# Course Name : BBA / BCOM
# Subject Name: Managerial Economics

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# Introduction

An introduction to managerial economics

**MICROECONOMICS** is about

1. Buying decisions of the individual
2. Buying and selling decisions of the firm
3. The determination of prices and in markets
4. The quantity, quality and variety of products
5. Profits
6. Consumers' satisfaction

There are two sides in a market for a good

| **DEMAND** | **SUPPLY** |
|---|---|
| Created by Consumers | Created by firms |
| Each consumer maximizes Satisfaction ("utility") | Each firm maximizes its profits |

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CONSUMPTION THEORY

## CONSUMPTION ANALYSIS UNDER CERTAINTY

**Goods** are products or services that consumers or businesses desire. Examples: a book, a telephone call, insurance coverage. Goods may be directly desired by consumers or may contribute to the production of other goods that are desired by consumers. For example a machine used in the production of cars is desirable because it is useful in the production of cars, although it has no direct value to a consumer. **Bads** are products or services that
consumers desire *less of*. Examples: garbage, pollution, some telephone calls.
Clearly, a good for one consumer could be a bad for another.
If possible, each consumer would consume a very large (infinite) amount of each good. But, each individual is constrained by his/her ability *to pay for these*

*goods*. The limitation of total funds available to an individual defines the

**Budget constraint**. Therefore a consumer has to maximize his/her satisfaction
while not spending more than he/she has, *i.e.*, without violating the budget constraint.

We are interested to find the best choice for a consumer that has a limited amount of funds. We accomplish this in three steps. At the first step, we define
the available choices taking into account the limitation of funds. At the second
step, we discuss the desires/wants of the consumer. At the third step, we find the optimal choice for the consumer by putting together the information we gathered in the previous two steps.
STEP 1: We first analyze the available choices to a consumer that possesses limited funds. Suppose there are only two goods, X and Y, and they are sold at
prices px and py per unit respectively. If a consumer buys x units of good X and y units of good Y, she spends xpx on good X, and ypy on good Y. Total **expenditure** is

$$E = xpx + ypy.$$

The pair (x, y) is called a (consumption) **basket** or (consumption) **bundle**.
If the consumer has a total amount of money I (income) her total expenditure cannot exceed I, *i.e.*,

$$xpx + ypy = I.$$

This is called the **budget constraint**. The set of available (x, y) combinations is called the **budget set**.

For example, X is apples sold at $1 per pound, Y is oranges sold at $0.5 each, and the consumer has I = $3 to spend. Then the basket (1, 4) (*i.e.*, 1 pound of apples and 4 oranges) costs 1 + 4(.5) = $3, and therefore is in the budget set.

Note that since basket (1, 4) available to the consumer, so are baskets where she buys less of each or less of both of the goods, such as (0, 4), (1, 3), (1, 2), etc., since they cost less.

The budget constraint can be represented in the X-Y space. There are two cases, either the consumer spends all her income and xpx + ypy= I, or the consumer has some left-over income and xpx + ypy < I. We are primarily interested in the case where all income is spent. Note that and xpx + ypy = I is a straight line in the X-Y space. It is called the **budget line**. Its slope is -px/py. If the consumer spends all the money in good X then she buys I/px units of this good. This is the maximum amount of X that she can buy. It defines the most extreme point of the triangle on the X-axis. If all money is spend on good Y, it will buy I/py units of good Y. This is the most extreme point of the triangle on the y-axis.

All bundles (x, y) where the consumer does not exhaust all income are below the budget line. The budget set contains all the points in the shaded triangle, including its boundary lines.

**indifference curve** A set of output combination of input yielding the same benefit. Of course, the same consumer typically has many indifference curves. For example, he has both A-B-C-D and E-F-G-H as indifference curves, and he prefers any bundle on E-F-G-H to any on A-B-C-D.

In general, there is an indifference curve through any point in X-Y space. Since "more is better," an indifference curve cannot have a positive slope. Indifference curves have a negative slope, and in special cases zero slope. An
Indifference curve defines the substitution between goods X and Y that is acceptable in the mind of the consumer. As we move towards the Southeast Along a typical indifference curve the consumer receives more X and less Y, while she declares that she is equally well off.

Typically indifference curves are **convex**. This means that starting with two Bundles, A, B, which the consumer the consumer likes equally and are therefore on the same indifference curve, she prefers C, the average of two extreme bundles, rather than either of them. Bundle C has the average quantities of bundles A and B in X and Y (Figure 3).

**Special cases** of indifference curves. If the goods are **perfect substitutes**,

the indifference curves have a constant slope, *i.e.*, are straight lines. This means that the substitution between good X and good Y is constant, irrespective of the point on the indifference curve. Example, X is nickels, Y is dimes.

If the goods are **perfect complements**, the consumer combines the goods in a fixed proportion. Then, indifference curves are L-shaped. Examples: X is left shoes, Y is right shoes; X is personal computer CPUs, Y is video monitors

A consumer can be thought of as assigning a level of **satisfaction** (or **utility**) to each bundle, utility of bundle (x, y) is U(x, y). Then, all bundles on the same indifference curve give the same level of satisfaction (utility). For example, in our earlier figure, the level of satisfaction of a consumer may be at any point on indifference curve EFGH, and the level of satisfaction may be at any point on indifference curve ABCD.

*The **marginal rate of substitution**, is the rate at which a consumer is willing to trade x for y. It is the slope of an indifference curve, MRS = Δy/Δx*. In general, the MRS varies along an indifference curve, that is, the MRS is in general different when the starting bundle of a potential trade changes. For *perfect substitutes*, the MRS is constant. Note that the marginal rate of substitution (MRS) of consumer Z depends on individual preferences as expressed by the indifference curves. It does *not* depend on the market or the prices that may prevail in the market.

An additional unit of good X increases the level of satisfaction of a consumer by the **marginal utility of X**, MUx. Similarly, an additional unit of Y increases the level of satisfaction of a consumer by the **marginal utility of Y**, MUy. *The marginal rate of substitution is equal to the ratio of the marginal utilities,*

**MRS = Δy/Δx = - MUx/MUy**

For a convex indifference curve, its slope goes from high on the left to low on the right. This means that, as the consumer has more Y, she is willing to give up less and less in X in exchange for acquiring equal amounts of Y. Her indifference curves exhibit **diminishing marginal rate of substitution.**
We now find the optimal choice of the consumer by combining the analysis of her preferences with her available choices.

Given convex and smooth indifference curves, the consumer maximizes utility at a point A, where the slope of the indifference curve (MRS) is equal to
the slope of the budget constraint. At the chosen point A we have *tangency of the indifference curve and the budget constraint line*,

**px/py = MRS = MUx/MUy**, *i.e.*, **MUx/px = MUy/py**.

This means that the consumer receives equal satisfaction for the last dollar spent in each good. The quantity of X that consumer Z chooses at A is called his **demand for X**. The demand of consumer Z varies as prices and income change. We denote it with x*(px, py, I). Similarly the demand of this consumer for good Y is y*(px, py, I).

*Changes in income*. As *income* **expands** the consumer changes his levels of consumption. If more of X is consumed, then X is a **normal** good . Example: high quality clothes. If less of X is consumed, then X is an **inferior** good .Example: low quality food, subway tokens. The consumption bundles A, B, C, as income increases are on the **income expansion path**.

*Changes in prices*. As the price of X decreases, there is a natural tendency to consume more of the good that became cheaper. But, at the same time, because of the price decrease, the consumer suddenly finds herself more wealthy. She can buy the old bundle, and still have left-over money. We can separate these two effects on the consumption of X as the **substitution effect** and the **income effect**. There is a natural tendency to buy more of the cheaper good. This is measured, roughly speaking, by the **substitution effect**. The extra money left-over unspent after the price decrease may be spent on X or on Y. The increase or decrease in the consumption of X resulting from the spending of the left-over money is measured, roughly speaking, by the **income effect**. Note that a consumer may not like good X as much when she is richer, and could decrease its consumption as her income increases.

*The direction of the substitution effect is always opposite to the price change*. If the good is **normal**, the income effect is in the same direction.

The two effects reinforce each other. Therefore, ***if a good is normal, the demand curve (that shows how much would be sold at different prices) as slopes downward***. This is called **the law of demand**. This far we have used the notation x for quantity and px for price. For most of the remaining of the course we will use the notation Q for quantity and P for price. Notice that there are two alternative ways to interpret what a demand curve shows. First, the demand curve shows how many units people are willing to buy at any particular price: Q(P). Second the demand curve shows what price would be fetched if a certain number of units of output were offered at the market: P(Q).

If the good is **inferior**, the income effect goes in the opposite direction of the substitution effect. *Typically, even for inferior goods, the demand slopes downward, because the income effect is smaller than the substitution effect*. If the good is very strongly inferior (in very rare cases), income effect could be bigger than the substitution effect, so that the total effect is opposite to the substitution effect, and the demand slopes upward. Then the good is called a **Giffen good**.

**Specific taxes and taxes on wealth** The income-substitution analysis can be applied to taxation. Consider two alternative taxation schemes.

In the first, only good X (say gasoline) is taxed, so that its price goes from px to px + t, where t is the tax per gallon. In the second wealth, I, is taxed. Suppose that both schemes *raise the same amount of total tax*. Then the second scheme leaves consumers better off (*i.e.*, on a higher indifference curve).

