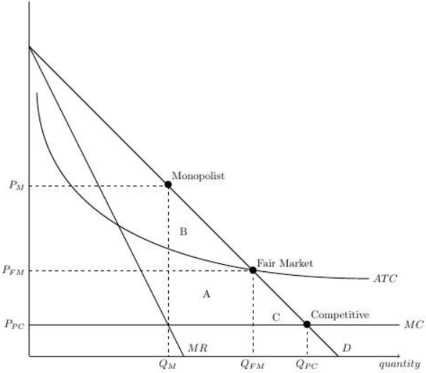
- **Entry Barriers** – are economic or institutional obstacles to businesses entering an industry.
  - There are six main entry barriers in **imperfect competition**:

1. **Economies of Scale** – result in the downward-sloping portion of a firm's long-run average cost curve (LRAC) resulting in lower average costs as the firm increases its size.
   - Large economies of scale create a barrier to entry.
   - The large firm can charge a lower price than the smaller firm, and force the smaller firm into a situation where it will not be able to cover its costs.
   - New firms that try to enter the industry on a small scale they will be unable to compete with the larger one.
   - Firms attempting to enter the market on a very large scale would encourage huge start-up costs, and would be unlikely to take the risk.

# Barriers to Entry




2. **Natural monopoly** – is a firm that has economies of scale so large that it is possible for a single firm (a monopoly) to supply for the entire market at a lower average costs than two or more smaller firms.
   - This happens when the market demand for the monopolist's product is within the range of falling long-run average cost, where there are economies of scale.
   - **Example:** Telephone, water, and electricity companies in areas where they operate as a single suppler.




- The firm cannot produce any output greater than $Q_{FM}$ and not make a loss.
- If the firm were split into multiple firms of equal size, the average costs would be higher and the price that would allow the firm to earn a normal profit (P = ATC) would also be higher.

# Barriers to Entry

- Natural monopoly acts as a strong barrier to entry because potential entrants realise that it would be difficult to attain the low costs of the already existing firm.
- High average costs would mean having to charge a high price for the product, so that the new firm would be unable to compete with the existing firm.
- A natural monopoly may stop being "natural" if changing technologies create conditions that allow new competitor firms to enter the industry and begin production at a relatively low cost.

3. **Branding** – involves the creation by a firm of a unique image and name of a product.
    - It works through advertising campaigns that try to influence consumer tastes in favour of the product, attempting to establish consumer loyalty.
    - If branding is successful, many consumers will be convinced of the product's superiority, and will be unwilling to switch to substitute products, even though these may be qualitatively very similar.

- Branding may work as a barrier to entry by making it difficult for new firms to enter a market that is dominated by a successful brand.

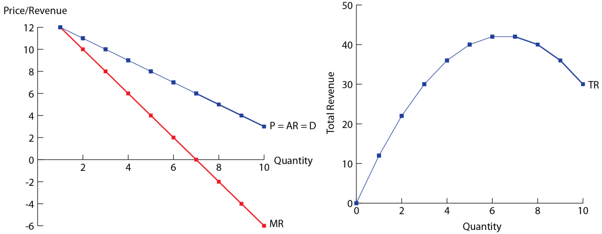
4. **Legal Barriers** – are legal restrictions that limit the level of competition within an industry.
   - **Patents** – are rights given by the government to a firm that has developed a new product or invention to be its sole producer for a specified period of time. For that period, the firm producing the patented product has a monopoly on production and sale of the product.
   - **Licences** – are granted by governments for particular professions or particular industries. Such licences limit competition in the industry.
   - **Copyrights** – guarantee that an author (or an author's appointed person) has the sole rights to print, publish, and sell copyrighted works.
   - **Tariffs, quotas, and trade restrictions** – limit the quantities of a good that can be imported into a country, thus reducing competition.

# Barriers to Entry

5. **Control of essential resources** – monopolies can arise from ownership or control of a strategic resources or exclusive rights to operate in a specific region.
   - A local monopoly is a single producer/supplier within a particular geographical area.
   - Local monopolies appear more commonly than national or international ones.
   - **Example:** On a local level, professional sports leagues create a local monopoly by signing long-term contracts with the best players and securing exclusive use of sports stadiums.
6. **Aggressive tactics** – if a monopolist is confronted with the possibility of a new entrant into the industry, it can create entry barriers by cutting its price, advertising aggressively, threatening a takeover of the potential entrant, or any other behaviour that can dissuade a new firm from entering the market.

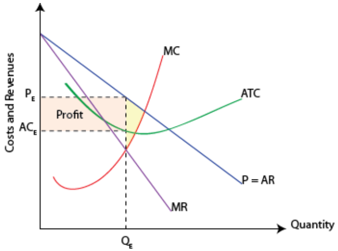
# Demand and Revenue Curves Under Monopoly

- Since the pure monopolist is the entire industry, the demand curve it faces is the industry or market demand curve, which is downward-sloping.
  - Market power arises whenever a firm faces a downward-sloping demand curve.
  - Firms in all market structure expect perfect competition face a downward-sloping demand curve, and therefore have varying degree of market power, or the ability to control the price at which they sell their output; they are therefore **price-makers**.



