What Is Economics:

Lionel Robbins (1932) developed implications of what has been termed "[p]erhaps the most commonly accepted current definition of the subject"

Economics is a science which studies human behaviour as a relationship between ends and scarce means which have alternative uses.

Economics is a social science concerned with the production, distribution, and consumption of goods and services. It studies how individuals, businesses, governments, and nations make choices about how to allocate resources.

Economics is the study of how people allocate scarce resources for production, distribution, and consumption, both individually and collectively.
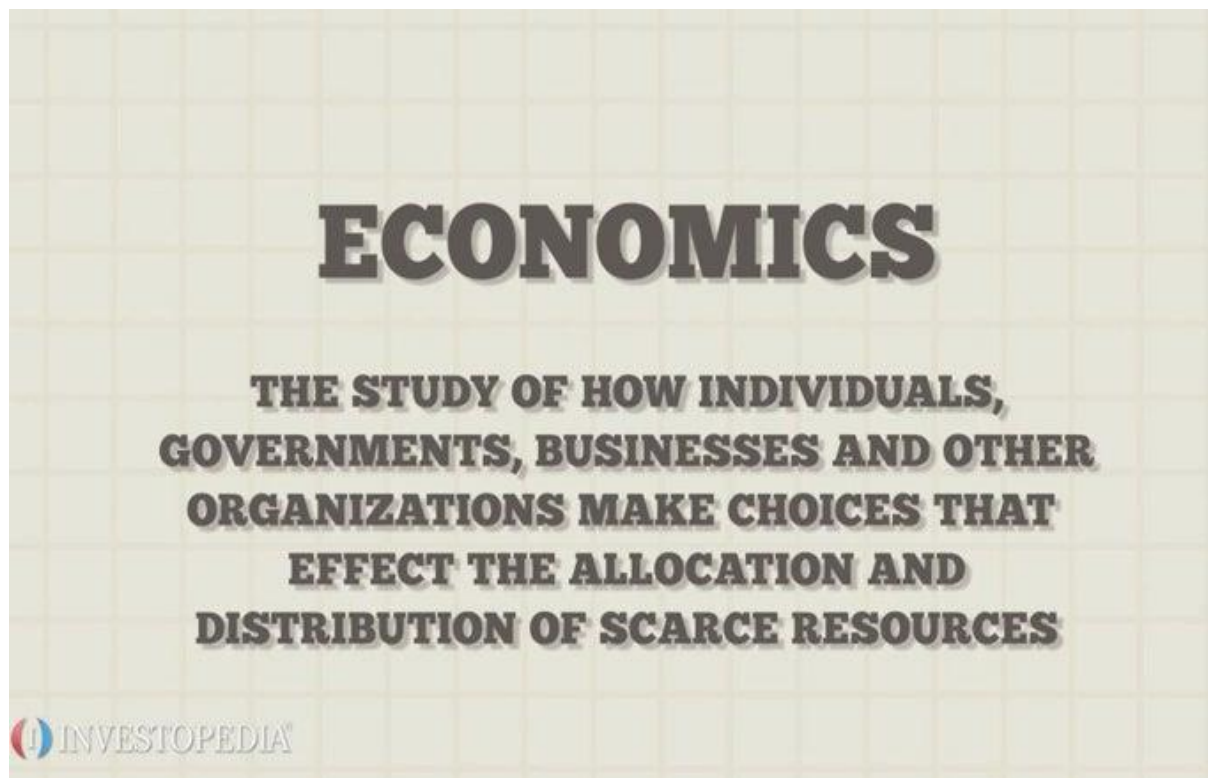
Meaning of Economics

- Economics is concerned with the **study of economic problem** that arises because human **wants are unlimited** and resources to satisfy those wants are **not only scare** (limited) but they have **alternative uses.**

- **Economic problem**: The problem of **making a choice** is called economic problem, which arises due to scare (limited) resources in relation to unlimited wants.

- **What is scarcity**(कमी): Limitation of supply of commodity in relation to needs for them are called scarcity i,e **Demand> supply**

- **Problem of Choice**: How to **use** allocating **skilled resources** into **alternative uses.**

- Economics focuses heavily on the **four factors of production**, which are land, labour, capital, and enterprise. Factors of production is an economic term that describes the inputs used in the production of goods or services in order to make an economic profit.

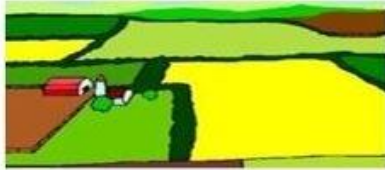- These include any resource needed for the creation of a good or service
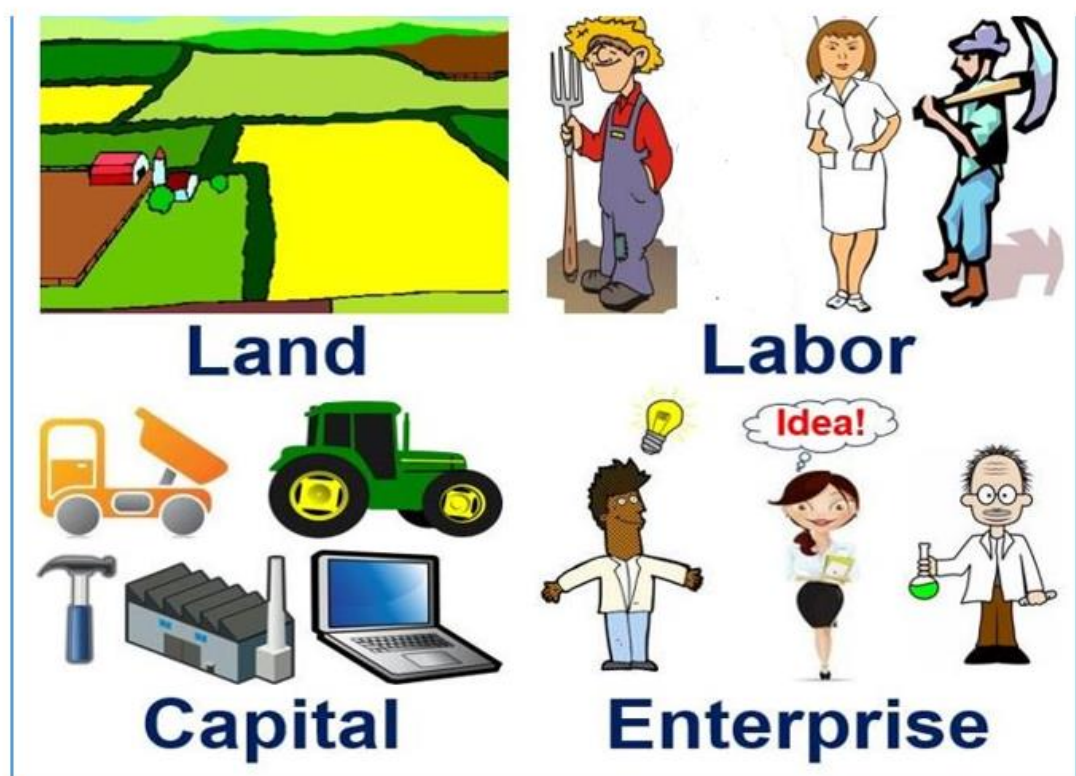
Factor Income

Incomes that the four factors of production give us. Land, labor, capital, and enterprise give us rent, wages, interest, and profit respectively.