Elasticities measure the responsiveness of quantities traded to prices or income. **Price elasticity** measures the **percentage change** in quantity as a response to a **percentage change** in price. The (own) **price elasticity of demand** is

**$e = (\Delta Q/Q)/(\Delta p/p) = (\Delta Q/\Delta p)(p/q)$**.

Note that $e < 0$, and that the elasticity is not the slope of the demand curve. For example, for a linear demand curve $Q = a - bP$, the slope is $\Delta Q/\Delta p = -b$ (constant) but the elasticity of demand is $-bp/q$ which varies as the quantity (or

price) changes.

If e < -1, *i.e.*, e > 1, the demand is **elastic**, *i.e.*, highly responsive to changes in price. Typical for non-necessities, goods you do not have to buy, luxuries.

If e > -1, *i.e.*, e< 1, the demand is **inelastic**, *i.e.*, not responsive to changes in Price. Typical for necessities, goods that you have to buy.

If e = -1, *i.e.*, e = 1, the demand is called **unit-elastic**.

Generally, a demand is more elastic if the product has close substitutes. Demand for an individual brand is more elastic than market demand. Typically,
elasticity of long run demand is higher than elasticity of short run demand because of wider availability of substitutes.

The **income elasticity of demand** measures the responsiveness of the quantity demanded on income changes.

**eI = (ΔQ/Q)/(ΔI/I) = (ΔQ/ΔI)(I/Q)**.
If eI > 0, the good is **normal**. If eI < 0, the good is **inferior**. Most goods are normal. However, goods you buy when you have low income may be inferior.

The **cross elasticity of demand** measures the responsiveness of the demand for good X on price changes of another good, Y.
**ex,py = (Δx/x)/(Δpy/py)**.

If ex,py > 0, x and y are **substitutes** (say Diet Coke and Diet Pepsi). If ex,py < 0, x and y are **complements** (say computers and printers).

If all units are sold *at the same price*, the consumers who are willing to buy at a high price benefit from the existence of consumers who are willing to pay only a low price. All units are sold at a price equal to the willingness to pay for the last unit. The difference between what a consumer is willing to pay and what he actually pays is called **consumers surplus**.

The total willingness to pay up to Q units is the area under the demand up to Q units, A(Q). The actual expenditure is E(Q) = QP(Q). The difference is **consumers' surplus**,

**CS(Q) = A(Q) - E(Q)**.

expenditure E(Q) is double-shaded, and consumers' surplus CS(Q) is single-shaded. A(Q), the total willingness covers both shaded areas.

## PRODUCTION AND COSTS

*Output* Q is produced from many *inputs* including labor man-hours L, capital (machine hours) K, land use, and other factors. For the purposes of this course, we will assume a single variable factor of production, labor L. The relationship between labor and output is summarized by the *production function*

$$Q = f(L).$$

We define the *marginal productivity* of labor as MPL = df/dL. We also expect that marginal productivity MPL to be *decreasing* at high usage levels of the particular input (L). See Figure 18. We also define the *average productivity*

$$APL = Q/L = f(L)/L.$$

Since marginal productivity eventually (*i.e.*, with high use of the input) decreases, it will eventually drive the average productivity down too.

The **cost** of production of Q units is the cost \$wL of the input L required to produce quantity Q = f(L), where \$w is the price of labor. For example if Q =f(L) = 10L, then the amount L required to produce Q units is Q/10, and therefore the cost to produce Q is C(Q) = wQ/10. Similarly, if Q = f(L) = 10√L,the amount L required to produce Q units is (Q/10)2 and therefore the cost to produce Q is C(Q) = w(Q/10)2.

**Returns to scale**. A production function exhibits **constant returns to scale** (CRS) if doubling the input results in double output,

$$f(2L) = 2f(L).$$

A production function exhibits **increasing returns to scale** (IRS) if doubling the input results in more than double output,

$f(2L) > 2fL)$.

A production function exhibits **decreasing returns to scale** (DRS) if doubling the inputs results in less than double output,

$f(2L) < 2f(L)$.

**Total, fixed, variable, average**, and **marginal costs**. Fixed or setup costs do not vary with the level of production.

**Total costs**: C(q) or TC(q).
**Variable costs**: V(q).
**Fixed costs**: F, constant.
**Breakdown of total costs C(q) = F + V(q)**.
**Average total cost**: ATC(q) = C(q)/q.
**Average variable cost**: AVC(q) = V(q)/q.
**Average fixed cost**: AFC(q) = F/q.
**ATC(q) = F/q + AVC(q)**.

**Incremental (marginal) cost**: MC(q) = C'(q) = dC/dq = V'(q) = dV/dq.
Incremental or marginal cost is the cost of production of an extra unit of q. Since extra production does not affect fixed cost, the increase in the total cost is
the same as the increase in the variable cost, MC(q) = dC/dq = dV/dq.
We will examine three types of cost functions. The first type of cost functions exhibits constant returns to scale. Every unit of output costs the same
to produce. Marginal cost is equal to average cost, AC(q) = MC(q).
Goods with constant returns to scale are typically hand-made where the same amount of labor needs to be put in for every unit. The second type of cost functions exhibits increasing returns to scale for every level of production. Marginal cost is the same for every unit, but there is an additional fixed or setup cost. Many manufactured goods require a fixed cost for the creation of a design and thereafter the incremental costs are constant. Examples: software, microchips.
The third type of cost functions exhibits increasing returns to scale for small production levels and decreasing returns to scale for large production

levels. Example: traditional manufacturing.

**Profit maximization**.

Profits, $\Pi(q)$, generated by production level q are
defined as revenues, R(q), minus costs, C(q),

$\Pi(q) = R(q) - C(q)$.

In the simplest case, r**evenues** are price times quantity $R(q) = pq$.

Typically, profits are negative for small q because of positive setup costs that cannot be recovered at low sales. Profits increase in q, reach a maximum, and then decrease. See Figure 23. In this course, we will assume that the firm tries to maximize profits. At the quantity level q* that maximizes profits, the slope of $\Pi(q)$, $d\Pi/dq$ (incremental or marginal profit), is zero. At any q,

$d\Pi/dq = R'(q) - C'(q) = MR(q) - MC(q)$.

that is, incremental profit is always equal to incremental revenue minus incremental cost. Therefore, at q* that maximizes profits, marginal revenue is equal to marginal cost,

$d\Pi/dq = 0$ *i.e.*, $MR(q^*) = MC(q^*)$.

*This condition is necessary for profit maximization* irrespective of the organization of the industry and of the nature of competition. As we will see below, the nature and extent of competition in a market changes MR but usually has no significant influence on MC.

## Market Structure:

**Definition of Market:**

A ***market*** is a set of conditions in which buyers and sellers meet each other for the purpose of exchange of goods and services for money.

**Elements of Market:**

The essentials of a market are:

(i) Presence of goods and services to be exchanged.

(ii) Existence of one or more buyers and sellers.

(iii) A place or a region where buyers and sellers of a good get in close touch with each other.

**Types of Market/Market Model:**

***Markets are classified*** according to the number of firms in the market and by the commodity to be exchanged. The economists on the basis of variation in the features of market describe ***four market models:***

(i) Perfect Competition.

(ii) Pure Monopoly.

(iii) Monopolistic Competition.

(iv) Oligopoly.

In the analysis of each market model, it is examined as to what determines the equilibrium price, output and profit levels for the individual firm and for the industry, in this chapter, we discuss the most important of the various market models that is perfect competition.

**Definition:**

The concept of ***perfect competition*** was first introduced by Adam Smith in his book "Wealth of Nations". Later on, it was improved by Edgeworth.

However, it received its complete formation in Frank Kight's book "Risk, Uncertainty and Profit" (1921).

**Leftwitch** has defined market competition in the following words:

"Prefect competition is a market in which there are many firms selling identical products with no firm large enough, relative to the entire market, to be able to influence market price".

According to **Bllas:**

"The perfect competition is characterized by the presence of many firms. They sell identically the same product. The seller is a price taker".

The main ***conditions or features*** of perfect competition are as under:

**Features/Characteristics or Conditions:**

**(1) Large number of firms.** The basic condition of perfect competition is that there are large number of firms in an industry. Each firm in the industry is so small and its output so negligible that it exercises little influence over price of the commodity in the market. A single firm cannot influence the price of the product either by reducing or increasing its output. An individual firm takes the market price as given and adjusts its output accordingly. In a competitive market, supply and demand determine market price. The firm is price taker and output adjuster.

**(2) Large number of buyers.** In a perfect competitive market, there are very large number of buyers of the product. If any consumer purchases more or purchases less, he is not in a position to affect the market price of the commodity. His purchase in the total output is just like a drop in the ocean. He, therefore, too like the firm, is a price taker.

In the figure (15.1) PK is the market price determined by the market forces of demand and supply. The price taker firm has to adjust and sell its output at Price PK or OE.