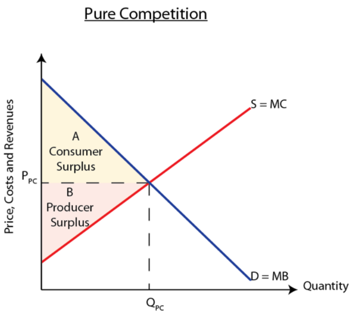
# Profit Maximization by the Monopolist

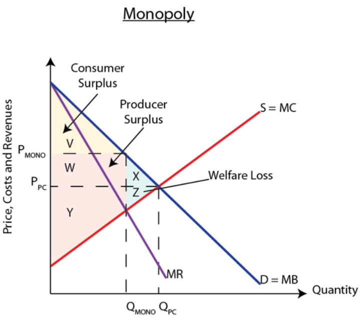
- Under monopoly, high barriers to entry prevent potential competitor firms from entering a profit-making industry, and the monopolist can therefore continue making abnormal profits indefinitely in the long-run.
- There are there possible cases when determining the profit maximizing output for a monopolist.
  1. **Abnormal (Supernormal) profit:** Profit $> 0$ & P $>$ ATC (TR $>$ TC)
  2. **Normal profit:** Profit $= 0$ & P $=$ ATC (TR $=$ TC)
  3. **Loss:** Profit $< 0$ & P $<$ ATC (TR $<$ TC)



# Monopoly: Market outcomes and Efficiency

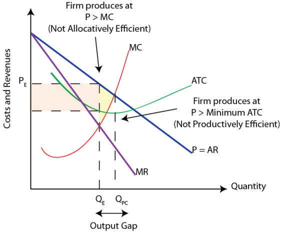
- A comparison of monopoly with perfect competition reveals that price is higher and quantity of output produced is lower in monopoly.
  - Since $Q_{Mono} < Q_{PC}$, the industry under monopoly produces a smaller quantity of output than the industry under perfect competition.
  - Since $P_{Mono} > P_{PC}$, the monopolist sells output at a higher price than the perfectly competitive industry.



# Monopoly: Market outcomes and Efficiency

- The presence of welfare loss in monopoly indicates market failure: there is allocative inefficiency, shown by MB > MC at $Q_E$, meaning there is underallocation of resources; too little of the good is produced.
  - The monopolist gains at the expense of consumers as a portion of consumer surplus is converted into producer surplus.
  - In a monopoly the underallocation of resources to the good is indicated also by P > MC at the profit-maximizing level of output.
  - Market power refers to the ability of a firm to charge a price greater than marginal cost, or P > MC. This can only occur when a firm faces a downward sloping demand curve.



# Criticisms of Monopoly

- There are numerous criticisms of monopoly including:
  1. **Welfare loss, allocative inefficiency and market failure**
     - In contrast to perfect competition, the monopolist fails to achieve allocative efficiency.
     - Monopoly represents a form of market failure where the monopolist underallocates resources to the production of the good so that MB $>$ MC (P $>$ MC).
  2. **Higher price and lower output in monopoly**
     - The welfare loss arises because the monopolist produces a smaller quantity of output and sells it at a higher price than a perfectly competitive industry.
  3. **Loss of consumer surplus to the monopolist**
     - By charging a higher price than the perfectly competitive firm, such that P $>$ MC means that a portion of consumer surplus is taken away from consumers and gained by the monopolist.

# Criticisms of Monopoly

4. **Negative impacts of the distribution of income**
   - Since monopolies charge higher prices than perfectly competitive firms, there is a redistribution of income away from consumers who must pay the higher prices towards the owners of the monopoly in the form of higher profits.
5. **Lack of competition may give rise to higher costs**
   - Whereas firms in perfect competition are under constant pressure to produce with the lowest possible costs to survive, under monopoly the absence of competitor firms may result in higher average costs ($P >$ min ATC).
   - The possibility of maintaining abnormal profits over the long-run due to high barriers to entry can make the monopolist less concerned about keeping costs low, this is known as X-inefficiency.
6. **Less innovation**
   - High barriers to entry, shielding monopolies from competition, could make them less likely to innovate than firms under constant pressure to innovate to maintain or increase their share of sales.

# Benefits of Monopoly

- There are some potential benefits of monopoly including:

  1. **Economies of scale**
     - Economies of scale are a major argument in favour of large firms that can achieve lower costs as they grow larger.
     - Consumers may gain because lower average costs may potentially translate into lower prices, as well as increased quantity of output.
     - Society also gains from economies of scale because lower average costs of production mean there is less waste in the use of resources.
  2. **Natural monopoly**
     - In the event of a natural monopoly, there are added benefits due to the achievement of very low average costs by the single firm.
  3. **Research and development (R&D)**
     - Abnormal profits provide firms with the ability to finance large R&D projects.

# Benefits of Monopoly

- Protection from competition due to high barriers to entry may favour innovation and product development, by offering firms the opportunity to enjoy the profits arising from their innovative activities.
- Firms may use product development and technological innovation as a means of maintaining their abnormal profits over the long-run, by creating barriers o entry for new potential rivals.
- If a firm can develop a new product that potential rivals are unable to produce, the rivals may be less likely to try to enter the industry and compete with the innovating monopolist.

