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# Market Structure and Price Determination

***BY: BHARAT RAJ ADHIKARI***
**ASST. PROFESSOR**
**GANDAKI UNIVERSITY,**
**POKHARA**

# Learning Objectives

## After, the comprehensive study of this chapter, learners will be able to:

- meaning and characteristics of perfect competition, monopoly, monopolistic competition and oligopoly.
- the process of price and output determination under perfect competition, monopoly, monopolistic competition and oligopoly.
- the derivation of short run and long run, supply curve of firm and industry under perfect competition.

# Introduction

- In economics, market refers to the mechanism for determining the price of the goods and services and their transaction.

There are two sides in every market; Supply and Demand.

These two markets' components should be put together to examine how the market as a whole behaves.

The first part of this chapter analyses the behaviour of perfectly competitive market.

This is idealized market in which all firms and consumers are too small to affect the price. After that we move to other market structure such as monopoly, monopolistic competition and oligopoly.

# The Market Structure

The term market structure refers to the organizational features of an industry that influence the firms' behaviour in its choice of price and output. In other words, it affects the functioning of firms in respect of their production and pricing. Similarly, it is based on the number of firms, distinctiveness of their products, elasticity of demand and the degree of control over the price of the product.

| Types of Market | No. Of Firms | Nature of Product | Firm's Control Over Price |
|---|---|---|---|
| 1. Perfect Competition | Very large | Homogeneous (Diesel, Petrol, Gas, etc.) | None |
| 2. Imperfect Competition | Many | Differentiated | Some |
| a. Monopoly | Single | Products without close substitute (Electricity, telephone, gas) | Full But Regulated |
| b. Monopolistic Competition | Few | Heterogeneous | Joint |
| c. Oligopoly | Few | i. Product without differentiation (Sugar, bread, steel)<br>ii. Differentiate (Tea, Toothpaste, Soaps) | Some |

# Concept of Firm and Industry

- Firm: A firm is the single unit of an industry producing homogeneous goods and services with the objective of maximizing profit.
- Industry: An industry is the group of firms which are producing homogeneous products.
- Types of Market
- 1. Perfect Competition.
- 2. Imperfect competition.
- a. Monopoly.
- b. Duopoly.
- c. Oligopoly.
- d. Monopolistic competition.

# Perfect-Competition

Perfect competition is the world of 'price takers'. It is that market structure in which there are very large numbers of buyers and sellers of a homogeneous product. In perfectly competitive market a large number of producers offer a homogenous product, to a very large number of buyers. The basic assumptions or characteristics of perfect competition are as follows:

1. **Large number of sellers and buyers:** There are large numbers of sellers and buyers of a homogeneous product in perfect competitive market, so that each buyer and seller contributes only a small part of the total quantity in the market.
2. **Homogeneous product:** All firms in perfectly competitive market produce homogeneous or almost identical product. Product of each firm is a perfect substitute for the products of other firms. The buyers can not differentiate among the products of different firms.
3. **Free entry and exit of firms:** There is no market barrier to entry or exit from the industry. Entry or exit is possible only in long run but firms have freedom to enter or exit from the industry. This assumption ensures a large number of firms.
4. **Perfect knowledge:** It is assumed that all buyer and seller have complete knowledge of the conditions of the market such as market price and market quantity.

# Perfect-Competition

5. **Perfect mobility of factors:** Under perfect competition factors of production are freely mobile between the firms within the economy. In other words, there is perfect competition in factor market.

6. **No government intervention:** There is no government interference in the market regarding to tariffs, subsidies, licensing system or any kind of direct or indirect control.

7. Uniform price of each units.

8. Profit maximizing objectives of firm

# Price and Output Determination under Perfect Competition

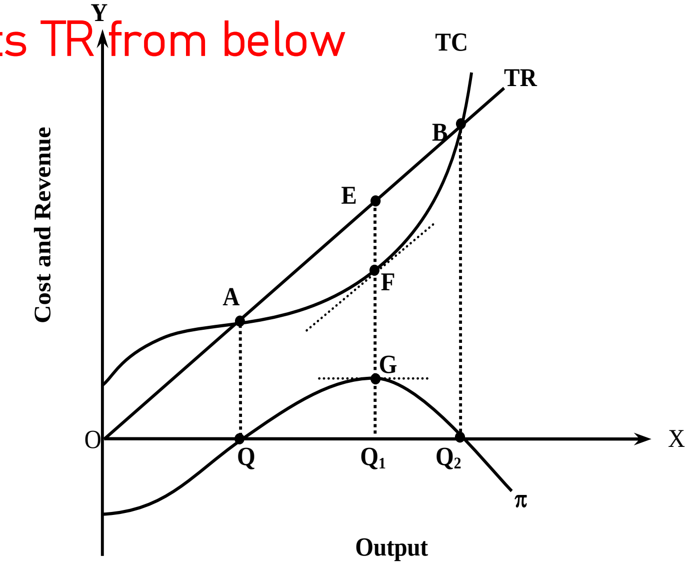
- Equilibrium of firm and industry.
- In the perfect competition, the equilibrium price and output are determined from the interaction between two market forces; i.e, demand and supply. In other words, the price is fixed at the point where demand and supply of industry are equal to each other. And firm attains equilibrium by followings;