**Diagram/Figure:**

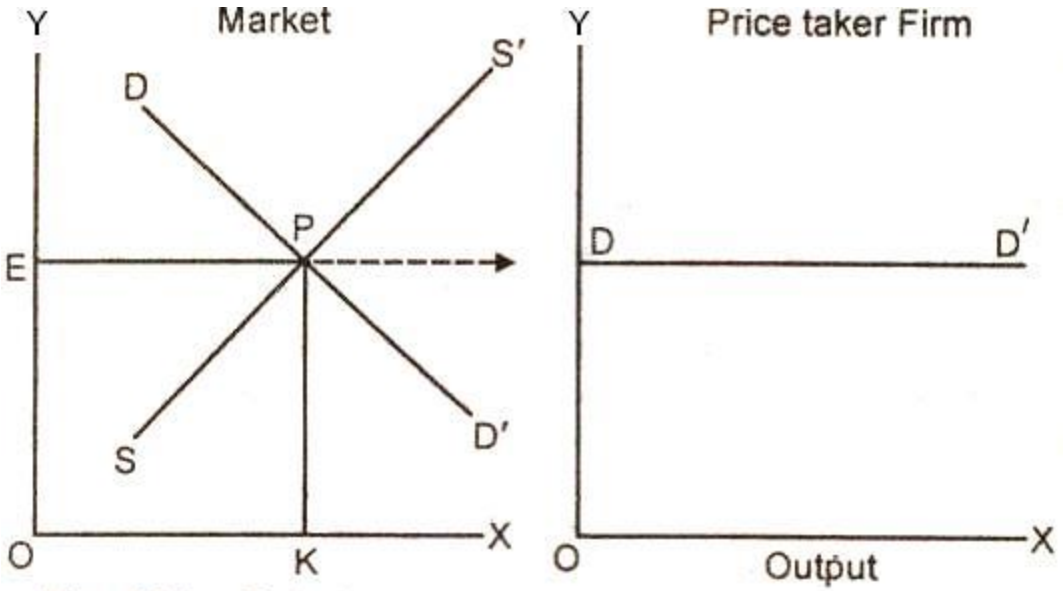


Fig. 15.1 Output

**(3) The product is homogeneous.** Another provision of perfect competition is that the good produced by all the firms in the industry is identical. In the eyes, of the consumer, the product of one firm (seller) is identical to that of another seller. The buyers are indifferent as to the firms from which they purchase. In other words, the cross elasticity between the products of the firm is infinite.

**(4) No barriers to entry.** The firms in a competitive market have complete freedom of entering into the market or leaving the industry as and when they desire. There are no legal, social or technological! barriers for the new firms (or new capital) to enter or leave the industry. Any new firm is free to start production if it so desires and stop production and leave the industry if it so wishes. The industry, thus, is characterized by freedom of entry and exit of firms.

**(5) Complete information.** Another condition for perfect competition is that the consumers and producers possess perfect information about the prevailing price of the product in the market. The consumers know the ruling price, the producers know costs, the workers know about wage rates and so on. In brief, the consumers, the resource owners have perfect knowledge about the current price of the product in the market. A firm, therefore, cannot charge higher price than that ruling in the market. If it does so, its goods will remain unsold as buyers will shift to some other seller.

**(6) Profit maximization.** For perfect competition to exist, the sole objective of the firm must be to get maximum profit.

**Importance:**

Perfect competition model is hotly debated in economic literature. It is argued that the model is based on unrealistic assumptions. It is rare in practice. The defenders of the model argue that the theory of perfect competition has positive aspect and leads us to correct conclusions. The concept is useful in the analysis of international trade and in the allocation of resources. It also makes us understand as to how a firm adjusts its output in a competitive world.

**Distinction Between Pure Competition and Perfect Competitions:**

For a ***pure competition*** to exist, there are three main requisites, i.e., (1) homogeneity of product (2) large number of firms and (3) ease of entry and exist of firms.

A ***perfect competition,*** on the other hand, is made up of all the six postulates stated earlier.

***Equilibrium of the Firm Under Perfect Competition or Marginal Revenue = Marginal Cost (MR = MC) Rule:***

**Definition and Explanation:**

A firm under perfect competition faces an infinitely elastic demand curve or we can say for an individual firm, the price of the commodity is given in the market. The firm while making changes in the amounts of variable factor evaluates the extra cost incurred on producing extra unit MC (Marginal Cost).

It also examines the change in total receipts which results from the sale of extra unit of production MR (Marginal Revenue). So long as the additional revenue from the sale of an extra unit of product (MR) is greater than the additional cost (MC) which a firm has to incur on its production, it will be in the interest of the firm to increase production.

In economic terminology, we can say, a firm will go on expanding its output so long as the marginal revenue of any unit is greater than its marginal cost. As production increases, marginal cost begins to increase after a certain point. When both marginal revenue and marginal cost are equal, the firm is in equilibrium. The firm at this equilibrium point is cither ensuring maximum profit or minimizing losses. This is shown with the help of a diagram below:

**Diagram/Figure:**

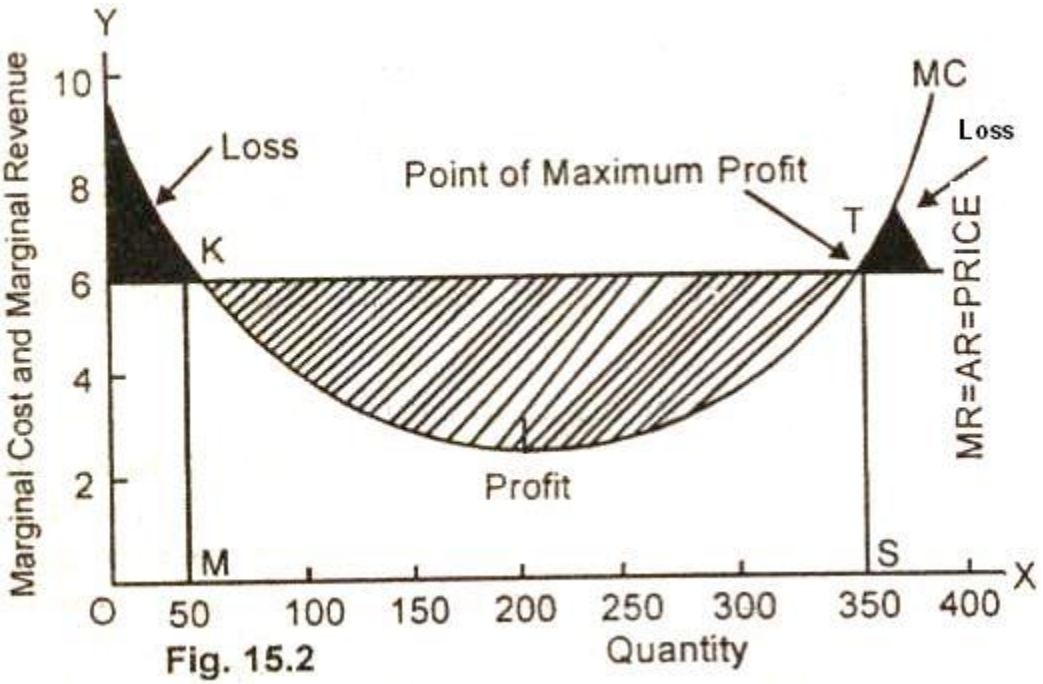

Fig. 15.2

In the figure (15.2) quantity of output is measured along OX axis and marginal cost and marginal revenue on OY axis. The marginal cost curve cuts the marginal revenue curve at two points K and T.

The competitive firm is in equilibrium, at both these points as marginal cost equals marginal revenue. The firm will not produce OM quantity of good because for OM output, the marginal cost is higher than marginal revenue. Marginal cost curve cuts the marginal revenue curve from above. The firm incurs loss equal to the black shaded area for producing 50 units (OM) of output.

As production is increased from 50 units to 350 units (from OM to OS) marginal cost decreases at early levels of output and then increases

thereafter. The marginal cost curve cuts the marginal revenue curve from below at point T. The shaded portion between M to S level of output shows profit on production. When a firm produces OS quantity of output; it earns maximum profit. The point T where MR = MC is the point of maximum profit.

In case, the firm increases the level of output from OS, the additional output adds less to Its revenue than to its cost. The firm undergoes losses as is shown in the shaded area.

**Summing up**, profit maximization normally occurs at the rate of output at which marginal revenue equals marginal cost. This golden rule holds good for all market structures. As regards the absolute profits and losses of the firm, they depend upon the relation between average cost and average revenue of the firm.

***Short Run Equilibrium of the Price Taker Firm Under Perfect Competition:***

**Definition and Explanation:**

By ***short run*** is meant a length of time which is not enough to change the level of fixed inputs or the number of firms in the industry but long enough to change the level of output by changing variable inputs.

In short period, a distinction is made of two types of costs (i) fixed cost and (ii) variable cost.

The ***fixed cost*** in the form of fixed factors i.e., plant, machinery, building, etc. does not vary with the change in the output of the firm. If the firm is to increase or decrease its output, the change only takes place in the quantity of ***variable resources*** such as labor, raw material, etc.

Further, in the short run, the demand curve facing the firm is horizontal. No new firms enter or leave the industry. The number of firms in the industry, therefore, remain the same. Under perfect competition, the firm takes the price of the product as determined in the market. The firm sells all its output at the prevailing market price. The ***firm, in other words, is a price taker.***

## Equilibrium of a Competitive Firm:

The short-run equilibrium of a firm can be easily explained with the help of ***marginal revenue = marginal cost approach or*** *(MR = MC) rule***.**

Marginal revenue is the change in total revenue that occurs in response to a one unit change in the quantity sold. Marginal cost is the addition to total cost resulting from the additional of marginal unit. Since price is given for the competitive firm, the average revenue curve of a price taker firm is identical to the marginal curve. Average revenue (AR) thus is equal to marginal revenue (MR) is equal to price (MR = AR = Price).