Land Gives Us

Rent

Labor Gives Us

Wages

Capital Gives Us

Interest

Enterprise Gives Us

Idea!

Profit

FACTOR INCOME

Microeconomics and macroeconomics are two fields of study involving looking at behaviour in certain areas of the economy over a period of time. Microeconomics is specific and smaller in scale, looking at the behaviour of consumers, the supply and demand equation in individual markets, and the hiring and wage-setting practices of individual companies.

Micro-economics (from Greek prefix *mikro-* meaning "small" + *economics*) is a branch of economics that studies the behaviour of individuals and firms in making decisions regarding the allocation of scarce resources and the interactions among these individuals and firms.

One goal of microeconomics is to analyze the market mechanisms that establish relative prices among goods and services and allocate limited resources among alternative uses. Microeconomics shows conditions under which free markets lead to desirable allocations. It also analyzes market failure, where markets fail to produce efficient results.

Microeconomics focuses on how individual consumers and firm make decisions; these individuals can be a single person, a household, a business/organization or a government agency. Analyzing certain aspects of human behaviour, microeconomics tries to explain they respond to changes in price and why they demand what they do at particular price levels. Microeconomics tries to explain how and why different goods are valued differently, how individuals make financial decisions, and how individuals best trade, coordinate and cooperate with one another. Microeconomics' topics range from the dynamics of supply and demand to the efficiency and costs associated with producing goods and services; they also include how labour is divided and allocated, uncertainty, risk

 Macroeconomics:

Macroeconomics is a branch of economics that studies how an overall economy—the market systems that operate on a large scale—behaves. Macroeconomics studies economy-wide phenomena such as inflation, price levels, rate of economic growth, national income, gross domestic product (GDP), and changes in unemployment.

Macro economics analyzes all aggregate indicators and the micro economic factors that influence the economy. Government and corporations use macro economic models to help in formulating of economic policies and strategies.

Differences	Microeconomics	Macroeconomics
Definition	Microeconomics is the study of economic actions of individuals and small groups of individuals.	Macroeconomics studies the economy as a whole and not a single unit but combination of all.
Concern with	Particular households, firms and industries	National income, general price levels, national output, unemployment and poverty
Objective	On demand side is to maximize utility whereas on the supply side is to minimize profits at minimum cost	Full employment, price stability, economic growth and favourable balance of payments.
Basis	Price mechanism which operates with the help of demand and supply forces	National income, output and employment which are determined by aggregate demand and aggregate supply
Assumptions	Rational behaviour of individuals	Aggregate volume of output of an economy, the extent to which its resources are employed
Limitations	Existence of full employment	Involvement of 'Fallacy of Composition' which doesn't prove true

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Meaning of Demand:

Demand is an economic principle referring to a consumer's desire to purchase goods and services and willingness to pay a price for a specific good or service. Holding all other factors constant, an increase in the price of a good or service will decrease the quantity demanded, and vice versa.

Aggregate demand is the total demand for all goods and services in an economy.

- Demand refers to consumers' desire to purchase goods and services at given prices.

- Demand can mean either market demand for a specific good or aggregate demand for the total of all goods in an economy.

- Demand, along with supply, determines the actual prices of goods and the volume of goods that changes hands in a market.

Businesses often spend a considerable amount of money to determine the amount of demand the public has for their products and services. How much of their goods will they actually be able to sell at any given price? Incorrect estimations either result in money left on the table if demand is underestimated or losses if demand is overestimated. Demand is what helps fuel the economy, and without it, businesses would not produce anything.

- There are five determinants of demand. The most important is the price of the good or service itself. The second is the price of related products, whether they are substitutes or complementary.
- Circumstances drive the next three determinants. The first is consumer incomes or how much money they have to spend. The second is buyers' tastes or preferences in what they want to purchase. The third is their expectations about whether the price will go up. If they are concerned about future inflation they will stock up now, thus driving current demand.

Law of Demand

The law of demand governs the relationship between the quantity demanded and the price.
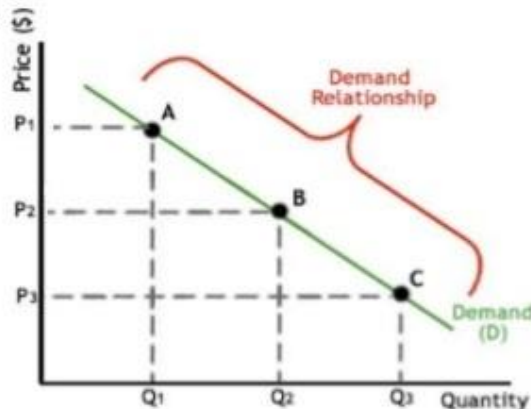
LAW OF DEMAND

Meaning :

The law of demand explains the relationships between price and quantity demanded. It may be stated as follows : **"Other things being equal, if the price of a commodity falls, the quantity demanded of it will rise and if the price of a commodity rises, its quantity demanded will decline."**Thus, there is an inverse relationship between price and quantity demanded, other things being same.

Amount of Beef Bought at Each Price Point

Price/lb.	Quantity (in lbs.)
$3.46	10.0
$3.55	9.8
$3.69	9.5
$3.80	9.4
$3.85	9.3
$3.88	9.3
$3.88	9.3

LAW OF DEMAND

❑In economics, the **law** states that, all else being equal, as the price of a product increases(↑), quantity demanded falls(↓); likewise, as the price **of** a product decreases(↓), quantity demanded increases(↑).There is an INVERSE relationship between quantity **demand** and its price.