- A) TC-TR approach

•Necessary conditions

•i) TC = TR

•ii) TC cuts TR from below

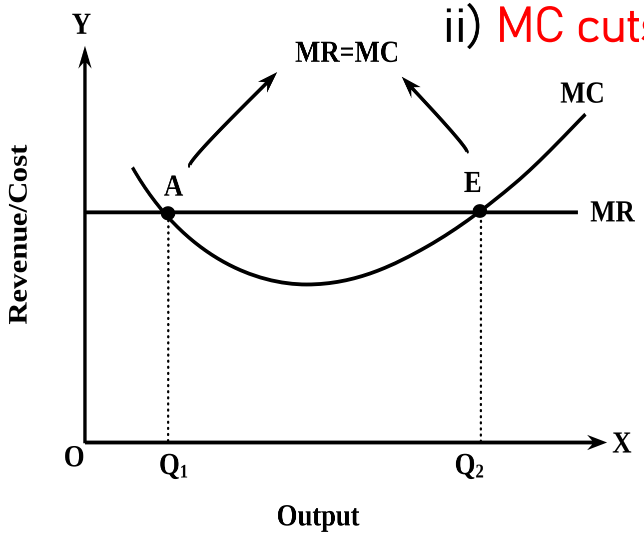



B) MC-MR Approach

Necessary conditions

i) MC = MR

ii) MC cuts MR from below



# Short-run Equilibrium of Firm

- Short-run refers to that time period which is too short in which a firm cannot change all the factors. some factors like plant and machineries remain fixed and only a few factors are variable. Therefore, a firm cannot change its production process and there may be abnormal profit (large profits) or normal profit (no profit) or even loss depending on the firm’s average revenue (AR) and average cost (AC) conditions.
- If AR = AC, the firm receives normal profit.
- If AR > AC, the firm receives excess profit.
- If AR < AC, the firm bears loss.

# Short-Run Equilibrium of Firm and Industry under Perfect Competition

An industry is in equilibrium in the short run when market is cleared (demand = supply) at a given price. The output or supply of the product of an industry can vary in two cases:

1. The output of the industry changes if the existing firms are not in equilibrium. (In such case, they have tendency either to increase or decrease their output)
2. The number of firms in the industry changes due to abnormal profits or losses.

In sum, short-run equilibrium conditions are as follows:

i. Quantity demanded = Quantity supplied (D = S)

ii. All firms should be in equilibrium when, MC = MR and MC cuts MR from below.

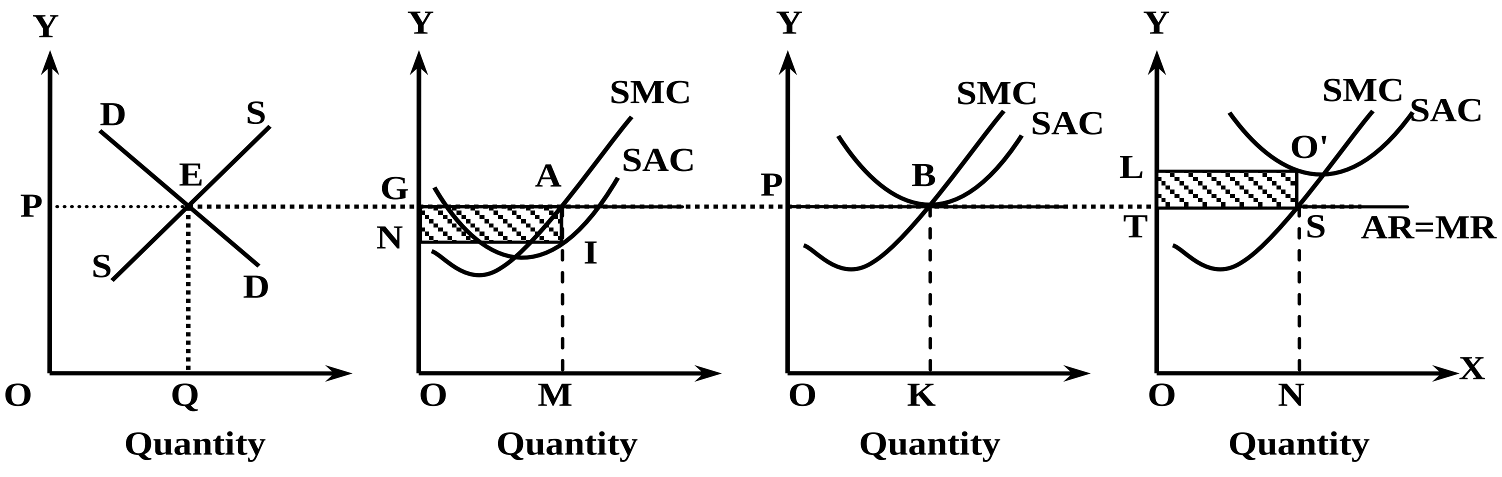



Fig. (a) Industry | Fig. (b) Excess Profits | Fig. (c) Normal Profits | Fig. (d) Loss

The Figure shows the short run equilibrium of firm and industry. Panel (a) shows the equilibrium of industry. Here, DD and SS are demand and supply curve respectively. These curves intersect at point E which determines equilibrium price OP and equilibrium quantity OQ.