According to the marginal revenue and marginal cost approach or (MR = MC) rule , a price taker firm is in equilibrium at a point where marginal revenue (MR) or price is equal to marginal cost The point where MR = MC = Price, the firm produces the best level of output. From this it may not be concluded that the perfectly competitive firm at the equilibrium level of output (MR = MC = Price) necessarily ensures maximum profit. The fact is that in the short period, a firm at the equilibrium level of output is faced with four types of product prices in the market which give rise to following results:

(i) A firm earns supernormal profits.

(ii) A firm earns normal profits.

(iii) A firm incurs losses but does not close down.

(iv) A firm minimizes losses by shutting down. All these short run cases of profits or losses are explained with the help of diagrams.

## Determining Profit from a Graph:

### (1) Profit Maximizing Position:

A firm in the short run earns abnormal profits when at the best level of output, the market price exceeds the short run average total cost (SATC). The short run profit maximizing position of a purely competitive firm is explained with the help of a diagram.

**Diagram/Graph:**

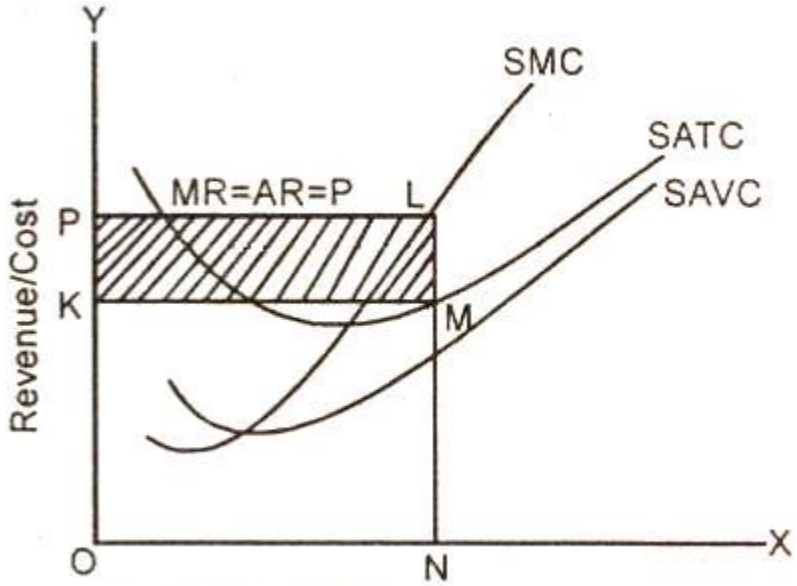


**Fig. 15.3** Output

In the figure (15.3), output is measured along OX axis and revenue / cost on OY axis. We assume here that the market price is equal to OP. A price taker firm has to sell its entire output at this prevailing market price i.e. OP. The firm is in equilibrium at point L. Where MC = MR. The inter section of MC and MR determine the quantity of the good the firm will produce.

After having determined the quantity, drop a vertical line down to the horizontal axis and see what the average total cost (ATC) is at that output level (point N). The competitive firm will produce ON quantity of output and sell at market price OP. The total revenue of the firm at the best level of output ON is equal to OPLN. Whereas the total cost of producing ON quantity of output is equal to OKMN. The firm is earning supernormal profits equal to the shaded rectangle KPLM. The per unit profit is indicated by the distance LM or PK.

It may here be noted that a firm would not produce more than ON units because producing another unit adds more to the cost than the firm would receive from the sale of the unit (MC > MR). The firm would not stop short of ON output because producing another unit adds more to the revenue than to cost (MR > MC). Hence, ON is the best level of output where profit of the firm is maximum.

**(2) Zero Profit of a Firm:**

A firm, in the short run, may be making zero economic profit or normal economic profit. It may here be remembered that although economic profit is zero, all the resources including entrepreneurs are being paid their opportunity. So they are getting a normal profit the case of normal profits of a firms at break even price is explained with the help of the diagram 15.4.

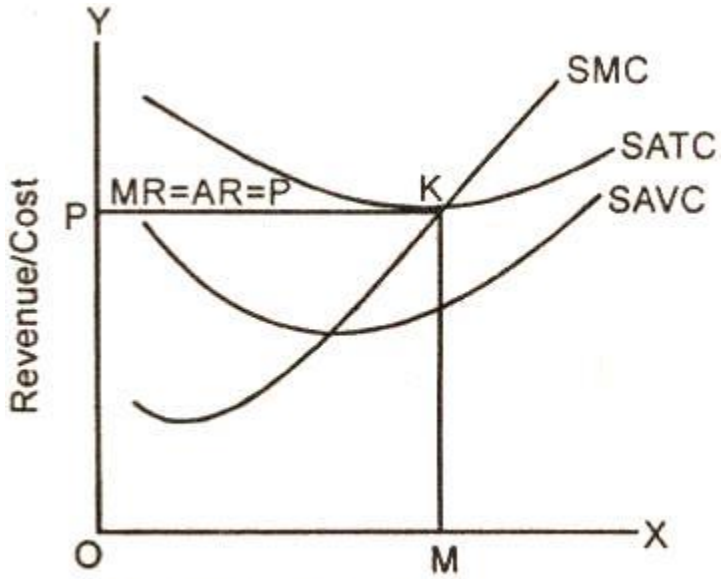


**Fig. 15.4** Output

We assume in the figure (15.4) that OP is the prevailing market price and PK is the average revenue, marginal revenue curve. At point K, which is the break even price for a Competitive firm, the MR, MC and ATC are all equal. The firm produces OM output-and sells at market price OP. The total revenue of the firm to equal is the area OPKM. The total cost of producing OM output also equals the area OPKM. The firm is earning only normal profits. It is a situation in which the resources employed by the firm are earning just what they could-earn in some other alternative occupations.

**(3) Loss Minimizing Case:**

The firm in the short rue is minimizing tosses if the market price is smaller than average total cost but larger than average variable cost. The loss minimizing position of a price taker firm is explained with the help of a diagram.

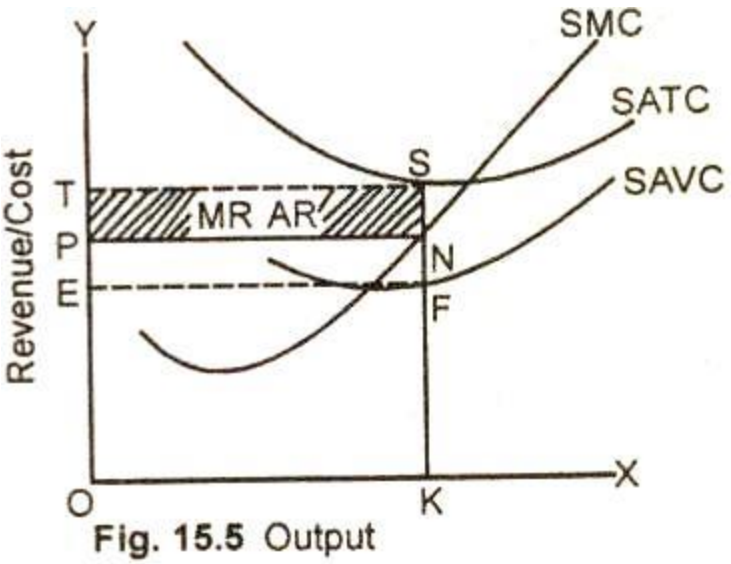

Fig. 15.5 Output

We assume in the figure (15.5) that the market price is QP. The firm is in equilibrium at point N where MR = MC. The firm's best level of output is OK which is sold at unit cost OP. The total revenue of the firm is equal to the area OPNK. The total cost of producing OK quantity of output is equal to OTSK. The firm is suffering a net loss equal to the shaded area PTSN.

The firm at price OP in the market is covering its full variable cost and a part of the fixed cost. The loss of part of fixed cost equal to the shaded area PTSN is less than, the firm would incur by closing down. In case of shut down, the firm has to bear the total fixed cost ETSF. The firm thus by producing OK output and selling at OP price is minimizing losses. Summing up, in the short run the firm will not go out of business for as long as the loss m staying the business is less than the loss from closing down.

**(4) Short Run Shut Down:**

The price taker firm in the short-run minimizes losses by closing it down if the market price is less than average variable cost. The shut down position of a Competitive firm is explained with the help of a diagram.