# Monopolistic Competition

RIDLEY COLLEGE
SINCE 1889

# Assessment Objectives

| Specific Expectations | |
|---|---|
| AO2 | Explain that monopolistic competition has less market power due to many substitutes compared to monopoly and illustrate with a diagram showing a more elastic demand curve compared with monopoly. |
| AO2 | Explain profit maximization in the short-run and long-run, with diagrams showing abnormal profit, normal profit, and loss. |
| AO2 | Explain allocative inefficiency and market failure in monopolistic competition. |
| AO2 | Explain that monopolistic competition has more product variety in exchange for less efficiency. |
| AO3 | Discuss the advantages and disadvantages of monopolistic competition. |

# Monopolistic Competition: Assumptions

- **Monopolistic Competition** is a market type in which a large number of firms compete with each other by making similar but slightly different goods and services.
  - There is a fairly large number of small or medium-sized firms in the industry.
  - There are no barriers to entry; any new firm can enter the industry.
  - There is product differentiation; each firm tries to make its product different from those of the other firms in the industry in terms of various characteristics like the quality, servicing or packaging.
  - These firms use product differentiation to gain some control over the price of their products. However, the existence of other similar products limits the degree of its power to control the market prices.
  - **Example(s):** Shoe, clothing, detergent, computer, and restaurant industries.

# Product Differentiation

- **Product Differentiation** occurs when each firm in an industry tries to make its product different from those of its competitors; usually in order to create market power (monopoly power).
  - Product differentiation can be achieved by:

1. **Physical differences**
   - Products may differ in size, shape, material, texture, taste, packaging, etc.
2. **Quality differences**
   - Products can differ in quality.
3. **Location**
   - Some firms attempt to differentiate their product by locating themselves in areas that allow easy access for customers.
   - **Example(s):** Hotels near airports and convenience stores in residential areas.

# Product Differentiation

4. **Services**
   - Some firms offer specific services to make their products more attractive.
   - **Example(s):** Home delivery, product demonstrations, free support, warranties and purchase terms.
5. **Product image**
   - Some firms attempt to create a favourable image by use of celebrity advertising or endorsements, by brand names, or attractive packaging.

# Monopolistic Competition: Demand curve

- Monopolistic competition resembles perfect competition because there are many firms in the industry and there is freedom on entry.
- It is like monopoly because of product differentiation.
- Firms in monopolistic competition face a demand curve that is less elastic than in perfect competition, but more elastic than monopoly.
  - Firms face a downward-sloping demand curve for their product.
  - However, because each of these products is at the same time a substitute for the other, this demand curve is relatively elastic.
- In monopolistic competition, if a firm raises its price, it will lose more sales than the monopolist, because consumers now do have substitutes they can switch to.
  - However, it will lose fewer sales than the perfectly competitive firm because of product differentiation – the available substitutes are not perfect substitutes, as they are in perfect competition.

# Price and Non-Price Competition

- **Price Competition**
  - Occurs when a firm lowers its price to attract consumers away fro rival firms thus increasing sales at the expense of other firms.
    - May occur in the case of monopolistic competition or oligopoly, but not in perfect competition (or monopoly).
- **Product Differentiation**
  - Occurs when firms compete with each other on the basis of methods other than price (such as product differentiation, advertising and branding).
    - Non-price competition occurs in oligopoly and monopolistic competition.
    - The more differentiated the product is from its substitutes and the more successful the advertising and branding as methods of convincing consumers about the superiority of a product, the less elastic will be the demand curve facing the firm, the greater the market power (the ability to control price), and the larger the firm's potential to increase short-run profits.

# Price and Non-Price Competition

  - By contrast, firms that are less able to achieve consumer loyalty for their product, and whose product is less differentiated from substitutes, may have to rely more on price competition to increase their sales.

- Monopolistically competitive firms compete with each other on the basis of both price and non-price competition.
  - They engage heavily in product differentiation through R&D in product development, as well as in advertising and branding.
  - Firms that can attract customers by use of these methods increase their market power and their ability to charge a higher price without risking loss of buyers to rival firms.

# Monopolistic Competition: Profit Maximization

- There are there possible cases when determining the profit maximizing output for a monopolistically competitive firm in the short-run.