# Contd….

1. Super normal profit (AR > AC)

   The Figure 7.3 (b) shows that a firm in the industry will be in equilibrium at point 'A' where conditions for equilibrium of firm are satisfied and the firm is producing 'OM' quantity at given price 'OP' (OG). At 'OM' quantity, average revenue is equal to AM and average cost is equal to IM.

   Hence, the firm is earning total profit equal to the area GAIN.

   i.e. total profit = Per unit profit × Output

   = AI × OM = AI × NI = GAIN

2. Normal profit (AR = AC)

   The Figure 7.3 (c) shows normal profit. At given price, when average revenue is just equal to average cost, the firm will be in normal profit. *It should be noted that normal profits of firm are included in the average cost of production.*

3. Loss (AR < AC)

   The Figure 7.3 (d) shows the firm in the industry is in equilibrium at point 'S' where the firm is producing ON quantity at given price 'OP' (OT). At ON quantity, average revenue is SN and average cost is O'N. Hence, the firm is bearing total losses equal to the area LO'ST.

   i.e. Total losses = Per unit loss × output = O'S × ON = O'S × TS = LO'ST

# Long-Run Equilibrium of Firm and Industry under Perfect Competition

The firm and industry reach their respective long run equilibrium through a continuous process of adjustment and readjustment of price and output with change in market conditions. The firm will be in equilibrium when the minimum point of LAC is tangent to AR = MR = Price (i.e. demand curve).

- In the long-run, the firm can make choice for entry and exit from the industry depending on the profit situation. If profits are high, the new firms enter the industry. If the firms are in loss in the long-run, they exit from the industry. In this way, both abnormal profit and loss situations are ruled out in long-run and the firm will earn just the normal profit.

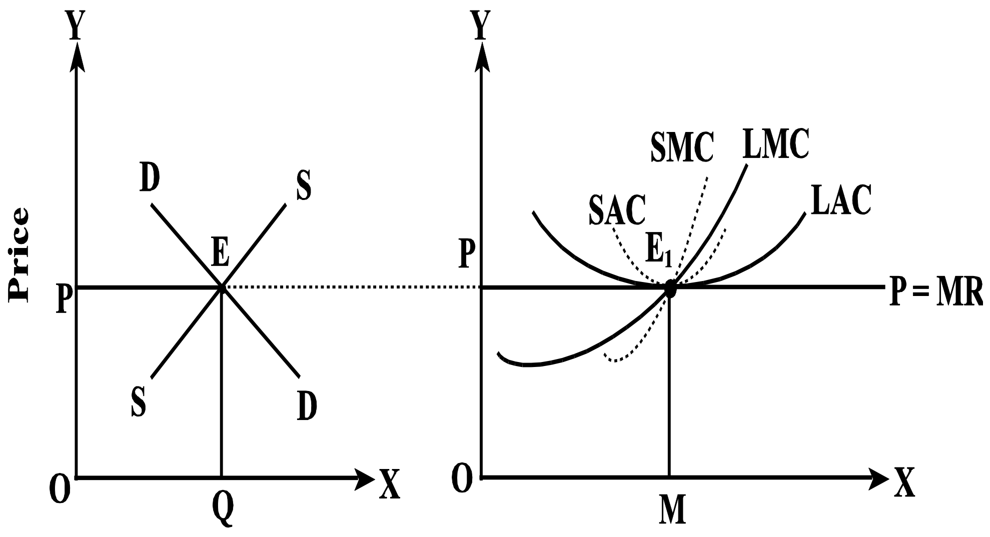


Fig. (a) Industry
Fig. (b) Firm

The quantity demanded and the quantity supplied of the product produced by the industry should be equal. i) The long-run marginal cost (LMC) should be equal to the long-run marginal revenue (LMR) (LMC=LMR). ii) LMC must intersect MR from below.

This figure shows long run equilibrium of firm and industry with the help of short run equilibrium. Demand and supply curve are intersected at point E in figure (a), which determines equilibrium quantity OQ at price OP. At minimum point of LAC, the following equilibrium condition is fulfilled.

SMC = LCM = LAC = SAC = P = AR = MR

That means at point $E_1$ the plant (SAC) is operating at its optimal capacity so that both LAC and SAC are minimum.

# Monopoly

Monopoly is the most extreme case of imperfect competitive market. This is a case of a single seller with complete control over an industry where large no. of buyers are there. Monopolist is the only firm producing in its industry and there is no close substitute goods.

## Features of Monopoly

The main features of monopoly are as follows:

i. **Single seller:** Monopoly market (industry) is characterized by single seller, where there is no competition. Therefore the single firm has complete control over the price or output (supply). So, the monopolist in regarded as 'a king without crown'.

ii. **No close substitute goods:** There is absence of close substitute for the product produced by the monopoly firm. This is the characteristic of pure monopoly. Due to absence of close substitute, the elasticity of demand for its product is comparatively less elastic.

iii. **Barriers to entry:** Due to patent right, government regulation, economies of scale or control over essential inputs, it is difficult to enter new firms into the industry.

iv. **Downward sloping demand curve P=AR:** The demand curve faces by the monopoly firm is downward slopping. Due to absence of close substitute, the demand curve is relatively less elastic. As a result, the monopolist can maximize its profit, either by controlling price or supply of its product.

v. **Price discrimination:**

vi. **Sales maximization objectives of firms.**

# Reasons for Monopoly

Most monopolists have some form of government regulation or protection or have patent on particular goods or on production process.