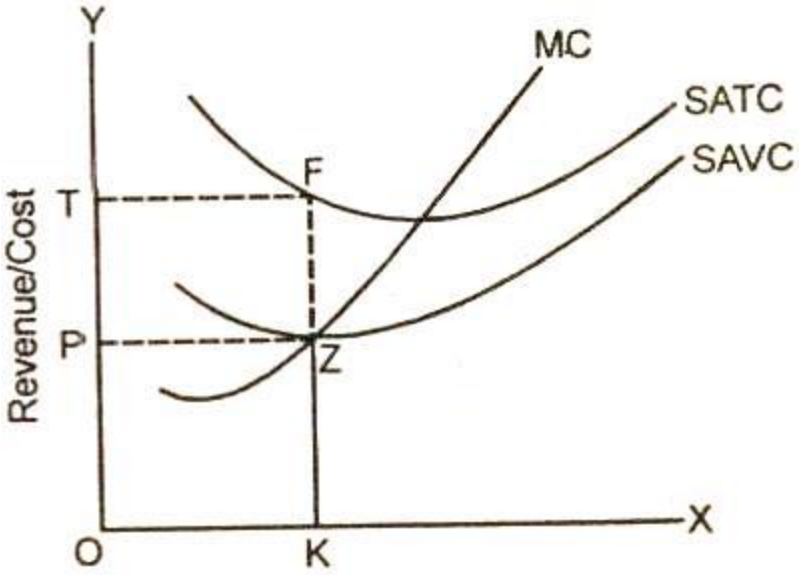


**Fig. 15.6**

In this figure (15.6) we assume that the market price is OP. The firm, is in equilibrium at point Z where MR = MC. The firm produces OK output and sells at OP unit cost. The total revenue of the firm is equal to the area OPZK. Whereas .the total cost producing OK output is OTFR. The firm is suffering a net loss of total fixed cost equal to the area PTFZ. The firm at point Z is just covering average variable costs.

If the price falls below Z, the competitive firm will minimize its losses by closing down. There is no level of output which the firm can produce and realize a loss smaller than its fixed costs. It is therefore a shut down point for the firm. Operate When Price is > average variable cost.

**Short Run Supply Curve of a Price Taker Firm:**

**Definition and Explanation:**

***In a competitive market, the supply curve of a firm*** is derived from its marginal cost curve. Supply curve is that portion of the marginal cost curve which lies above the average variable cost curve.

As we already know, the aim of the firm is to maximize profits or minimize losses. The profits are increased it the difference between total receipts and total costs is maximized. When a firm undertakes the production of a particular commodity, it has to pay remuneration to all the factors of

production employed. The remuneration or cost of the firm for a short period can be divided into two parts, fixed costs and variable costs. If from the sale of the commodity produced, a firm is earning much more than what it has to spend on it. We say a firm is earning abnormal profits if the total revenue of the firm is equal to total cost, the firm is getting normal profits. In both these cases, it is profitable for the firm to produce the commodity. But if the total receipts fall short of total costs, then three situations can arise.

(i) A firm is not in position to meet its variable costs.

(ii) A firm is able to cover its variable costs.

(iii) A firm is covering its full variable costs and a part of the fixed costs.

Let us explain all these situations with the help of a curve.

**Diagram:**

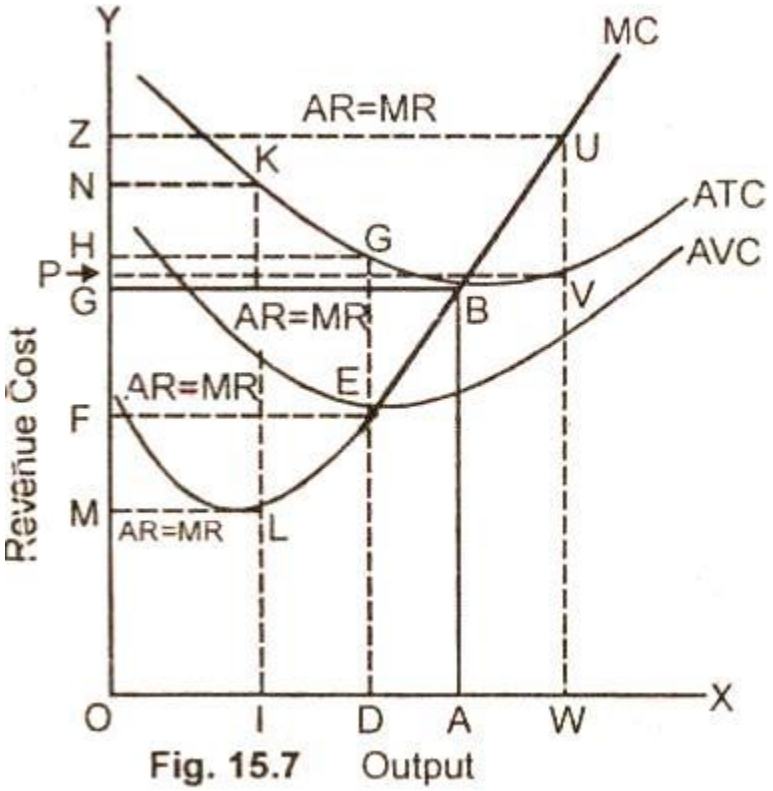

Fig. 15.7

(1) In the figure. (15.7) there are three costs curves, AVC curve, ATC curve and MC curve. ATC curve includes the average variable cost and average fixed cost of a firm. Average variable cost is represented by the AVC curve

which lies below the ATC curve. Let us suppose now that at price OM, a firm supplies an output equal to 01 because MR = MC at point I.

The total receipts of the firm at OM price are thus, equal to OILM, while the total costs are equal to OIKN. At this price, a firm is undergoing too much losses which are represented by the area MLKN. It is not even meeting its full variable cost as the AVC curve lies much above this price line. A firm shall have to close down its operations for minimizing losses in the short run (shut down cases).

(2) At price OF, a firm is in equilibrium at point E where MR = P = AR. It produces OD amount of output and is just able to cover its variable cost. The total receipts of the firm at OF price are equal to ODEF and the total cost ODGH. As the total receipts of-the firm fall short of total cost, so it Is not advantageous for the firm to carry on production in the short run. The firm shall close down its operation as the full fixed cost equal to the area FHGE is not met. The point E where MR = MC = minimum of AVC is also a shut down point of the firm.

(3) In case the price settles somewhere between F and G, then the firm will be meeting its full variable costs and a part of the fixed costs. It, may prefer to produce because if the concern is closed down the whole of the fixed cost is to be met. This, of course can happen in a short period. When the period is long the total receipts of the firm must be equal to total cost and the firm must earn normal profit.

(4) If the price in the market is OG, the firm is in equilibrium at point B. Here the total receipts of the firm, i.e., OABG are equal to the total cost, i.e., OABG. A firm is earning normal profits and it is profitable for it to carry on production. By normal profits in economics we mean the level of profit which is just sufficient to induce an entrepreneur to stay in the industry. The amount is equal to the remuneration which an entrepreneur can get in an alternative occupations. If the entrepreneur is not paid the amount equal to this normal profit, he will move to the other alternative industry where he could got this amount.

If price, rises above OG, then firm is getting abnormal profits. For instance, the firm is producing best level of output by equating MR = MC at point U and selling at price OZ, the total revenue of the firm will be OWUZ and total cost OWVP. There is thus an abnormal profit equal to PVU2.

**Summing up**, we can say, that if price falls below the lowest point on the AVC curve, the firm will not produce any output because it is not able to cover even its total variable costs. But if the price is such that it covers its total variable costs, then the firm may carry on production for a short period. So is also the case when it covers its full variable costs and a part of the fixed costs. In the long period, if the firm does not cover its full costs, it will have to dose down its operations sooner or later. So we conclude that the supply curve of the firm that can be regarded as that portion of the MC curve which lies above the AVC curve and not which lies below the AVC curve because it is only at the lowest point on the AVC curve that some output is forthcoming and not below this point.

The supply curve of the firm or the rising portion of the MC curve which lies above the AVC curve can be split up into two parts. One part consists of that portion which lies above the lowest point of the ATC curve. If the price line representing MR = AR intersects the MC curve at any point on this rising portion, the firm will be earning abnormal profit (see fig. 15.7). The second part of the supply curve of the firm extends from the lowest point of the AVC curve to the lowest, point of the ATC curve. If price line representing MR = AR passes through the lowest point of the AVC curve, the firm is covering only total variable costs. If the price line cuts the MC curve at any point above the lowest point of the AVC curve and below the lowest point of ATC curve, the firm will be meeting its total variable costs and a part of the fixed costs but not the total costs. The total costs are met only when the price line forms a tangent to the ATC curve.

**Short Run Supply Curve of the Industry:**

**Definition:**

The short run supply curve of a competitive firm is that part of the marginal cost curve which lies above the average variable cost. As regards industry supply curve, it is the horizontal summation of the short run supply carves of the identical firms constituting an industry.

**Explanation:**

The industry short run supply curve is briefly explained with the help of the diagram (15.8) below.

We assume here that prices of inputs do not change with the change in the size of the firm; However, when all firms increase or decrease output, the factor prices rise or fall respectively.