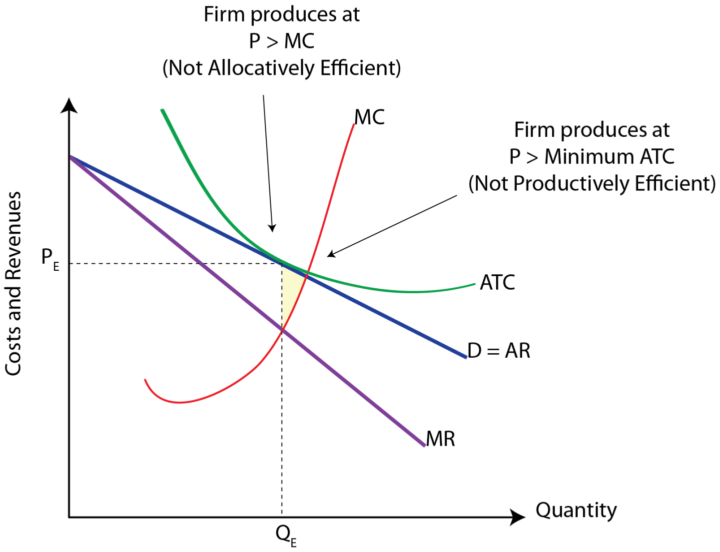
  1. **Abnormal (Supernormal) profit:** Profit $> 0$ & P $>$ ATC (TR $>$ TC)
  2. **Normal profit:** Profit $= 0$ & P $=$ ATC (TR $=$ TC)
  3. **Loss:** Profit $< 0$ & P $<$ ATC (TR $<$ TC)

- In monopolistic competition, in the long-run, profit-making industries attract new entrants; on loss-making industries, some firms shut down and exit the industry.
  - The process of entry and exit of firms in the long-run ensures that economic profit or loss is zero and all firms earn normal profit.
  - If firms are making abnormal profits then new firms will enter and they will attract customers away from existing firms.
  - The result will be to decrease demand facing existing firms, so that it shifts left until it is just tangent to the ATC curve and the firms earn normal profit since P $=$ ATC.

# Monopolistic Competition: Efficiency

- Monopolistically competitive firms achieve neither productive efficiency (P = Minimum ATC) nor allocative efficiency (P = MC).
  - In monopolistic competition P > MC or alternatively MB > MC, indicating there is market failure.
  - The market underallocates resources to the production of the good and too little of it is produced relative to the social optimum level.
  - Economists argue that some inefficiency in monopolistic competition is justified by the presence of product differentiation, which leads to greater product variety.
  - In other words consumers enjoy product variety and gain this while giving up some efficiency.

# Monopolistic Competition: Efficiency



# Monopolistic Competition versus Perfect Competition

- **Similarities**
  - Large number of firm
  - Free entry of firms into an industry (no barriers to entry).
  - Normal profit in the long-run, abnormal profit or loss in the short-run (due to no entry barriers).
- **Differences**
  1. **Market power and the demand curve**
     - Firms in perfect competition have not market power; they are price-takers facing a perfectly elastic (horizontal) demand curve they face.
     - Firms in monopolistic competition do have some market power (ability to influence price), reflected in their downward-sloping demand curve.

# Monopolistic Competition versus Perfect Competition

2. **Allocative efficiency**

   - Whereas the perfectly competitive firm achieves allocative efficiency in long-run equilibrium, the monopolistically competitive firm does not.
   - Fewer than optimal resources are allocated to the production of the good. Monopolistic competition is therefore a type of market failure.
   - Since P $>$ MC, consumers pay a higher price for the good than in perfect competition.

3. **Product variety**

   - Whereas all firms in perfect competition produce the identical product, under monopolistic competition firms go to great lengths to differentiate their products.
   - From the consumer's perspective, product variety is usually an advantage; perfect competition cannot offer this advantage.

# Monopolistic Competition versus Perfect Competition

4. **Economies of scale**

    - Firms in perfect competition cannot achieve economies of scale because they are very small.
    - Firms in monopolistic competition may have some small room for achieving economies of scale but only to a relatively small degree as these firms also tend to be relatively small.

# Monopolistic Competition versus Monopoly

- **Similarities**

  1. **No allocative efficiency therefore a form of market failure**

     - Both these market structures face downward-sloping demand curves, and therefore have MR curves that lie below the demand curve.
     - This means at the profit-maximizing level of output (found by $MR = MC$), we have $P > MC$ (no allocative efficiency).

- **Differences**

  1. **Number of producers**

     - While in monopolistic competition there is a large number of firms, in monopoly there is a single firm, or else the industry is dominated b one large firm.

  2. **Size of firms**

     - In monopolistic competition firms are usually small, whereas in monopoly the fact that there is a single or dominant firm suggests a very large size.

# Monopolistic Competition versus Monopoly

3. **Barriers to entry**
   - Monopolistic competition is characterized by free entry whereas in monopoly there are high barriers to entry.
4. **Normal and abnormal profits**
   - Whereas the firm under monopolistic competition earns normal profit in the long run, the monopoly can earn abnormal profits due to high barriers to entry.
5. **Competition and prices**
   - Free entry and exit under monopolistic competition drive abnormal profits down to zero in the long-run, and allow prices to be lower for the consumer than is possible under monopoly, where barriers to entry allow the firm to maintain abnormal profits over the long-run.
   - Therefore prices under monopolistic competition are likely to be lower and the quantity larger than in monopoly and more in the interests of consumers.

# Monopolistic Competition versus Monopoly

6. **Market power**
   - While both monopolies and firms in monopolistic competition have market power, a monopoly is likely to have more market power because there are no substitutes for the good it produces.
   - The availability of substitutes means that consumers can switch to substitute goods, thus reducing the firm's market power.
7. **Competition and costs**
   - Competition between firms in monopolistic competition put a downward pressure on costs as firms compete with each other.
   - These competitive pressures may force less efficient firms to leave the industry.
   - The absence of competition in monopoly dies not exert such downward pressure on costs.