Monopoly arises due to the following reasons:

i. When a firm may own or control the entire supply of a raw material required to produce a commodity, it will acquire monopoly power.

ii. When a firm may gain a patent right to produce a commodity or a production technology, it will be a monopoly firm. For example: The aluminium company of America (Alcoa) acquired a patent on the method to remove oxygen from bauxite to produce aluminium.

iii. When a firm can produce a product in a very lower cost as compared to other firms, it will gain the monopoly power. This type of monopoly is called 'natural monopoly'. For example: electricity distributed by NEA in Nepal.

iv. When a firm gets some form of government regulation and protection, it will be monopoly firm. For example, government often provides license or franchise for local utility.

v. However, Microsoft window is a monopoly firm without government license.

# Price and Output Determination under Monopoly

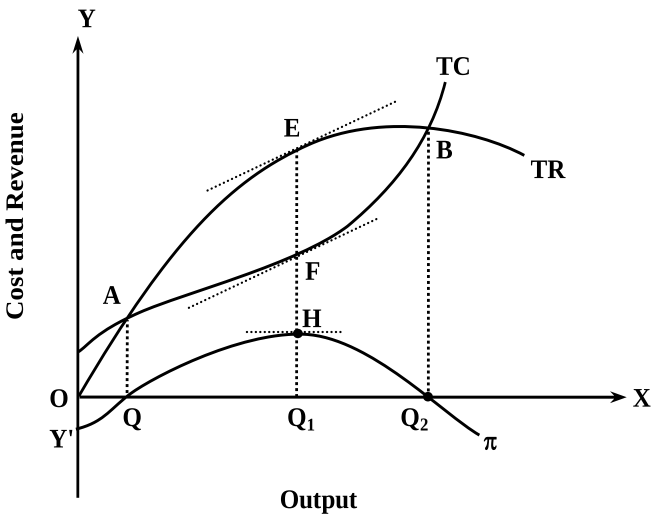
Since there is a single firm is an industry under monopoly, there is no need for a separate analysis of the equilibrium of the firm and industry.

## Short-Run Equilibrium

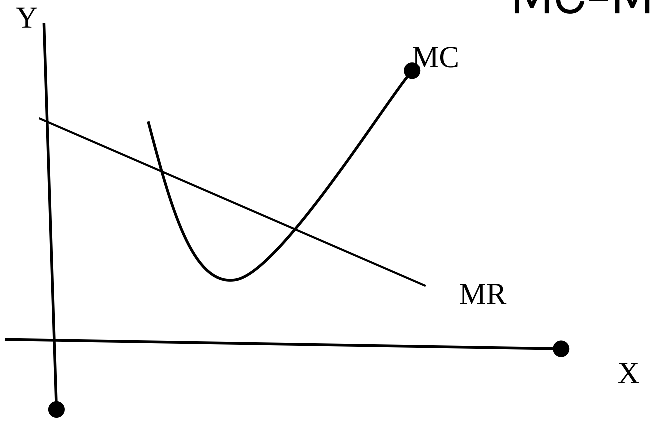
The short run equilibrium of monopoly firm can be explained under two approaches i.e. TR-TC approach and MR – MC approach.

### Total Revenue—Total Cost Approach

The main objective of a monopoly firm is to get maximum profit. So, according to traditional theory of firm, it will be in equilibrium position when it is making maximum profits. Profits are the difference between total revenue and total cost i.e. $\pi$ = TR – TC.




### MC-MR Approach



# Price and Output Determination under Monopoly

- Short-run Equilibrium

Short-run refers to that period in which time is so short that a monopolist cannot change the fixed factors like plant and machinery. However, the monopolist is free in making price decision due to the lack of competition.

The following conditions must be fulfilled in order to attain equilibrium under monopoly:

1. MR = MC
2. MC must intersect MR from below.

In short-run equilibrium, we can be the following three conditions shown in the monopolist firm or industry:

1. If AR > AC, the firm receives super normal profit.
2. If AR = AC, the firm receives normal profit.
3. If AR < AC, the firm bears loss.