**Diagram:**

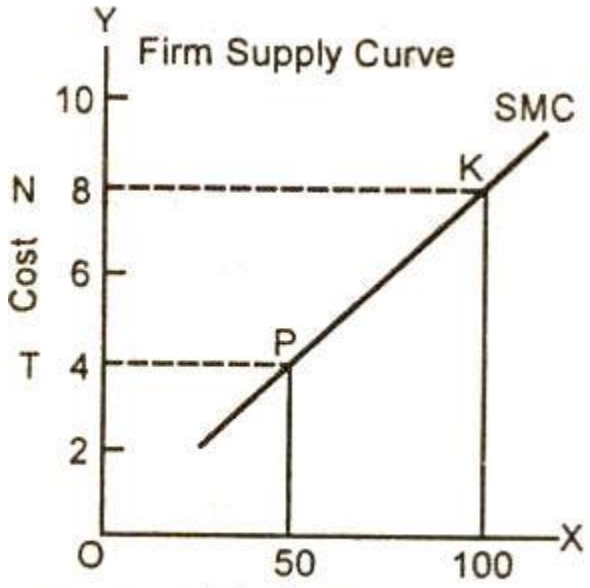


**Fig. 15.8** (a) Output

In figure 15.8(a), we assume that at point P, price or marginal revenue equals marginal cost. The firm at equilibrium point P. ($4) produces and sells 50 units of a commodity. If the equilibrium of MR, MC, price occurs at point K, the firm produces and sells 100 units.

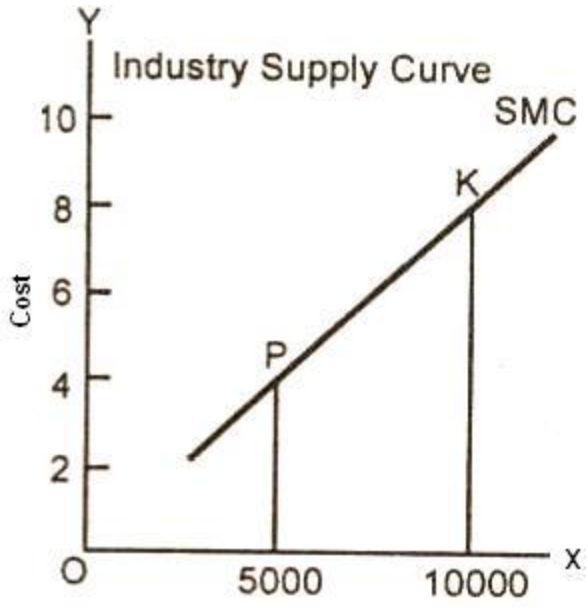

Fig. 15.8 (b) Output

In figure 15.8(b), let us suppose that there are 100 firms in the industry. As all the firms by assumptions, have identical costs, the industry will be producing 5000 units at a market price of ($4) and 10000 units at industrial price of ($8). The industry supply curve, therefore, has a positive slope.

**Long Run Equilibrium of the Price Taker Firm:**

**Definition:**

"All the firms in a competitive industry achieve long run equilibrium when market price or marginal revenue equals marginal cost equals minimum of average total cost."

**Formula:**

**Price = Marginal Cost = Minimum Average Total Cost**

**Explanation:**

The long run is a period of time during which the firms are able to adjust their outputs according to the changing conditions. If the demand for a product increases, all the firms have sufficient time to expand their plant capacities, train and engage more labor, use more raw material, replace old machines, purchase new equipments, etc., etc.

If the demand for a product declines, the firms reduce the number of workers on the pay roll, use less raw material. In short, all inputs used by a firm are variable in the long run. It is assumed that all the firms in the competitive industry are producing homogeneous product and an individual firm cannot affect the market price. It takes the market price as given. It is also assumed that all the firms in a competitive industry have identical cost' curves. The industry it is assumed is, a constant cost industry. In the long run, it is for further assumed that all the firms in a competitive industry have access to the same technology.

When the period is long and profit level of the competitive industry is high, then new firms enter the industry. If the profit level is below the competitive level, the firm then leave the industry. When all the competitive firms earn normal profit, then there is no tendency for the new firms to enter or leave the industry. The firms are then in the long run equilibrium.

**Diagram:**

The case of long-run equilibrium of a firm can be easily explained with .the help of a diagram given below:

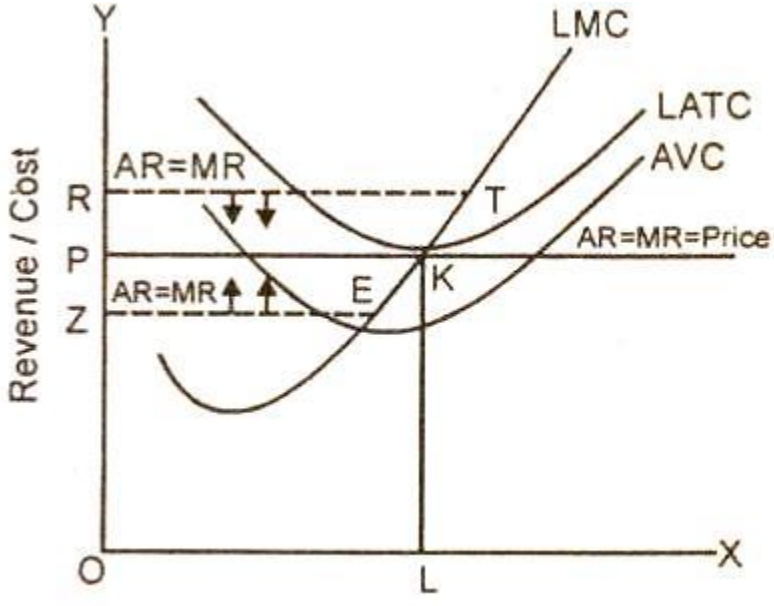


Fig. 15.9

In the figure (15.9), the firm is in the long run equilibrium at point K, where price or marginal revenue equals long-run marginal cost equals minimum of

long run average cost. The average revenue per unit cost of the firm and its marginal revenue at price OP are the same. The firm at equilibrium point K, produces the best level of output OL and sells at price OP per unit. The total revenue of the firm is equal to the area OPKL.

The total cost of producing OL quantity of output is also equal to the area OPKL. The firm is earning only normal profits. At price OP, there is no tendency for the new firms to enter or leave the industry.

This can be proved by taking prices higher or lower price than OP. If the market price in the long run happens to be OR, the firm would be making more than normal profits. The new firms attracted by profit will enter the industry. The supply of the commodity will increase which derives the market price down to the OP level. The firm here makes only normal profits.

In case, a firm is faced with a market price OZ, the firm is then covering its full variable cost. As the firm is suffering a net loss at price OZ, it will leave the industry. So in the long run, price must be equal to OP which is the minimum average to cost of the firms.

At price OP, all the identical firms to the industry earn only normal profit. There is no tendency for the new firms to enter or leave the industry provided price equals marginal revenue equals marginal cost equals minimum average total cost of the firms.

**Price = MR = MC = Minimum of LATC**

**Long Run Industry Equilibrium:**

Since all the competitive firms in the long run make normal profits, are of the optimum size and there is no tendency for the new firms to enter or leave the industry, they are, therefore, in equilibrium. When all the identical firms in the industry are in a state of full equilibrium equating price or marginal revenue, equating marginal cost equating minimum of average total cost, the industry itself is then in equilibrium.

When the industry is in the long run equilibrium, there is an optimum allocation of resources. The consumers get the. products at the lowest possible price as, the goods are produced at minimum price in the long run.

**Long Run Supply Curve for the Industry:**

**Definition and Explanation:**

While explaining the short run supply curve for the firm, we stated that the supply curve in the short run is that portion of the marginal cost curve which lies above the average variable cost curve, it is because of the fact that when the variable casts of a firm are realized, the firm decides to produce the goods. In the short run, the firm is in equilibrium when the MR is equal to MC and both are equal to price. If this equilibrium takes place at the level above the minimum point of ATC curve, the firm is earning abnormal profits and if it is below the minimum point of ATC, then it is suffering losses. In the long run, a firm cannot operate at a loss, however small it may be.

The firm also cannot earn abnormal profits because in that case new firms enter into the industry. The supply of the goods increases in the market and price comes down to the level of normal price. In case of fall in demand, the capacity of the existing firms is contracted, old firms also withdraw from the industry and thus supply is automatically adjusted to demand. The firm, In the long run, is in equilibrium when price = marginal revenue = marginal cost = average total cost of the firm at the lowest point. When all the firms producing a single commodity are in equilibrium, the industry is in full equilibrium. Each firm in the industry is earning only normal profits.

The short run supply curve of the industry is derived as stated earlier by the lateral summation of that part of the marginal cost curves of all the firms which lie above the minimum point on the AVC curves. The long run supply curve, however, cannot be obtained by this method because in the long run the variations is demand produce long run adjustments in the output and also in the costs of productions of these firms. The changes in output take place because of the (1) greater or leaser production by the existing firms, (2) entry of new firms in the industry or withdrawals of old firms and (3) the emergence of external economies and diseconomies.

The emergence of external economies and diseconomies has a very important bearing on the shape of the long run supply curve. When an industry in the long run expands its size for greater production, it enjoys certain external economies such as (1) technical economies, (2) managerial economies (3) communications economies, (4) financial economies and (5)

risk bearing economies. Internal economies may also arise out of the marketing facilities enjoyed by the firms in the purchase of raw material (6) in securing special concessional transport rates, etc., etc. The internal economies also lead to reduction in cost.

(1) If the size of the firm is expanded continuously, it meets diseconomies as well. For instance, co-ordination and organization of factors become difficult (2) capital may not be available in the required quantity (3) entrepreneurial inertia also stands in the way of expansion of the industry (4) the prices of raw material also increase due to greater demand by ail firms (5) the productivity of the additional factors may also be less. The appearances of these diseconomies result in increasing the marginal cost and average total cost of the firms to the higher levels. If the economies and diseconomies cancel each other, the industry wilt experience constant cost in the long run.