# Monopolistic Competition versus Monopoly

8. **Research and development**
    - The abnormal profits that monopolies can earn over the long-run puts them in a better position than monopolistically competitive firms with respect to financing R&D.
    - However, the pressures of competition faced by monopolistically competitive firms may induce them to pursue R&D for product development in order to maintain or increase their sales.
9. **Economies of scale**
    - Some small economies of scale may be achieved by firms under monopolistic competition, but the potential for this is much greater under monopoly, which can benefit consumers through lower prices.
10. **Product variety**
    - Whereas many monopolies sell more than one product, there is likely to be far greater product variety in monopolistic competition which is characterized by many firms producing products that are substitutes for each other.

# Oligopoly

# Assessment Objectives

| Specific Expectations | |
|---|---|
| AO2 | Distinguish between collusive and non-collusive oligopoly and draw a diagram showing collusive oligopoly. |
| AO2 | Explain the features of oligopoly including interdependence, risk of price war, and incentive to collude versus incentive to cheat. |
| AO2 | Explain the relevance of price and non-price competition for firms of oligopoly. |
| AO2 | Explain the presence of allocative inefficiency and market failure. |
| AO2 | Explain the simple game theory payoff matrix. |
| AO2 | Explain the meaning of market concentration and concentration ratios. |
| AO3 | Discuss advantages and disadvantages of oligopoly. |

# Oligopoly

- **Oligopoly** is a market structure in which small numbers of producers compete with each other and face strategic interdependence.
  - There is a small number of large firms in the industry; because of their small number, the firms are interdependent, because the action of one firm affects others.
    - This means that each firm tries to predict what the rival firms will do.
    - Firms base their actions on the observed or anticipated actions of rival firms.
  - Products may be either differentiated or undifferentiated.
  - There are high barriers to entry; it is difficult for a new firm to enter the industry.
  - **Example(s):** Car industry, airlines, electronic equipment and the oil, steel, aluminum, copper and cement industries.

# Oligopoly: Interdependence

- The interdependence of oligopolistic firms has important implications for their behaviour:

  1. **Strategic behaviour**
     - Strategic behaviour is based on plans on actions that take into account rivals' possible courses of action.
     - Strategic behaviour of oligopolistic firms is the result of their interdependence.
     - Under oligopoly, firms planning their strategies make great efforts to guess the actions and reactions of their rivals in order to formulate their own strategy.
  2. **Conflicting motives** – firms in oligopoly face incentives that conflict with each other.
     - **Incentive to collude** – the term collusion refers to an agreement between firms to limit competition between them, usually by fixing price and therefore lowering quantity produced.

# Oligopoly: Interdependence

- By colluding to limit competition, they reduce uncertainties resulting from not knowing how rivals will behave, and maximize profits for the industry as a whole.
- **Incentive to compete** – At the same time, each firm faces an incentive to compete with its rivals in the hope that it will capture a portion of its rivals' market shares and profits, thereby increasing profits at the expense of other firms.
- If firms have formed a collusive agreement, they face an incentive to cheat on their "partners" in the agreement in order to increase their profits at their expense.

# Oligopoly: Game Theory

- **Game Theory** is a mathematical technique analysing the behaviour of decision-makers who are dependent on each other, and who use strategic behaviour as they try to anticipate the behaviour of their rivals.
  - **Actions/Strategy** – The strictly-defined behaviours that a player has to choose between.
  - **Dominant Strategy** – A strategy that, regardless of what other players do, is the most beneficial strategy among all others.
  - **Payoff** – The specific increases or decreases of "value" within a value system that maps to a player's action.
  - **Payoff Matrix** – Shows all possible combinations of outcomes of different decisions made by the players in game theory.

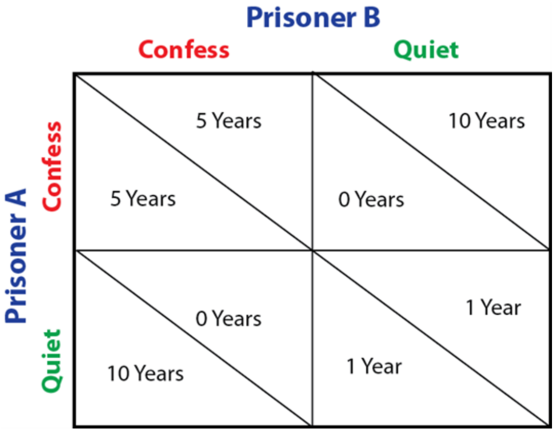
# Oligopoly: Game Theory

- **Nash Equilibrium** – The optimal outcome of a game where no player has an incentive to deviate from a chosen strategy.
  - There is no incremental benefit from changing actions, assuming other players remain constant in their strategies.
  - The Nash equilibrium shows that there is sometimes a conflict between the pursuit of individual self-interest and the collective firm interest.
  - Although firms could be better off cooperating, each firm, trying to make itself better off, ends up making both itself and rival worse off.
- The game illustrates many real-world aspects of oligopolistic firms including:
  - **Interdependence** – what happens to the profits of one firm depends on the strategies adopted by other firms; they therefore try to predict the actions of their rivals in order to plan out their own strategy.
  - **Strategic behaviour** – they plan their actions based on guesses about what their competitors are likely to do.