Elasticity of Demand:

We can find the elasticity of demand, or the degree of responsiveness of demand by comparing the percentage price changes with the quantities demanded.

The variables on which demand can depend on are:

- Price of the commodity

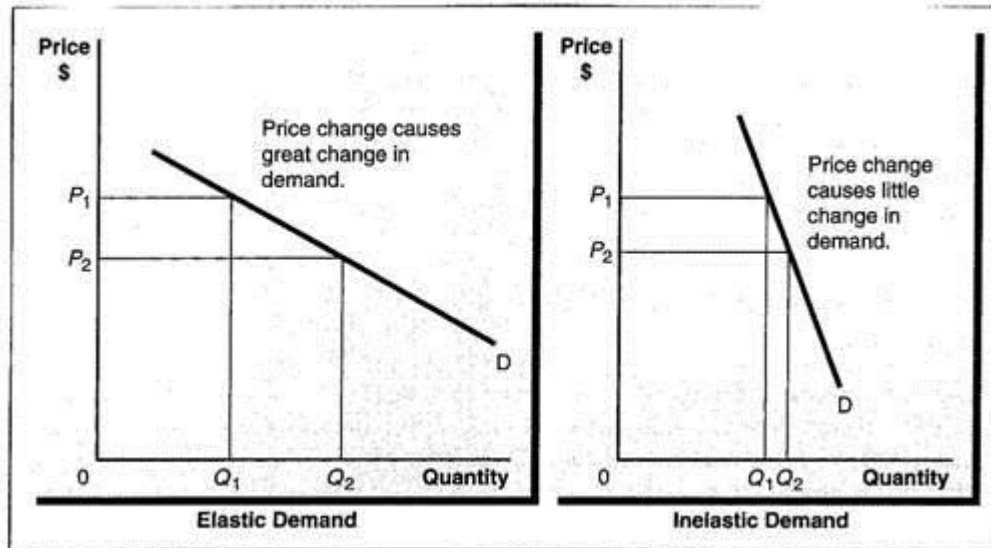- Prices of related commodities

- Consumer's income, etc.

 example:

The price of a radio falls from Rs. 500 to Rs. 400 per unit. As a result, the demand increases from 100 to 150 units.

$$E = \left| \frac{\% \text{ change in quantity demand}}{\% \text{ change in price}} \right| = \left| \frac{p}{q} \cdot \frac{dq}{dp} \right|$$

The price elasticity of demand is the response of the quantity demanded to change in the price of a commodity. It is assumed that the consumer's income, tastes, and prices of all other goods are steady. It is measured as a percentage change in the quantity demanded divided by the percentage change in price.

$$E_p = \frac{\dfrac{\text{Change in Quantity} \times 100}{\text{Original Quantity}}}{\dfrac{\text{Change in Price} \times 100}{\text{Original Price}}}$$

$$= \frac{\text{Change in Quantity}}{\text{Original Quantity}} \times \frac{\text{Original Price}}{\text{Change in Price}}$$

Elastic Demand — Price change causes great change in demand. (axes: Price $, P_1, P_2, Quantity, Q_1, Q_2, D)

Inelastic Demand — Price change causes little change in demand. (axes: Price $, P_1, P_2, Quantity, $Q_1 Q_2$, D)

PED can also be:

- Less than one, which means PED is *inelastic.*

- Greater than one, which is *elastic*.

- Zero (0), which is *perfectly inelastic*.

- Infinite (∞), which is *perfectly elastic*.
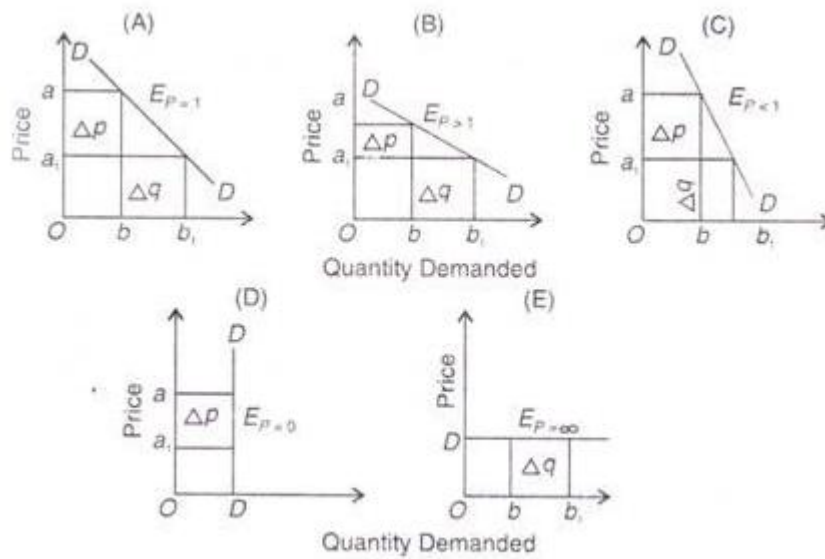
(A) (B) (C) (D) (E)

Quantity Demanded

Fig. 1

(i)Suppose the price of commodity X falls from Rs. 5 per kg. to Rs. 3 per kg. and its quantity demanded increases from 10 kgs. to 30 kgs. Then

$$E_p = \frac{\Delta q}{\Delta p} \times \frac{P}{q} = \frac{(30-10)}{(3-5)} \times \frac{5}{10} = \frac{20}{-2} \times \frac{5}{10} = -5 \text{ or} > 1.$$

Production Possibility Frontier (PPF)

In business analysis, the production possibility frontier (PPF) is a curve that illustrates the variations in the amounts that can be produced of two products if both depend upon the same finite resource for their manufacture.

PPF also plays a crucial role in economics. It can be used to demonstrate the point that any nation's economy reaches its greatest level of efficiency when it produces only what it is best qualified to produce and trades with other nations for the rest of what it needs.
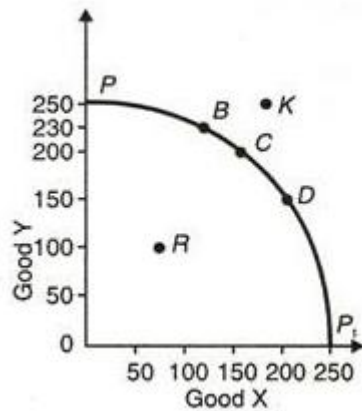
The production possibility curve is based on the following Assumptions:

(1) Only two goods X and Y are produced in different proportions in the economy.

(2) The same resources can be used to produce either or both of the two goods and can be shifted freely between them.