# Price and Output Determination under Monopoly

## Short-run Equilibrium

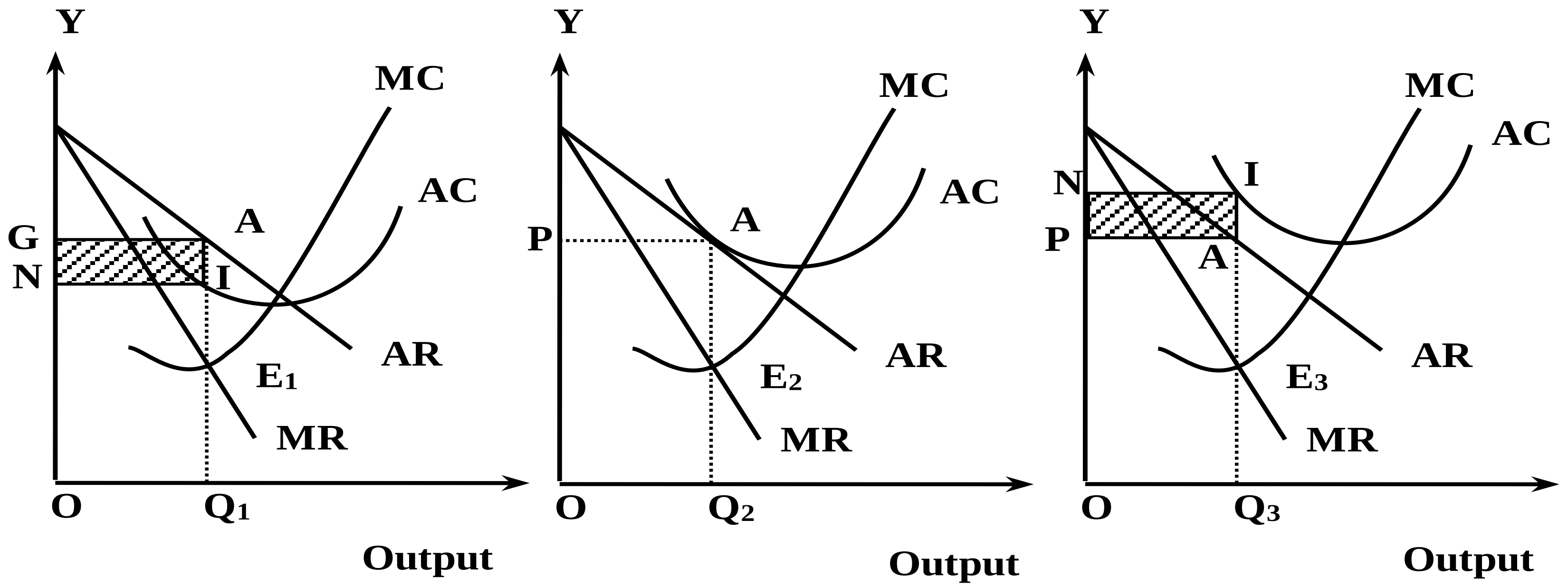



**Fig. (a) Super-normal profit** **Fig. (b)Normal profit** **Fig. (c) Loss**

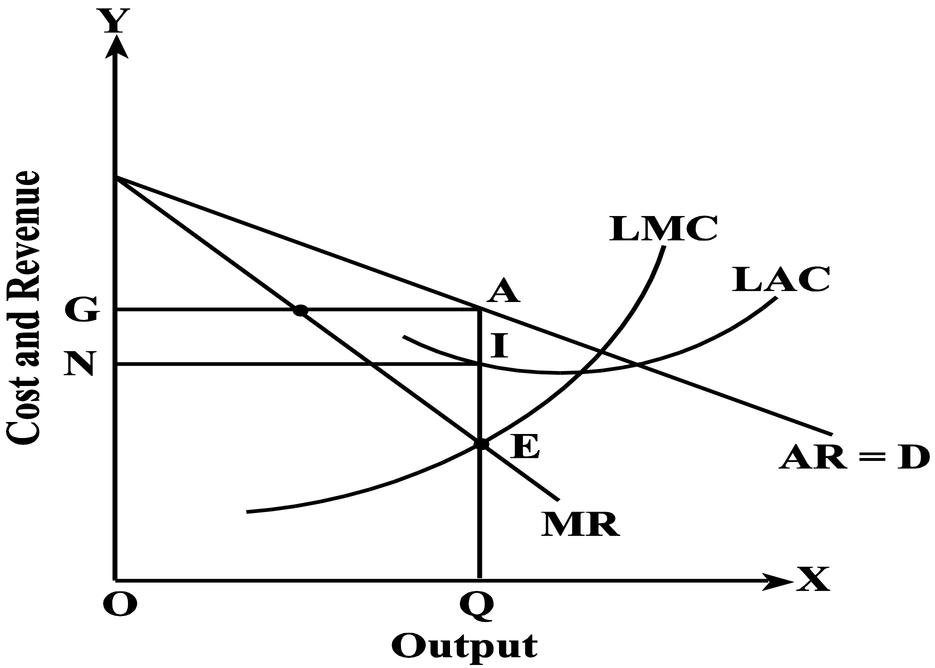
# Long-Run Equilibrium under Monopoly

In long run, the monopolist can earn super normal profit because entry of new firms is barred. If the monopolist is in loss, in short run, he has time to expend his plant or use the capacity of the existing plant to maximize his profit.

In long run, the monopoly firm will be in equilibrium when following two conditions are fulfilled.

i. **Necessary condition:** LMC = MR

ii. **Sufficient condition:** LMC cuts MR from below.




In figure , the monopoly firm is in equilibrium at point E where LMC cuts MR form below. The equilibrium point determines OQ level of output at OG price. At OQ level of output, average revenue (AQ) is greater than average cost (IQ). Since AR > AC, the firm is earning super normal profit equal to GAIN (= AI × NI; where NI = OQ). Hence, in long run, the monopoly firm can enjoy super number profit.