We, therefore conclude that the shape of the supply curve of the industry, depends upon the behavior of the cost in the long run.

**Long Run Supply Curve for the Industry:**

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The firm also cannot earn abnormal profits because in that case new firms enter into the industry. The supply of the goods increases in the market and price comes down to the level of normal price. In case of fall in demand, the capacity of the existing firms is contracted, old firms also withdraw from the industry and thus supply is automatically adjusted to demand. The firm, In the long run, is in equilibrium when price = marginal revenue = marginal cost = average total cost of the firm at the lowest point. When all the firms

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We, therefore conclude that the shape of the supply curve of the industry, depends upon the behavior of the cost in the long run.

**Behavior of the Cost:**

(1) If the industry is subject to constant cost, the shape of the supply curve will be perfectly elastic, i.e. it will be horizontal straight line parallel to the X-axis.

(2) If the industry obeys the taw of increasing cost or diminishing return, the shape of the supply curve will be positive, i.e. it will rise from left to right.

(3) If the industry is governed by the law of diminishing cost or increasing return, the long run supply curve will be negative, i.e., it will fall downward from left to right.

**(1) Supply Curve of a Constant Cost Industry:**

If the supply of factors of production is perfectly elastic i.e., they can be had in as much quantity as the firms desire without effecting the prevailing market price. The long run supply curve of the firms will be a horizontal straight tine parallel to the X-axis. For instance, if the paper doll industry expands its output, an increase in demand for paper will have no perceptible effect on the market price of the paper. It is because of the fact that its demand forms an insignificant portion of the total supply. So is also the case with labor in the paper doll industry. If all the firms making paper doll increase their demand for labor, it wilt have no impact on the labor market.

In the constant cost industry, it has been assumed, that the price of inputs do not change as the size of industry varies. The minimum average total cost of the firm remains constant as is explained in the diagram below:

**Diagram:**

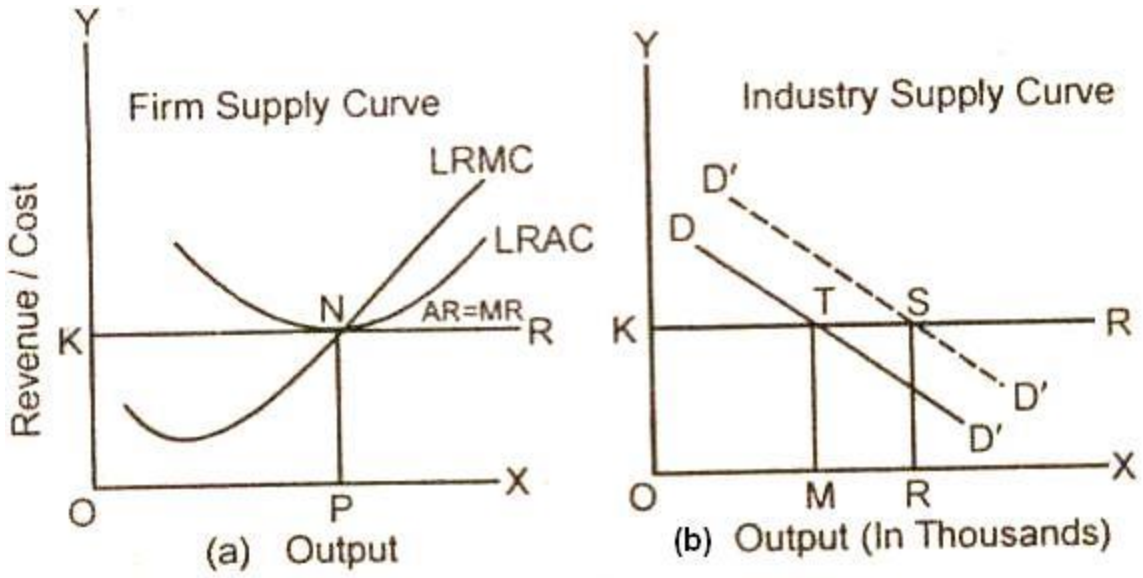


Fig. 15.10

In figure 15.10(a) the firm is in the long-run equilibrium at point N where:

**Price = MC = Minimum Average Cost**

The firm produces output OP and sells at price OK per unit The firm like all other firms in the industry make normal profits. In figure 15.10(b), it is shown that when the market demand for .a product increases, the demand curve DD/ shifts upwards. The new firms enter the industry and each firm produces at its minimum point of average cost which is OK. The industry is thus producing any quantity of output at a price of OK. The supply curve of the industry is perfectly elastic at a price OK in the long run.

**(2) Supply Curve of the Increasing Cost Industry:**

For the increasing cost competitive industry, the factor prices rise with the expansion in its production. When the demand for a good increases in the long run, the new firms enter the industry and the existing firms expand their size for greater production. Due to appreciable increase in demand for the scare factors, their prices go up. The unit cost of production of all the firms in the industry tends to rise. Thus long run average cost and marginal costs of each firm in the industry rises above the previous level. So is also the case with minimum average cost which rises at a higher level than before. The supply curve thus slants upward from left to right or we say the slope of the curve is positive. This is illustrated with the help of diagrams.

**Diagram:**

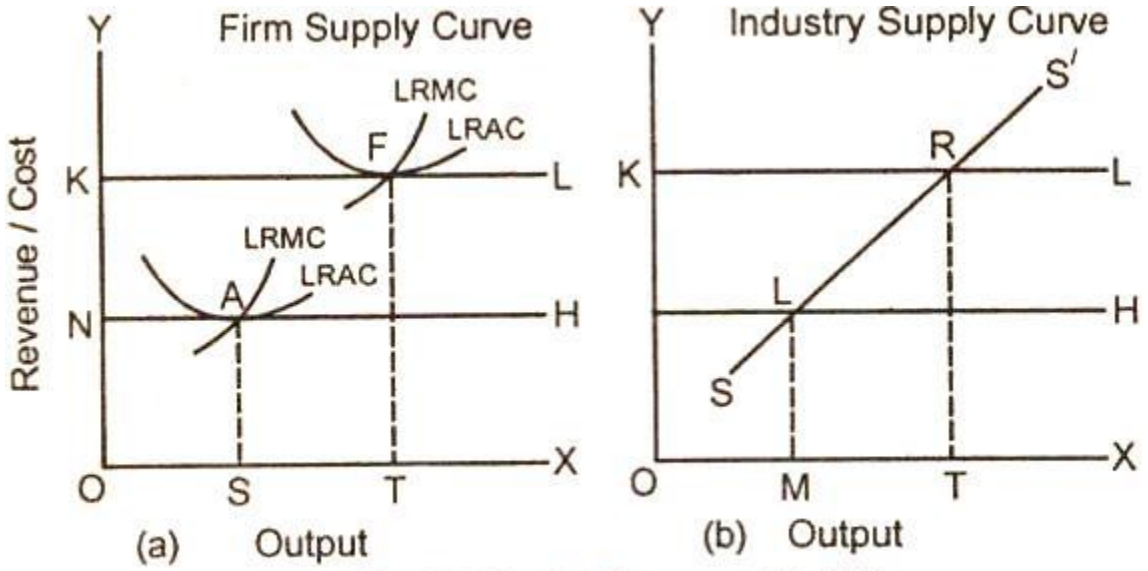


**Fig. 15.11** (In Thousand Units)

In the figure 15.11(a) it is shown that when the demand for a commodity increases, more firms enter into the industry. In order to attract more units of the factors, the firms pay higher prices for them. The cost curves of the firms, move up. The minimum average cost of the firm equals marginal cost equals price at point F. The firm in the long run is in equilibrium at point F and produce the best level of output OT.

When the costs of the firms rise with the expansion of output, the supply 'curve of the industry Fig. 15.11(b) also slants upward. The industry is now in equilibrium at point R, with industry output OT and Price OK.

**(3) Supply Curve of a Decreasing Cost Industry:**

If the price of one or more than one input falls with the expansion of industry, the industry is said to be a decreasing cost industry. For instance, if in a particular industry, technological improvements in production take place and the long run economies outweigh the long run diseconomies, then industry will be subject to decreasing cost or increasing return. The MC, MR and minimum AC will shift downward from the original position. The entire long run supply curve will slant downward from left to right or it has negative slope. This is illustrated below with the help of the curves.