(3) The supplies of factors are fixed. But they can be re-allocated for the production of the two goods within limits.

(4) The production techniques are given and constant.

(5) The economy's resources are fully employed and technically efficient.

(6) The time period is short.

Table 5.1: Production Possibility Schedule:

Possibilities	Quantity of X	Quantity of Y
P	0	250
B	100	230
C	150	200
D	200	150
P_1	250	0

In this schedule, P and P_1 are such possibilities in which the economy can produce either 250 units of Y or 250 units of X with given quantities of factors. But the assumption is that the economy should produce both the goods. There are many possibilities to produce the two goods. Such possibilities are B, C and D.

Units of good X are measured horizontally and that of Y on the vertical axis. The concave curve PP_1 depicts the various possible combinations of the two goods, P, B, C, D and P_1. This is the production possibility curve which is also known as the transformation curve or production possibility frontier. Each production possibility curve is the locus of output combinations which can be obtained from given quantities of factors or inputs.

Substitution is the law of life in a full-employment economy. The production possibility frontier depicts society's menu of choices."

Any combination lying inside the production possibility curve, such as R in Figure, implies that the society is not using its existing resources fully. Such a combination is said to be "technologically inefficient". Any combination lying outside the production-possibility frontier, such as K, implies that the economy does not possess sufficient resources to produce this combination. It is said to be "technologically infeasible or unobtainable".

Relationship between development of Science and Technology, Economic Development and the resulting changes:
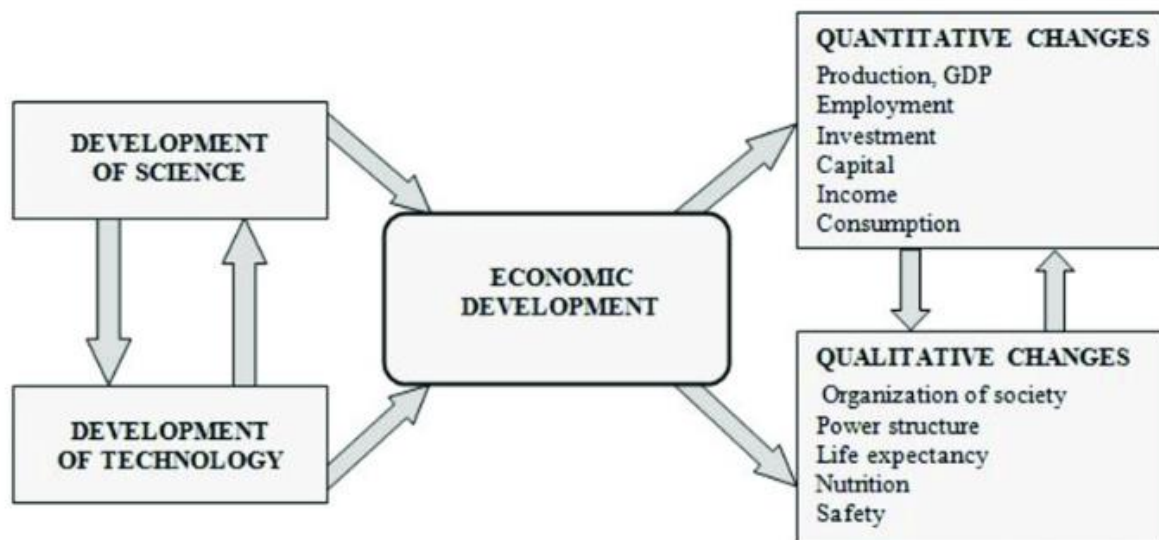
Unit-2

Production is a process of combining various material inputs and immaterial inputs (plans, know-how) in order to make something for consumption (output). It is the act of creating an output, a good or service which has value and contributes to the utility of individuals. The area of economics that focuses on production is referred to as production theory, which in many respects is similar to the consumption (or consumer) theory in economics.

Land

It refers to all natural resources. All natural resources either on the surface of the earth or below the surface of the earth or above the surface of the earth is Land.

One uses the land to produces goods. It is the primary and natural factor of production. All gifts of nature such as rivers, oceans, land, climate, mountains, mines, forests etc. are land.

The payment for land is rent.

Characteristics of Land as a Factor of Production

- The land is a free gift of nature.

- The land has no cost of production.

- It is immobile.

- The land is fixed and limited in supply.

Labour

All human effort that assists in production is labour. This effort can be mental or physical. It is a human factor of production. It is the worker who applies their efforts, abilities, and skills to produce.

The payment for labour is the wage.

Characteristic

- It is a human factor.

- One cannot store labour.

- No two types of labour are the same.

Types of Labour

1. Unskilled

2. Semi-skilled

3. Skilled

4. Professional

Capital

Capital refers to all manmade resources used in the production process. It is a produced factor of production. It includes factories, machinery, tools, equipment, raw materials, wealth etc.

The payment for capital is interest.

Characteristics

- Capital is a manmade factor of production.
- It is mobile.
- It is a passive factor of production.

Types of Capital

1. Fixed
2. Working
3. Venture

Entrepreneur

An entrepreneur is a person who brings other factors of production in one place. He uses them for the production process. He is the person who decides

- What to produce
- Where to produce
- How to produce

A person who takes these decisions along with the associated risk is an entrepreneur.

The payment for entrepreneur is profit.

Characteristics

- He has imagination.

- He has great administrative power.

- An entrepreneur must be a man of action.

- An entrepreneur must have the ability to organize.

- He should be a knowledgeable person.

- He must have a professional approach.

The law of variable proportions

or diminishing returns, as stated above, holds good under the following conditions/ Assumptions:

1. First, the state of technology is assumed to be given and unchanged. If there is improvement in the technology, then marginal and average products may rise instead of diminishing.

2. Secondly, there must be some inputs whose quantity is kept fixed. This is one of the ways by which we can alter the factor proportions and know its effect on output. This law does not apply in case all factors are proportionately varied. Behaviour of output as a result of the variation in all inputs is discussed under "returns to scale".

3. Thirdly the law is based upon the possibility of varying the proportions in which the various factors can be combined to produce a product. The law does not apply to those cases where the factors must be used in fixed proportions to yield a product.

When the various factors are required to be used in rigidly fixed proportions, then the increase in one factor would not lead to any increase in output, that is, the marginal product of the factor will then be zero and not diminishing. It may, However be pointed out that products requiring fixed proportions of factors are quiet uncommon. Thus, the law of variable proportion applies to most of the cases of production in the real world.