# Monopolistic Competition

## Monopolistic Competition

Monopolistic competition refers to a market structure in which a large number of sellers sell differentiated products which are close substitutes for one another. Monopolistic competition combines the basic elements of both perfect competition and monopoly.

The element of monopoly in monopolistic competition is that each firm has an absolute right to produce and sell their own branded product.

This gives a firm monopoly power over production, pricing and selling its brand. For example: different brands of tea, soap, biscuits, readymade garments, cigarette, noodles, detergents, shaving blades etc. are available in the market. Each firm has absolute power to control its own product.

# Characteristics

Since, monopolistic competition is the blend of perfect competition and monopoly, it contains the characteristics of both market structures which are explained as follows.

1. **Product differentiation:** It is the main distinctive characteristic between perfect competition and monopolistic competition. Under monopolistic competition the firms differentiate their products from one another in respect of shape, size, color, design, taste, packaging etc. The basic purpose of product differentiation is to create own brand name.
2. **Large number of sellers:** Under monopolistic competition there are large numbers of sellers but there is difference between perfect competition and monopolistic competition regarding to this features. In perfect competition, the number of sellers is so large that a firm becomes a 'price-taker'. In contrast, under monopolistic competition, the number of sellers is only so large that a firm is a 'price-maker'.
3. **Free entry and exit:** Like in perfect competition, there is no barrier on the entry of new firms and exit of existing firms from the industry. This feature creates an intensive competition among the firms.
4. **Selling and advertisement costs :** This is an important feature that distinguishes monopolistic competition from perfect competition and monopoly. Firms under monopolistic competition must make expenditure on advertisement and other sales promotion schemes for their product due to differentiated products.

# Price and Output Determination under Monopolistic Competition

## Short-Run Equilibrium

Like monopoly market, a firm under monopolistic competition faces downward sloping demand curve. But the demand curve faces by the firm in monopolistic competition is flatter (i.e. more elastic) than in monopoly market.

In short run the following conditions should be fulfilled for the determination of equilibrium price and output.

1. MC = MR
2. MC cuts MR from below.

Under the profit maximization conditions the firm may make excess profit (shown by figure a), may make only normal profit (shown by figure b) or may bear losses if demand and cost conditions are not favourable (figure c).

The profit of a monopolistic firm in short run depends upon its AR and AC conditions i.e.

- If AR > AC, the monopolistic firm abnormal profit.
- If AR=AC, the monopolistic firm earns just normal profit.
- If AR < AC, the monopolistic firm bears loss.

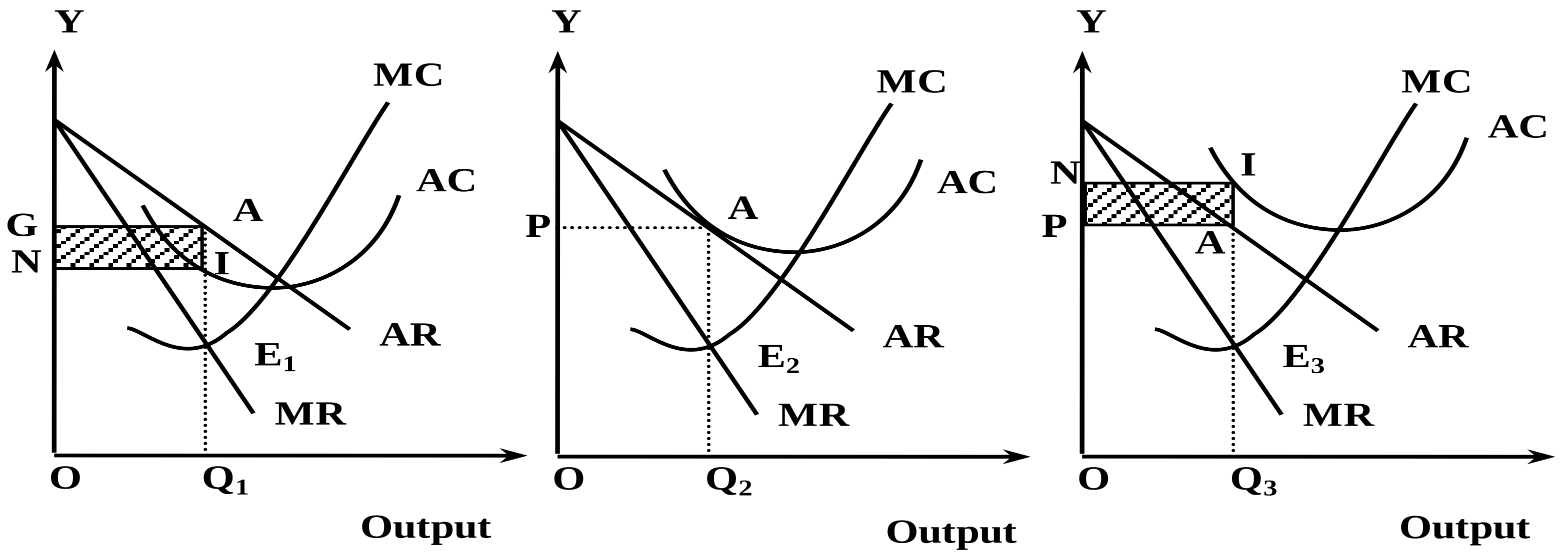
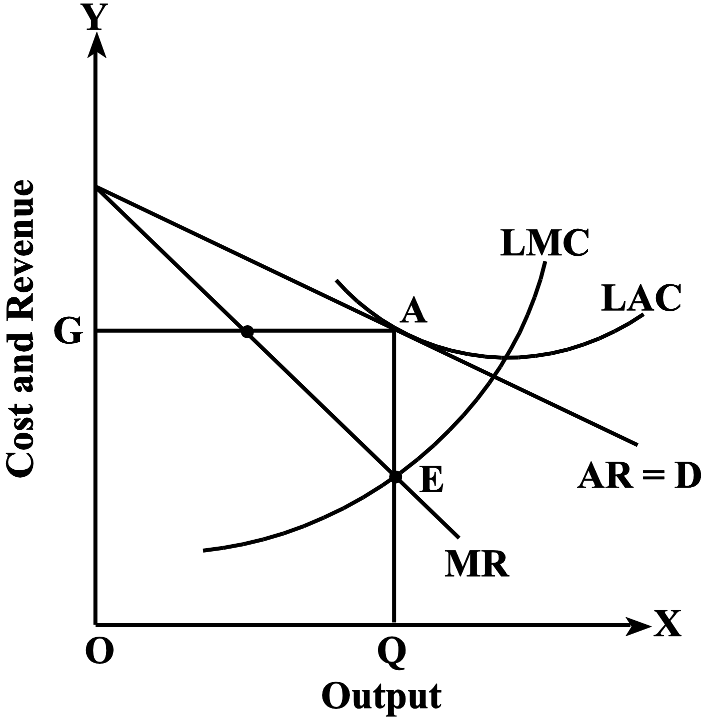