# Oligopoly: Game Theory

- **Conflicting motives** – they face the incentive to collude (agree to fix prices where they both earn high profits); and they face the incentive to compete.
- They become worse off as a result of price competition (trying to capture sales from their rivals by cutting prices).
- Since rivals are likely to match the price cuts, all firms end up with lower prices and lower profits. This is called a **price war**.
- Firms have a strong interest in avoiding price wars, because they realize that everyone will become worse-off through price cutting – this creates a strong incentive for them to compete on the basis of factors other than price (non-price competition).

# Example 1: Prisoner's Dilemma



# Example 2: Red or Green

| | | Player 2 | |
|---|---|---|---|
| | | Red | Green |
| Player 1 | Red | $2.20, $2.20 | $0.20, $3.00 |
| | Green | $3.00, $0.20 | $1.00, $1.00 |

# Example 3: Split or Steel

**Player 2**

| Player 1 | Split | Steal |
|---|---|---|
| **Split** | 50% / 50% | 100% / 0% |
| **Steal** | 0% / 100% | 0% / 0% |

# Example 4: Advertising

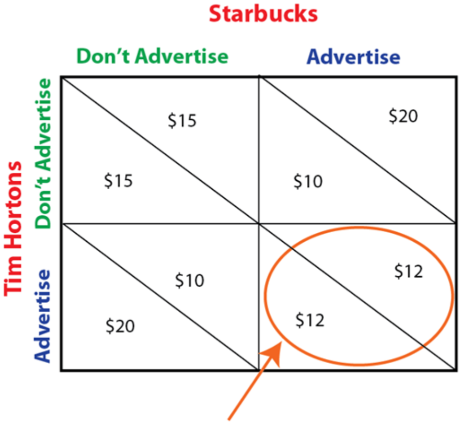
## Game Theory and Oligopoly Behaviour

**Starbucks vs. Tim Hortons**

**The "players" are the firms:** Two cofee shops, Starbucks and Tim Hortons

**The "moves" are the actions the firms can take:** The coffee shops can either advertise around town or not advertise.

**The "payoffs" are the profits the firms will earn:** Avertising increases firms' costs, but can also increase revenues.




The equilibrium outcome of the game is that both firms will advertise. even though both would be better off by not advertising, such an outcome is instable since each firm would have an incentive to advertise if its competitor did not.

# Example 5: Rock, Paper, Scissors

Bob

| Alice | Paper | Rock | Scissor |
| --- | --- | --- | --- |
| Scissor | (1,-1) | (-1,1) | (0,0) |
| Rock | (-1,1) | (0,0) | (1,-1) |
| Paper | (0,0) | (1,-1) | (-1,1) |

# Oligopoly: Price and non-price competition

- Oligopolistic firms go to great lengths to avoid price competition which results in price rigidities.
- They are careful not to trigger a **price war** which is competitive price-cutting by firms as each one tries to capture market shares from rival firms; resulting in lower profits for firms.
- Oligopolistic firms do engage in intense non-price competition, involving efforts by firms to increase market share by methods other than price, which typically include the following:
  - **Product development** – provides firms with a competitive edge; they increase their market power, demand for the firm's products become less elastic, and successful products give rise to opportunities for substantially increased sales and profits
  - **Branding and advertising** – oligopolistic firms often have considerable financial resources (due to large profits) that they can devote to both R&D and advertising and branding.

- **Product differentiation** – can increase a firm's profit position without creating risks for immediate retaliation by rivals. It takes time and resources for rival firms to develop new competitive products.
- Numerous services such as quality customer service, warranties, provision of credit, discounts on upgrades and others.

# Collusive and Non-collusive oligopoly

- **Collusive oligopoly** refers to the type of oligopoly where firms agree to restrict output or fix the price, in order to limit competition, increase market power (monopoly power) and increase profits.
  - **Collusion** is an agreement among firms to fix prices, or divide the market between them, so as to limit competition and maximize profits.
    - **Cartel** – is a formal agreement between firms in an industry to take actions to limit competition in order to increase profits.
    - The key objective of a cartel is to limit competition between member firms and maximize joint profits.
    - Cartel members collectively behave like a monopoly.
    - **Informal (Tacit) collusion** – refers to co-operation that is implicit or understood between cooperating firms, without a formal agreement.
    - The objective of informal collusion is to coordinate prices, avoid competitive price-cutting, limit competition, reduce uncertainties and increase profits.

# Collusive and Non-collusive oligopoly

  - **Price leadership** – occurs where a dominant firm in the industry (which may be the largest one, or the one with the lowest costs) sets a price and also initiates any price changes.