The Law of Variable Proportions:

If one input is variable and all other inputs are fixed the firm's production function exhibits the law of variable proportions. If the number of units of a variable factor is increased, keeping other factors constant, how output changes is the concern of this law. Suppose land, plant and equipment are the fixed factors, and labor the variable factor.

When the number of laborer is increased successively to have larger output, the proportion between fixed and variable factors is altered and the law of variable proportions sets in. The law states that as the quantity of a variable input is increased by equal doses keeping the quantities of other inputs constant, total product will increase, but after a point at a diminishing rate.

The law of variable proportions (or the law of non-proportional returns) is also known as the **law of diminishing returns**. But, as we shall see below, the law of diminishing returns is only one phase of the more comprehensive law of variable proportions.

The law of diminishing returns is based on the following assumptions:

(1) Only one factor is variable while others are held constant.

(2) All units of the variable factor are homogeneous.

(3) There is no change in technology.

(4) It is possible to vary the proportions in which different inputs are combined.

(5) It assumes a short-run situation, for in the long-run all factors are variable.

Table 16.1: Returns to Labour

Units of Labour	Total Product (Quintals)	Marginal Product (Quintals)	Average Product (Quintals)
L	Q	$\dfrac{\Delta Q}{\Delta L}$	$\dfrac{Q}{L}$
1	80	80	80
2	170	90	85
3	270	100	90
4	368	98	92
5	430	62	86
6	480	50	80
7	504	24	72
8	504	0	63
9	495	−9	55
10	480	−15	48

The law of variable proportions is illustrated in Table 16.1.and Fig. 16.3. We shall first explain it by considering Table 16.1. Assume that there is a given fixed amount of land, with which more units of the variable factor labour, is used to produce agricultural output.

With a given fixed quantity of land, as a farmer raises employment of labour from one unit to 7 units, the total product increases from 80 quintals to 504 quintals of wheat. Beyond the employment of 8 units of labour, total product diminishes. It is worth noting that up to the use of 3 units of labour, total product increases at an increasing rate.

It will be seen from Col. 3 of Table 16.1, that the marginal product of labour initially rises and beyond the use of three units of labour, it starts diminishing. Thus when 3 units of labour are employed, marginal product of labour is 100 and with the use of 4th and 5th units of labour marginal product of labour falls to 98 and 62 respectively. Beyond the use of eight units of labour, total product diminishes and therefore marginal product of labour becomes negative. As regards average product of labour, it rises upto the use of fourth unit of labour and beyond that it is falling throughout.

Three Stages of the Law of Variable Proportions:

The behaviour of output when the varying quantity of one factor is combined with a fixed quantity of the other can be divided into three distinct stages.
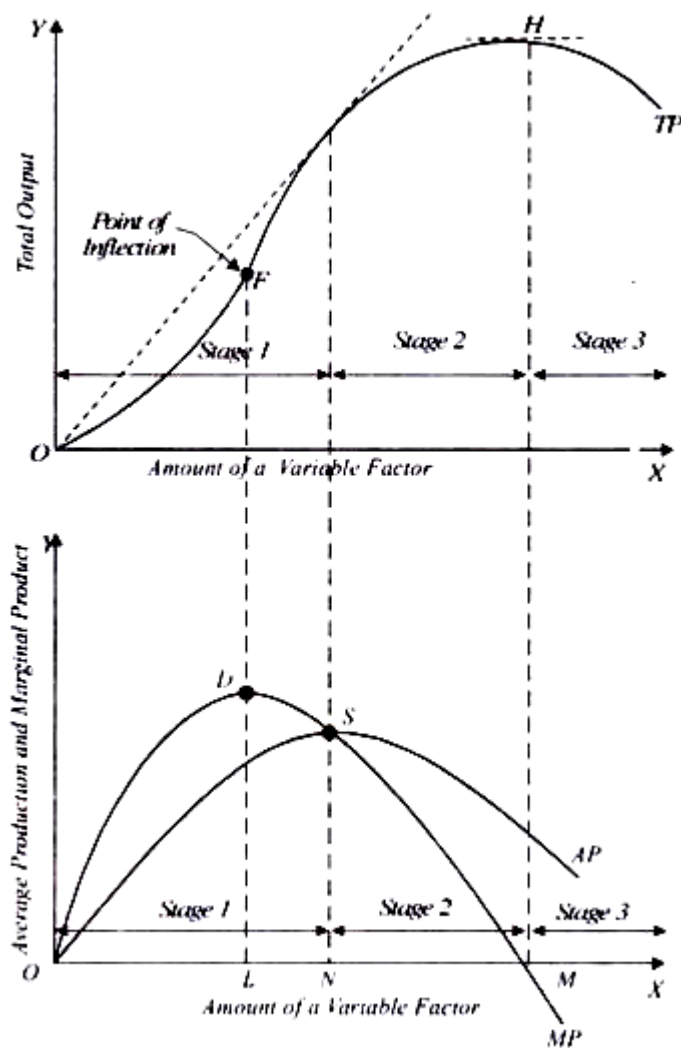
Fig. 16.3. *Three Stages of the Law of Variable Proportions*

This has been done in Fig. 16.3. In this figure, on the X-axis the quantity of the variable factor is measured and on the F-axis the total product, average product and marginal product are measured. How the total product, average product and marginal product a variable factor change as a result of the increase in its quantity, that is, by increasing the quantity of one factor to a fixed quantity of the others will be seen from Fig. 16.3.

Stage 1:

In this stage, total product curve TP increases at an increasing rate up to a point. In Fig. 16.3. from the origin to the point F, slope of the total product curve TP is increasing, that is, up to the point F, the total product increases at an increasing rate (the total product curve TP is concave upward upto the point F), which means that the marginal product MP of the variable factor is rising.

From the point F onwards during the stage 1, the total product curve goes on rising but its slope is declining which means that from point F onwards the total product increases at a diminishing rate. i.e. marginal product falls but is positive.

The point F where the total product stops increasing at an increasing rate and starts increasing at the diminishing rate is called the **point of inflection.** law of diminishing returns starts operating in stage 1 from point D on the MP curve or from OL amount of the variable factor used.

Thus, during stage 1, whereas marginal product curve of a variable factor rises in a part and then falls, the average product curve rises throughout.

<u>Stage 2:</u>

The total product continues to increase at a diminishing rate until it reaches its maximum point H where the second stage ends. In this stage both the marginal product and the average product of the variable factor are diminishing but remain positive.