Fig. (a) Super-normal profit Fig. (b)Normal profit Fig. (c) Loss

# Long Run Equilibrium

- In long run, the demand curve faces by a firm under monopolistic competition is flatter (more elastic) than in the short run. This is because, as new firms enter the market in long run, there arises more competition from the greater range of differentiated products. A firm under perfect competition will be equilibrium at minimum point (optimum level) of LAC whereas a firm under monopolistic competition will be in equilibrium at falling part of LAC (i.e. before the optimum level)
- Conditions for the long run equilibrium
- LMC must be equal with MR.
- LMC must cut MR from below.




In the figure, the equilibrium output is OQ, since LMC cuts MR from below at point E. So, equilibrium price is OG.
It should be noted that a firm under monopolistic competition makes only normal profit, but the equilibrium price (OG) of monopolistic competition is higher than perfect competitive price.

# Oligopoly

The term oligopoly was derived from the Greek word 'Oligos' means a few and 'pollen' means sellers. So, oligopoly is a market structure in which there are a few firms selling homogeneous or differentiated products. It is also known as competition among the few. Due to few sellers, all sellers have a monopoly power over their products and price. Since, the goods are of close substitutes, there is a keen competition among the sellers. An Oligopoly industry produces either a homogeneous product or heterogeneous products.

The oligopoly market has the following characteristics:

1. **Uncertain demand curve:** In oligopoly, it is not easy trace the demand curve for the product. Since, there are a very few firms and they produce close substitutes, each firm is competing with other.
2. **Interdependence:** When the sellers are a few, each occupies a considerable share of the total output of the industry. So an action of an oligopolistic will have a significant impact on the other oligopolist in the industry.
3. **Advertisement and selling cost:** According to Professor **Baumol**, *"Under oligopoly advertising can become a life-and-death matter."* Advertisement is an effective tool to attract customers from his rival products.
4. **Small number of sellers:** The number of seller is not given, however, the number of sellers is so small that the market share of each firm is so large that a firm can influence the market price and business policy of its rivals.
5. **Barriers to entry of firms:** There are no barriers to entry into or exist from an oligopolistic industry.. Such barriers arise due to:
   a) Huge capital investment requirements b) Control over essential inputs

**Collusive Oligopoly :** Collusive oligopoly is a situation in which firms under the same industry decide to join together as a single unit to maximize their joint profit and to negotiate to share the market.

# Oligopoly:

- Oligopoly is a form of market organization in which a few sellers (or firms) produce either homogeneous or differentiated products.

**Features of Oligopoly**

- Few Numbers of Sellers.
- Homogeneous or differentiated products
- Interdependence in decision making
- Group behavior
- Some barriers to entry but not impossible
- Huge advertisement and promotional cost
- Non-price competition and selling cost
- Imperfect knowledge about the market

# Factors Causing Oligopoly

- Huge capital investment
- Economies of scale
- Patent Rights
- Control over certain raw materials
- Merger and takeover etc.

# Duopoly

- Duopoly is a form of market organization in which there are only two firms produce either homogeneous or differentiated products.

# Forms of Business Organization

There are various types of business organization in practice. We will discuss about them with their features, scope and legal liabilities.