- Firms participating in a cartel have much to gain:
  - Increased market power and hence the ability to control price of a product
  - Increased profits due to higher prices
  - Elimination of competition between firms, and therefore no more uncertainty or need to outguess their rivals.
- Collusion is not easy to create and maintain for several reasons.
  - **Incentive to cheat** – every firm faces an incentive to cheat on the agreement, by offering to secretly lower the price for some buyers.
  - **Cost difference among firms** – since the price agreed upon is common to all firms, firms with higher average costs have lower profits, while lower-cost firms enjoy higher profits. Cost difference between firms leads to difficulties agreeing on a common price.

# Collusive and Non-collusive oligopoly

- **Number of firms** – the larger the number of firms, the more difficult it is to arrive at an agreement regarding price and the allocation of output, as the greater number of differing views make agreement and compromise more difficult to achieve.
- **Possibility of a price war** – a possible outcome of one or more firms cheating is a price war, where one firm's price cut is matched by retaliatory price cuts by other firms. The result of a price war is to make all firms of an industry collectively worse-off due to lower prices and lower profits.

- **Non-collusive oligopoly** a type of oligopoly where firms do not make agreements among themselves in order to fix prices or collaborate in some way.
  - Each firm behaves independently; however, they are still aware of each other in their pricing decisions and display strategic behaviour in that they take the possible actions of their rivals into consideration.

# Collusive and Non-collusive oligopoly

- Prices of oligopolistic industries tend to be rigid or inflexible; one a particular price is reached, it tends to be relatively stable over long periods of time
- Moreover, in situations when prices do change, they tend to change together for all firms in an industry.
- **Firms that do not collude are forced to take into account the actions of their rivals in making pricing decisions.** Otherwise they risk lowering their revenues and profits, which in turn could lead to price instability.
- **Even though firms do not collude, there is still price stability.** Firms are resultant to change their price because the likely actions of their rivals, which could result in lower profits for the firm initiating price changes.
- **Firms do not compete with each other on the basis of price.** They do not try to increase their sales by attracting customers through lower prices. A lower price not only invites price cuts by rivals, with resulting lower profits for all the firms, but also risks setting off a price war.

# Concentration Ratio

- **Concentration ratio** a measure of how much an industry's production is concentrated among the industry's largest firms.
  - It measures the percentage of output produced by the largest firms in an industry, and is used to provide an indication of the degree of competition or degree of market power in an industry.
  - The higher the ratio, the greater degree of market power.
  - **Market concentration** is the degree to which a market is dominated by a small number of large firms. The smaller the number of firms controlling a market, the greater the market concentration.
  - **Herfindahl-Hirschman** index is the sum of the squared market shares of the top N largest firms in the industry.

$$\mathrm{HHI} = \mathrm{M}_1^2 + \mathrm{M}_2^2 + \ldots \mathrm{M}_\mathrm{N}^2$$

    - HHI $< 0.1$ indicates a competitive market.
    - $0.18 >$ HHI $> 0.1$ indicates moderate competitive.
    - HHI $> 0.18$ indicates uncompetitive.

# Concentration Ratio

- Concentration ratios have several weaknesses that limit their usefulness as a measure of the degree of competition:
  - Whereas concentration rations reflect concentration in a national market, they do not reflect competition from abroad, arising from imports.
  - Concentration ratios provide no indication of the importance of firms in the global market; there may be some competition in the domestic market, but the firms may have a very strong, or dominant position in the global market.
  - Concentration ratios do not account for competition from other industries, which may be important in the case of substitute goods.
  - Concentration ratios do not distinguish between different possible sizes of the largest firms

# Criticisms of Oligopoly

- To the extent that oligopolistic firms succeed in avoiding price competition, they achieve a considerable degree of market power, and therefore similar criticisms as a monopoly:

  Welfare loss, allocative inefficiency and market failure.

  - Higher prices, lower quantities of output than under competitive conditions.
  - Loss of consumer surplus to the oligopolists due to higher prices $P > MC$.
  - Negative impacts on the distribution of income.
  - There may be higher production costs due to lack of price competition.
  - Possibly less innovation.
  - Many countries have anti-monopoly legislation that protects against the abuse of market power.
  - The difficulties of detecting and proving collusion among oligopolistic firms means that such firms may actually behave like monopolies by colluding and yet may get away with it.

# Benefits of Oligopoly

- The benefits of oligopoly include:
  - Economies of scale can be achieved due to the large size of oligopolistic firms, leading to lower production costs to the benefit of society and the consumer (through lower prices).
  - Product development and technological innovations can be pursued due to high abnormal profits from which research funds can be drawn.
  - Product development leads to increased product variety, thus providing consumers with greater choice.
  - Technological innovations that improve efficiency and lower costs of production may be passed to consumers in the forms of lower prices.