At the end of the second stage, that is, at point M marginal product of the variable factor is zero (corresponding to the highest point H of the total product curve TP).

Stage 3: Stage of Negative Returns

In stage 3 with the increase in the variable factor the total product declines and therefore the total product curve TP slopes downward. As a result, marginal product of the variable factor is negative and the marginal product curve MP goes below the X-axis. In this stage the variable factor is too much relative to the fixed factor. This stage is called the stage of negative returns. It may be noted that stage 1 and stage 3 are completely symmetrical. In stage 1 the fixed factor is too much relative to the variable factor. Therefore in stage 1, marginal product of the fixed factor is negative. In Stage III variable factor is too much relative to fixed factor Therefore in this stage marginal product of variable factor is negative.

Internal and external economies of scale

An economy of scale is a microeconomic term that refers to factors driving production costs down while increasing the volume of output. There are two types of economies of scale: internal and external economies of scale. Internal economies of scale are firm-specific—or caused internally—while external economies of scale occur based on larger changes outside the firm. Both result in declining marginal costs of production, yet the net effect is the same.

- Internal economies of scale measure a company's efficiency of production and occur because of factors controlled by its management team.

- External economies of scale happen because of larger changes within the industry, so when the industry grows, the average costs of business drop.

- Internal economies of scale offer greater competitive advantages because an external economy of scale is shared among competitors.

Internal Economies of Scale

Internal economies result from a larger volume of production. You'll typically see them in large organizations.

For example, large companies can buy in bulk. This economy lowers the cost per unit of the materials they need to make their products. They can use the savings to increase profits. Or they can pass the savings to consumers and compete on price.

There are five main types of internal economies of scale.[1]

Technical economies of scale result from efficiencies in the production process itself. Manufacturing costs fall 70% to 90% every time the business doubles its output. Larger companies can take advantage of more efficient equipment.

For example, data mining software allows the firm to target profitable market niches. Large shipping companies cut costs by using super-tankers. Finally, large companies achieve technical economies of scale because they learn by doing. They're far ahead of their smaller competition on the learning curve.

Monopsony power is when a company buys so much of a product that it can reduce its per-unit costs. For example, Wal-Mart's "everyday low prices" are due to its huge buying power.

Managerial economies of scale occur when large firms can afford specialists. They more effectively manage particular areas of the company. For example, a seasoned sales executive has the skill and experience to get the big orders. They demand a high salary, but they're worth it.

Financial economies of scale mean the company has cheaper access to capital. A larger company can get funded from the stock market with an initial public offering. Big firms have higher credit ratings. As a result, they benefit from lower interest rates on their bonds.

Network economies of scale occur primarily in online businesses. It costs almost nothing to support each additional customer with existing infrastructure. So, any revenue from the new customer is all profit for the business. A great example is eBay.

External economies of scale

External economies of scale describe similar conditions, only for an entire industry instead of a company. For example, if a city creates a better transportation network to service a particular industry, then all companies in that industry will benefit from the new transportation network, and experience decreased production costs

- External economies of scale are business-enhancing factors that occur outside a company but within the same industry.

- In addition to lower production and operating costs, external economies of scale may also reduce a company's variable costs per unit because of operational efficiencies and synergies

Diseconomies of scale occur when, as a business expands in the long run, the unit cost of production increases. In microeconomics, **diseconomies of scale** are the cost disadvantages that economic actors accrue due to an increase in organizational size or in output, resulting in production of goods and services at increased per-unit costs. The concept of diseconomies of scale is the opposite of economies of scale.

Diseconomies are the result of **decreasing returns to scale** and lead to a rise in average cost

Diseconomies of scale in a large business may be due to:

1. **Control** – monitoring the productivity and the quality of output from thousands of employees in big, complex corporations is imperfect and expensive – this links to the concept of the **principal-agent problem** i.e. the difficulties of shareholders monitoring the performance of managers.

2. **Co-ordination** - it can be difficult to co-ordinate complicated production processes across several plants in different locations and countries. Achieving efficient **flows of information** in large businesses is expensive as is the cost of **managing supply contracts** with hundreds of suppliers at different points of an industry's supply chain.

3. **Co-operation** - workers in large firms may develop a **sense of alienation** and loss of morale. If they do not consider themselves to be an integral part of the business, their productivity may fall leading to wastage of factor inputs and higher costs

Variable costs and **Fixed costs** in economics, are the two main types of costs that a company incurs when producing goods and services. Variable costs vary with the amount of output produced, and fixed costs remain the same no matter how much a company produces.

- Companies incur two types of production costs: variable costs and fixed costs.
- Variable costs vary based on the amount of output produced.
- Variable costs may include labour, commissions, and raw materials.

- Fixed costs remain the same regardless of production output.
- Fixed costs may include lease and rental payments, insurance, and interest payments.

Variable Costs

Variable costs are a company's costs that are associated with the number of goods or services it produces. A company's variable costs increase and decrease with its production volume. When production volume goes up, the variable costs will increase. On the other hand, if the volume goes down, so too will the variable costs. Variable costs are volume-related and change with the changes in output level.

Examples of variable costs may include labour, commissions, packaging, and raw materials for production.

Money Costs:

Money cost is also known as the nominal cost. It is nothing but the expenses incurred by a firm to produce a commodity. For instance, the cost of producing 200 chairs is Rs. 10000, and then it will be called the money cost of producing 200 chairs.

Real Costs:

Another concept of costs is the real costs. It is a philosophical concept which refers to all those efforts and sacrifices undergone by various members of the society to produce a commodity. Like monetary costs, real costs do not tell us anything what lies behind these costs. Prof. Marshall has called these costs as the "Social Costs of Production."

According to Marshall, "Real costs are the exertion of all the different kinds of labour that are directly or indirectly involved in making it together with the abstinence rather than the waiting required for saving the capital used in making it, all these efforts and sacrifices together will be called the real cost of production of the commodity."

In this way, real cost means the trouble, sacrifice of factors in producing a commodity. Though, this concept gained momentum for sometime it has been relegated to the background in modern times due to its impracticability.

Fixed Costs:

Unlike variable costs, a company's fixed costs do not vary with the volume of production. Fixed costs remain the same regardless of whether goods or services are produced or not. Thus, a company cannot avoid fixed costs.