- Sole trading concern
- Partnership
- Joint stock companies
- Cooperatives
- State owned enterprises
- Public private partnership
- Multinational companies

# Sole Trading Concern

- It is the simplest and most common form of business. Hence, it is popular and suitable for small businesses especially in the initial years of operation. Sole proprietorship is a business owned and run by a person or a family for their own benefit and works as recipient of all profits and bearer of entire risks.
- Sole trading is a type of business unit where a person is solely responsible for providing the capital, for bearing the risk of the enterprise and for the management of business.

**J.L. Hansen**

## Features

- Unlimited liabilities
- Sole risk bearer and profit recipient.
- Entire control
- No separate entity
- Quick decision making
- Short life of business
- Confidentiality of information.
- Easy process of formation and closure

**Advantages**

- Entire profit goes to the account of single owner.
- There is less regulation for proprietorships.
- Flexibility in operation.

**Disadvantages:**

- Owner is fully liable for business debts
- Limited resources
- Limited managerial skills
- No distinction between personal and business income

# Partnership

- Partnership is formal agreement between the partners. On the basis of this formal agreement, the business is operated. The certificate of partnership agreement has to be filed in the government office while establishing. It allow partners to limit their own liability for business debts according to their portion of investment.

**Advantages of partnerships:**

- More capital is possible.
- Total profit and liability is shared among the partners.
- Simple design and flexibility in operation on the basis of understanding among partners.
- Easy to establish partnership business.

**Disadvantages:**

- Each partner is 100% responsible for debts and losses
- Selling the business is difficult—requires finding new partner
- Partnership ends when any partner decides to end it

# Joint stock Companies

- A joint stock company is an association of persons formed for carrying out business activities and has a legal status independent of its members.

- A joint stock company can be defined as an artificial person having a separate legal entity, perpetual succession and a common seal. The company form of organization is governed by The Companies Act, 2013.
- The shareholders are the owners of the company while the Board of Directors is the chief managing body elected by the shareholders. Usually, the owners exercise an indirect control over the business. The capital of the company is divided into smaller parts called 'shares' which can be transferred freely from one shareholder to another person (except in a private company).
- Joint-stock companies are created to finance generally for too expensive projects which is beyond the limit of an individual or even a government to fund.

## Features

- Independent legal entity.
- Limited liability.
- Common seal.
- Separate ownership and management.
- Transferability of shares.
- Perpetual existence.
- Association of persons.

# Cooperatives

A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.

- Cooperatives are based on the values of self-help, mutual assistance, personal responsibility, democracy, equality, equity and solidarity for sustainable development under the common umbrella.

The philosophy behind the cooperative movement is “all for each and each for all”.

- The constitution of Nepal has declared that cooperative sector is one of the three pillars of the Nepalese economy. This sector also has provided the significant financial services of the Nepalese economy.

According to the data of Cooperative department 2024, there are 29886 cooperatives in Nepal in which 73,07,462 members are engaged. The total share capital of all cooperatives is sum of NRs. 94.1 billion and its saving mobilization is NRs. 477.96 billion and loan investment is NRs. 426.26 billion.

# State Owned Enterprises/Public Enterprises

- A SOE [State Owned Enterprise] may be defined as a legal entity in which the State has full ownership and control, or has a controlling interest, that enables the State to take part in commercial activities separately from its public administrative functions.
- National Trading Limited, Janak Sikshya Samagri Kendra, Nepal Airlines, Nepal Bank, Nepal Food Corporation, Nepal Oil Corporation, Nepal Telecom etc. are some example of SOE in Nepal.

# Public Private Partnership

- Public-private partnerships refers to the collaboration between a government agency and a private-sector company that can be used to finance, build, and operate projects together such as public transportation networks, parks etc.
- Public-private partnerships allow large-scale government projects, such as roads, bridges, or hospitals, to be completed with private funding and management.
- PPP is a long-term arrangement between a government and private sector institutions. Typically, it involves private capital financing in government projects.
- Public-private partnerships generally have contract periods of 20 to 30 years or longer.

**Advantages**

- Access to private sector finance
- Higher efficiency in the private sector
- Increased transparency in the use of funds
- Enforcement and monitoring

# PPP Practice in Nepal

- Hydropower Projects: Widely in practice (BOOT Model) Khimti HEP , Bhotekoshi HEP, Chilime etc.
- Road & Airport:

  (Proposed but not implemented Kathmandu – Terai/Madhes Fast Track Road Project)

  (Kathmandu Kulekhani Hetauda Tunnel Highway, 58 km, 4 Lane express way)
- Urban Development: Initiated (small scale)

# Multinational Company

- A multinational corporation (MNC) is a company that has business operations in at least one country other than its home country. By some definitions, it also generates at least 25% of its revenue outside of its home country. These companies are often managed from a central office headquartered in the home country.

- Multinational companies can also be known as international, stateless, or transnational corporate organizations or enterprises. Some may have budgets that exceed those of small countries.

- Unilever Nepal, Dabur, Coca-Cola, Pepsi, Axiata, KFC, Samsung, etc. are some example of MNC in Nepal.

# Features of Multi National Companies

- A worldwide business presence
- Large and powerful organizations
- Complicated business model and structure
- Direct investments in foreign countries
- Jobs created in foreign countries, potentially with higher wages than found locally
- Improved efficiencies, lower production costs, larger market share
- Pays taxes in countries in which it operates
- Sometimes accused of negative economic and/or environmental impacts in foreign markets