# Abuse of Market Power: Government Intervention

# Assessment Objectives

| | Specific Expectations |
|---|---|
| AO3 | Discuss advantages of large firms with significant market power, including economies of scale and investments in R&D financed by abnormal profits, innovation. |
| AO3 | Discuss risks with respect to output, price, consumer choice in markets dominated by large firms. |
| AO3 | Discuss advantages and disadvantages of government intervention to deal with the abuse of market power including legislation and regulation, government ownership, fines. |

# Market Power: Advantages & Disadvantages

- Large firms with significant market power offer a number of potential advantages including:
  - Advantages arising from large economies of scale and natural monopoly
  - Ability of such firms to carry out R&D on new product and technology development
- There are also a number of disadvantages and risks in terms of:
  - Allocative inefficiency and welfare loss
  - Higher prices and lower output
  - Loss of consumer surplus to the large firm or firms
  - Negative impact on the distribution of income
  - Higher than necessary average costs due to lack of price competition
  - Possibly less innovation

# Government Intervention: Abuse of Market Power

- All market structures other than perfect competition represent market failure, resulting in a price above marginal cost (P>MC), and welfare loss to a lesser or greater degree.
- **Abuse of market power (Anti-competitive practices)** occurs when firms engage in activities that restrict competition.
  - A company can restrict competition if it is in a position of strength on a given market.
  - A dominant position is not in itself anti-competitive, but if the company exploits this position to eliminate competition, it is considered to have abused it.
    - Charging unreasonably high prices prices
    - Depriving smaller competitors of customers by selling at artificially lower prices they can't compete with

# Government Intervention: Abuse of Market Power

  - Obstructing competitors in the market (or in another related market) by forcing consumers to buy a product which is artificially related to a more popular, in-demand product.
  - Refusing to deal with certain customers or offering special discount to customers who buy all or most of their supplies from the dominant company.
  - Making the sale of one product conditional on the sale of another product.
- **Monopoly** on the whole have the highest degree of market power which is abusive due to the lack of competition; this is why private, unregulated monopolies are illegal almost everywhere.
- **Oligopoly** may or may not abuse their market power. The market power of a collusive oligopoly is similar to that of a monopoly, and represents a form of abuse.
- **Monopolistic competition** have less market power which for the most part they do not abuse because there is significant competition among firms that produce substitute goods.

# Legislation to protect competition

- Most countries have laws to promote competition by preventing collusion between oligopolistic firms, as well as preventing anti-competitive behaviour by a single firm that dominates a market. This is known an **competition policy**.
  - Firms that are found guilty of anticompetitive behaviour are usually asked to pay fines, or may be broken up into smaller firms.
  - Possible difficulties in interpreting the legislation in connection with the behaviour of the offending firms.
  - Laws in a particular country may be enforced to varying degrees, with some governments enforcing them more strictly than others, depending on their priorities or their political and idealogical views.
  - If firms collude, it is difficult to discover evidence of the collusion and to prove it, as collusion occurs secretly, since it is illegal.

# Legislation in the case of mergers

- A **merger** is an agreement between two or more firms to join together and become a single firm.
  - Mergers may occur for a number of reasons:
    - Capturing economies of scale (a single large firm may be able to produce at lower average costs)
    - Firm growth (the firm would like to become larger).
    - Acquiring market power
  - Mergers are an issue in competition policy because of the possibility that the single firm created from the merger may have too much market power.
    - Legislation usually involves limits on the size of the combined firms.

# Imposition of Fines

- **Fines** are often imposed if a government agency responsible for investigating anti-competitive behaviour discovers some wrongdoing.
  - A problem with fines is that firms will often get their lawyers to calculate whether breaking the la or complying with the law is more costly (or more profitable).
  - Often, the profits of firms that abuse market power are great enough that they are better off illegally abusing their power and paying fines.
  - Large firms often neglect the ethics of wrongful behaviour if they believe that getting caught is not as costly as compliance.

# Natural Monopolies: Regulation

- While most countries around the world do not encourage monopoly, an exception is made if there is a natural monopoly, because it is not in society's interests to break it up into smaller firms, as this would result in higher average costs and a waste of resources.

1. **Government ownership of natural monopolies**

    - Natural monopolies may be nationalized, which involves the transfer of ownership from the private sector to the public sector (the government).
    - Government ownership allows the government to regulate natural monopolies, forcing them to lower prices and increase quantities produced in the interests of consumers, thereby reducing allocative inefficiency and welfare loss.
    - Government ownership sometimes leads to inefficiencies and higher than necessary costs of production, as governments are not driven by the goal to maximize profits.

# Natural Monopolies: Regulation

2. **Marginal cost pricing**
   - The government can force the monopoly to charge a price equal to marginal cost (P=MC) so the monopolist will achieve allocative efficiency, with prices falling and output increasing to the socially desirable level.
   - However, marginal cost pricing leads to losses for the natural monopolist since P=MC results in a price that is too low for the firm to be able to cover it average costs.
   - As a result, the firm will either go out of business, other the government would have to subsidize it in order to cover its losses.
3. **Average cost pricing**
   - The government can force the firm to charge a price equal to its average costs (P=ATC), meaning the firm earns normal profit.
   - The result is a higher price and lower quantity than marginal cost pricing.

# Natural Monopolies: Regulation

- The monopolist makes a normal profit and is not in danger of having to shut down; and it is more efficient than the market solution.
- If, through regulation, it is guaranteed a price equal to its average costs, it loses the incentive to keep its average costs low and there may be an increase in inefficiency.
- Continued regulation provides protection to the firm from new competitors that would have been able to produce more efficiently.