Using the same example above, suppose company ABC has a fixed cost of $10,000 per month to rent the machine it uses to produce mugs. If the company does not produce any mugs for the month, it would still need to pay $10,000 for the cost of renting the machine. On the other hand, if it produces one million mugs, its fixed cost remains the same. Fixed costs are time-related i.e. they remain constant for a period of time. Depreciation, interest paid on capital, rent, salary, property taxes, insurance premium, etc.
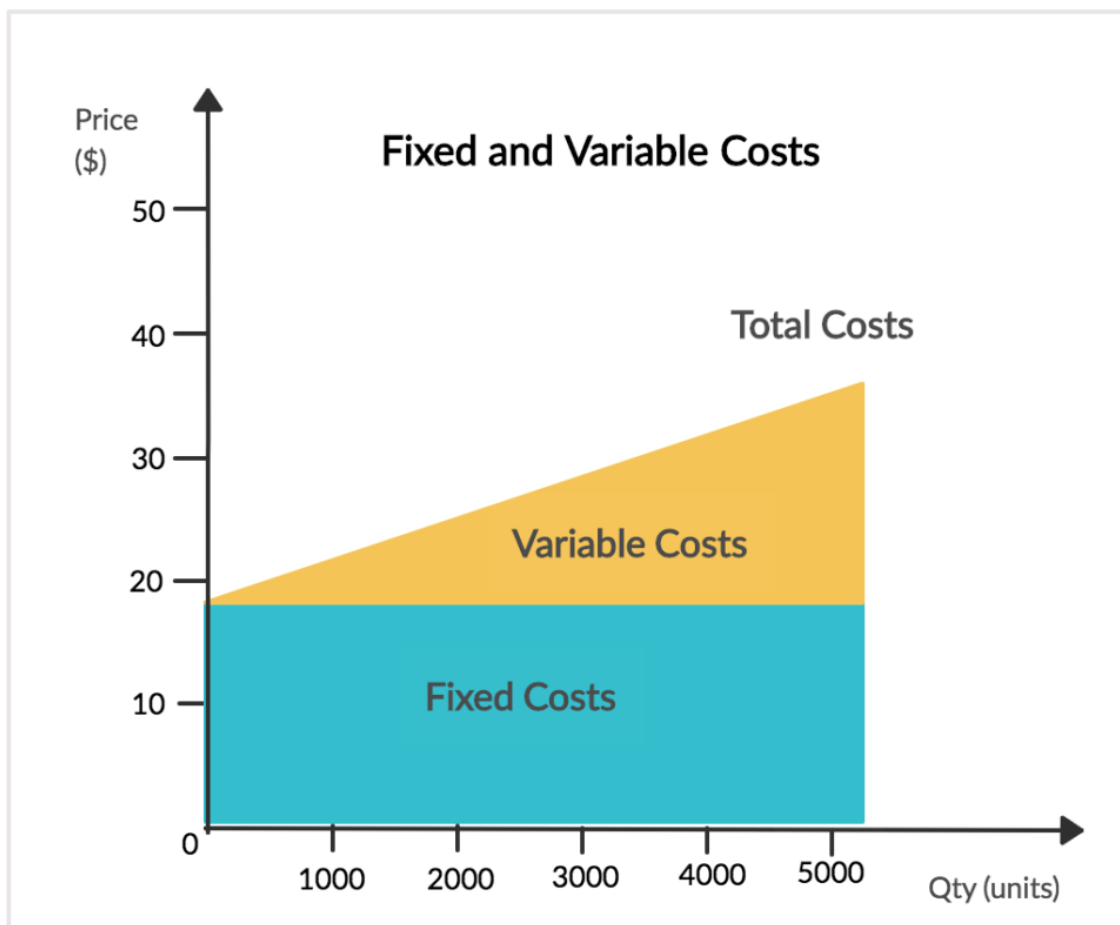
Marginal cost:

Marginal cost is the additional cost incurred in the production of one more unit of a good or service. It is derived from the variable cost of production, given that fixed costs do not change as output changes, hence no additional fixed cost is incurred in producing another unit of a good or service once production has already started.

Output	Total cost (£)	Marginal cost (£)
10	400	
11	700	300
12	800	100
13	1000	200
14	1500	500

Opportunity cost:

 "the loss of potential gain from other alternatives when one alternative is chosen. Opportunity cost is a key concept in economics, and has been described as expressing "the basic relationship between scarcity and choice". The opportunity cost of any good is the next best alternative good that is sacrificed. First, the opportunity cost of anything is only the next-best alternative foregone. That is say, the opportunity cost of producing a good is not any other alternative good that could be produced with the same factors; it is only the most valuable other good which the same factors could produce.

Simply, opportunity cost is what you must forgo in order to get something. The benefit or value that was given up can refer to decisions in your personal life, in a company, in the economy, in the environment, or on a governmental level.

Ex- **Spending on new roads**. If the government build a new road, then that money can't be used for alternative spending plans, such as education and healthcare.

The fundamental problem of economics is the issue of scarcity. Therefore we are concerned with the optimal use and distribution of these scarce resources. Wherever there is scarcity we are forced to make choices. If we have £20, we can spend it on an economic textbook, or we can enjoy a meal in a restaurant. Therefore, many choices involve an opportunity cost – having to make choices between the two.

Opportunity Cost

- Non-cash cost of an alternative foregone
- Examples:
    - a company invests cash reserves internally for return of 10%. Could have invested externally at 12%. *Accounting cost* of the investment is zero, *economic* or *opportunity cost* is 12%

    - a company owns a building. Uses it for its own office. Accounting cost is zero. Could have rented it for $20/ft^2 and moved to the suburbs for $12/ft^2. Opportunity cost is $20/ft^2 and loss is $8/sq. ft.

Shape of AC & MC Curves
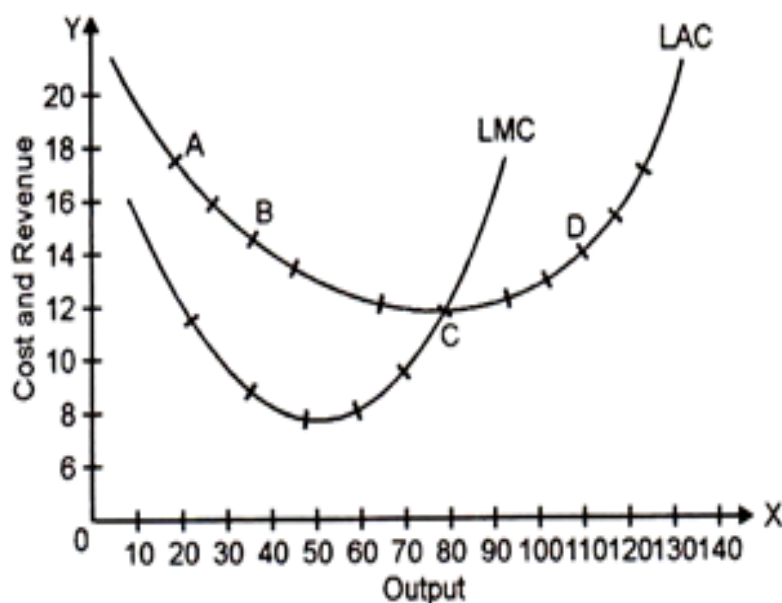
The addition of fixed and Variable Cost gives us total costs, which when divided by the output give us Average Costs in the short period.

The nature of short period Average Cost Curve is 'U' shaped. To begin with, the Average Costs are high at low levels of output because both the Average Fixed Costs and Average Variable Costs are more. But, as the level of output increases, the Average Costs fall more sharply due to the combined effect of the declining average fixed and Average Variable Costs. The Average Cost will continue to fall till they reach the minimum point which is the optimum point level of output. Once the optimum level of output is reached, Average Costs starts rising as more are produced beyond this level.

The rise in Average Variable Cost is more than off set by the small fall in Average Fixed Costs and hence the Average Costs rises quickly. This is due to the change of economies into dis-economies. This gives the short-run as well as long-run Average Cost Curve of the firm U shaped.

The nature 'U' shaped short-run Average Cost curve can be attributed to the law of variable proportions. This law tells that when the quantity of one variable factor is changed while keeping the quantities of other factors fixed, the total output increases with an increasing rate and then declines with more than proportionate.

Thus, the Average Costs of the firms continue to fall as output increases because it operates under the increasing returns due to various internal

economies. Due to the operation of the law of increasing returns the firm is able to work with the machines to their optimum capacity and as a consequence the Average Cost is minimum.

If the firm tries to raise output after that point by increasing the quantities of variable factors the fixed factors like machines would be worked beyond their capacity. This would lead to diseconomies of production and diminishing returns. The Average Costs will start rising rapidly. Hence, due to the operation of Law of Variable proportions the short-run as well as long-run Average Cost Curve is U shaped'.

Shape of MC:

MC is the change in total cost attributable to a change in output. Thus, MC is an addition to the total cost. In symbols,

$MC = \Delta TC / \Delta Q$

It is said that the shape of the MC curve is governed by the shape of the MP curve. Since MP initially rises, reaches a maximum, and then declines, MC initially falls, reaches a minimum, and, thereafter, rises. So the MC curve is U-shaped due the operation of the law of variable proportions.
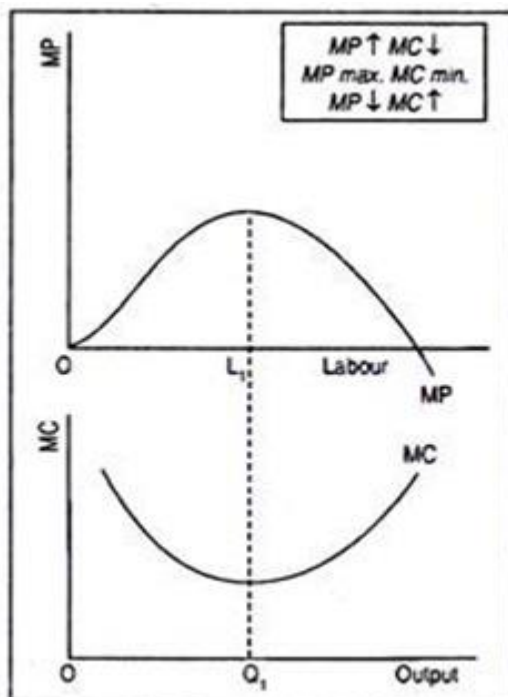

Fig. 3.18: MP and MC Curves

In this figure, as labour employment increases, MP initially rises and, consequently, MC falls as output rises. MP reaches maximum when OL_1 units of labour are used. Corresponding output level is OQ_1. Here MC becomes minimum. Thereafter, employment of labour causes MP to fall even to zero or to become negative while MC continuously rises. Thus the MC curve is the reciprocal of the MP curve.
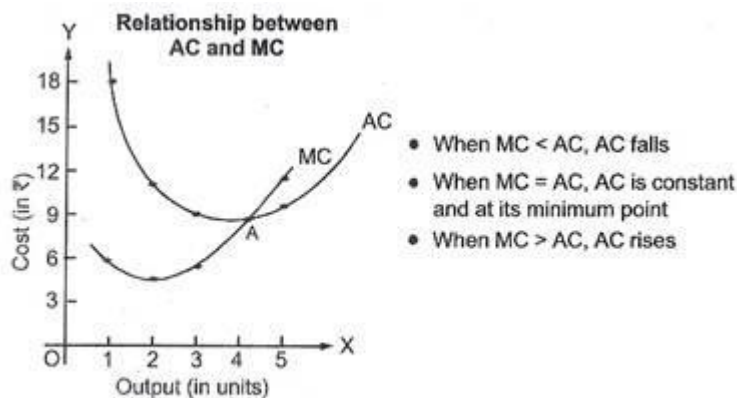

Fig. 6.9

1. When MC is less than AC, AC falls with increase in the output, i.e. till 3 units of output.

2. When MC is equal to AC, i.e. when MC and AC curves intersect each other at point A, AC is constant and at its minimum point.

3. When MC is more than AC, AC rises with increase in output, i.e. from 5 units of output.

4. Thereafter, both AC and MC rise, but MC increases at a faster rate as compared to AC. As a result, MC curve is steeper as compared to AC curve.

Assume that a cricketer (say, Sachin Tendulkar) has scored 180 runs in 3 matches. It means, his present average score is: 180 / 3 = 60 runs. Now, consider the following 3 cases:

Case 1:

Sachin scores 50 runs in his 4th match. Now, his average score will fall as his marginal score is less than the average score.

When the marginal score is less than the average score, average score will decrease. Similarly, when MC < AC, AC will fall.

Case 2:

If Sachin scores 60 runs in the 4th match, then his average and marginal score will be equal as his marginal score is equal to average score.

When the marginal score is equal to average score, average score will remain constant. Similarly, when MC = AC, AC is constant.

Case 3:

If Sachin scores 80 runs in the 4th match, then his average will rise as his marginal score is more than the average score.

When the marginal score is more than the average score, average score will increase. Similarly, when MC > AC, AC will rise.