**Diagram:**

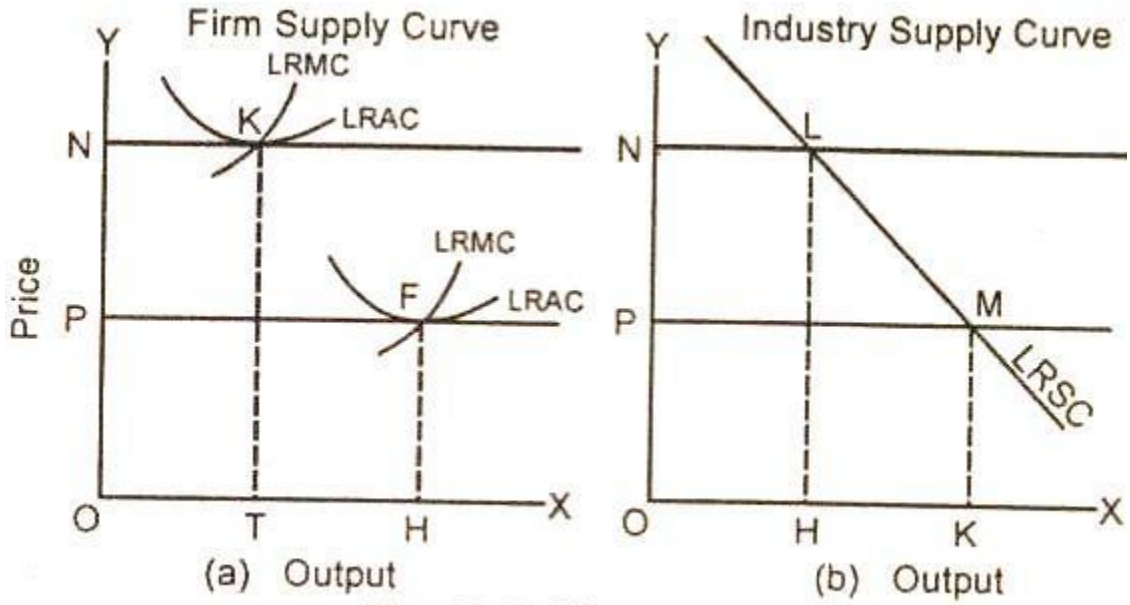


**Fig. 15.12** Thousand Units

In the Fig. (15.12) the firm is in equilibrium at point K in the long run because at point K, MR = MC = Price = Minimum AC. It will produce OT output at price ON. The total supply by all the firms (supply of industry) producing the commodity at price ON will be OH. If the demand for the product increases, the existing firms will expand their sizes and the new firms will enter the industry/Due to technological developments and the economies of large scale production, the MC, AC, and price fall. At the lower price OP, the firm is in equilibrium at point F. Here MC = AC = Price. The supply of a firm increases from OT to OH at a decreasing cost. The supply of the industry at lower price OP increases from OH to OK. The long run equilibrium supply curve slopes downward from left to right.

**Price Determination Under Perfect Competition:**

**Definition and Explanation:**

**Dr. Alfred Marshall** was the first economist who pointed out that the pricing problem should be studied from the view point of time. He distinguished three fundamental time periods in the determination of price:

(1) Market price.

(2) Short run normal price.

(3) Long run normal price.

Marshall has stated that it is wrong to say that demand alone or supply alone determines price. It is both demand and supply which determine price. In the words of **Marshall:**

"The shorter, the period which one considers, the greater must be the share of our attention which is given to the influence of demand on value and longer the period, the more important will be the influence of cost of production on value".

Actual value at any time the market value as it is often called is often influenced by passing events and is short lived than by those which work persistently. But in the log run, these fitful and irregular causes in a large measure efface one another influence so that in the long run persistent causes dominate value completely. Stiller is right when he says that Marshall has done a great service to economics by introducing time element in pricing.

**Market Price:**

**Definition of Equilibrium:**

In a market, there are two sets of forces tending in the opposite direction. On the one side, there are large number of buyers who compete with one another for the purchase of commodities at lower prices. Competition amongst the buyers tends to raise the price. On the other side, there are large number of sellers who compete with one another for the, sale of commodities at higher prices. Competition amongst the sellers tends to lower the price. When the pressure of these two forces is equal in the opposite direction, i.e., when the quantity offered for sale is just equal the quantity demanded at a particular price, the market is said to be in ***equilibrium***.

**Definition of Market Price:**

The price at which the amounts demanded and supplied is exactly equal, is. called the ***market price***.

**Explanation:**

The market equilibrium or the market price is not something fixed. It is subject to fluctuations with the increase or decrease in demand or with the increase or decrease in supply. Market price or the very short run price is the price which tends to prevail in the market at any particular, time. It may change from hour to hour or from day to day. It is, in fact, the result of temporary equilibrium, between the demand for and the supply of a commodity at a certain time, e.g., if the demand for a commodity increases per unit of time, supply remaining the same, prices go up. We can, thus, call the market price as the changing equilibrium.

When the period is very short, say an hour, or, a few hours, the supply of the commodities if demanded more cannot be increased with the further production of goody. The supply can only be brought from the stock already available for sale. In a very short period, the cost of production has a very negligible influence on the market price. If the commodities are perishable, like fish, fruits, etc., and there is no arrangement available for placing them in cold storages, then the cost of production has practically no influence on price and there is also no reserve-price on the part of the sellers.

If the commodities can be kept for a longer period, then it has an indirect influence on market price. If price falls lower than the reserve price, the commodities will not be brought for sale but will be kept in store hoping to dispose them off when their prices cover the cost of production. The analysis of the market equilibrium or the market price stated above can be discussed in more detail.

**(1) Market Price of Perishable Commodities:**

In a case of a commodity which, is perishable, the cost of production has practically no influence on the market price. The whole of the stock has to be disposed off at the prevailing price. Let us suppose a perishable commodity like fish is brought for sale in the market to the amount of 50 kilograms. The total quantity of fish demanded by all individuals in the market at various prices per day is as follows:

**Schedule:**

| Price (in $) Per Kg. | Amount Supplied Per Day | Quantity in Kg. Demanded Per Day |
|---|---|---|
| 50 | 50 | 1 |
| 40 | 50 | 10 |
| 30 | 50 | 15 |
| 20 | 50 | 23 |
| 10 | 50 | 50 |

From the schedule given above, the reader can understand that if the seller wishes to sell the whole of the stock, it can be sold at $10 per kilogram. As in a perfect market, there can be only one price for a particular commodity, so the buyers who are willing to buy at higher price, enjoy consumer's surplus. The price determination in the market period can be illustrated with the help of a diagram. **The equilibrium market price is where demand and supply curves intersect.**

**Diagram/Graph:**

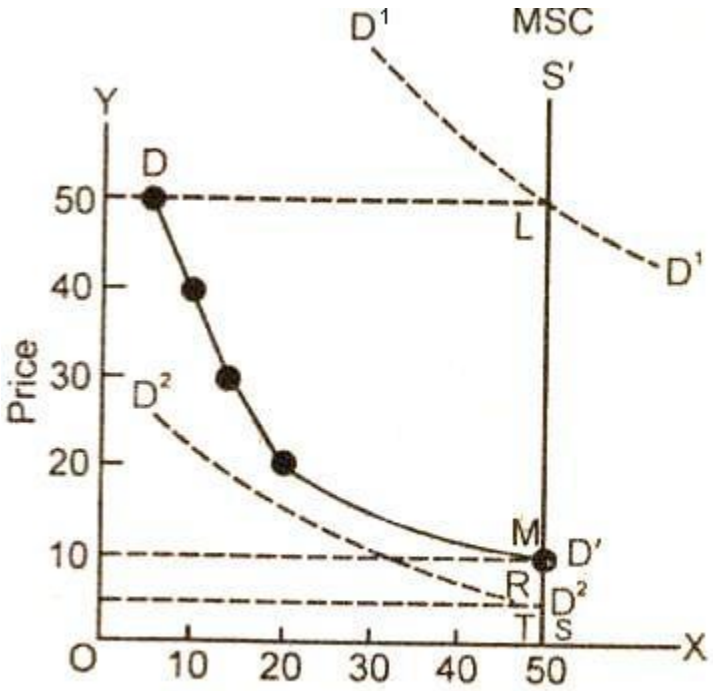


Fig. 15.13 Quantity

In the graph (15.13) quantity is measured along OX axis and price along OY axis. As the supply of a perishable commodity is fixed and cannot be held back, therefore, the market period supply curve (MSC). SS will be a vertical straight line. The market demand curve DD' intersects the market supply curve at point M. MS ($10) is the market price at which the total quantity of fish is sold in the market.

Let us suppose that demand for fish rises due to strike on the part of the meat sellers, the new demand curve $D^1D^1$ intersects the market supply curve at point LLS which is equal to $50 will be new market price. If the demand falls, the new demand curve $D^2D^2$ cuts the supply curve at point R. $30 which is equal to $5 is the new equilibrium price.

**(2) Market Price of Non-Perishable Commodities:**

When the commodities are not perishable, the stock can be kept in store for certain period. If prices rise and the sellers think it profitable to sell, then the whole of the stock can be brought in the market for sale. If prices fall and the sellers do not think it advantageous to sell, then a part or whole of the stock can be withheld with a view to sell it at some future date when the prices rise. After haggling and bargaining, a price is established which just clears the market. At this price, the total amount demanded is exactly equal to the total amount supplied. This can be proved with the help of a schedule and a diagram.

**Schedule:**

| Quantity in Quintals Demanded (Per Week) | Price in ($) Per Quintals | Quantity in Quintals Supplied (Per Week) | Pressure on Price |
|---|---|---|---|
| 20 | 30 | 200 | Falling |
| 60 | 25 | 150 | Falling |
| 90 | 20 | 130 | Falling |
| 100 | 15 | 100 | Neutral |
| 140 | 10 | 75 | Rising |
| 190 | 5 | 25 | Rising |

In the schedule given above, when the price of a commodity is $15 per quintal, the total, quantity demanded per week is just equal to the total quantity supplied, i.e., 100 quintals.

**Diagram:**

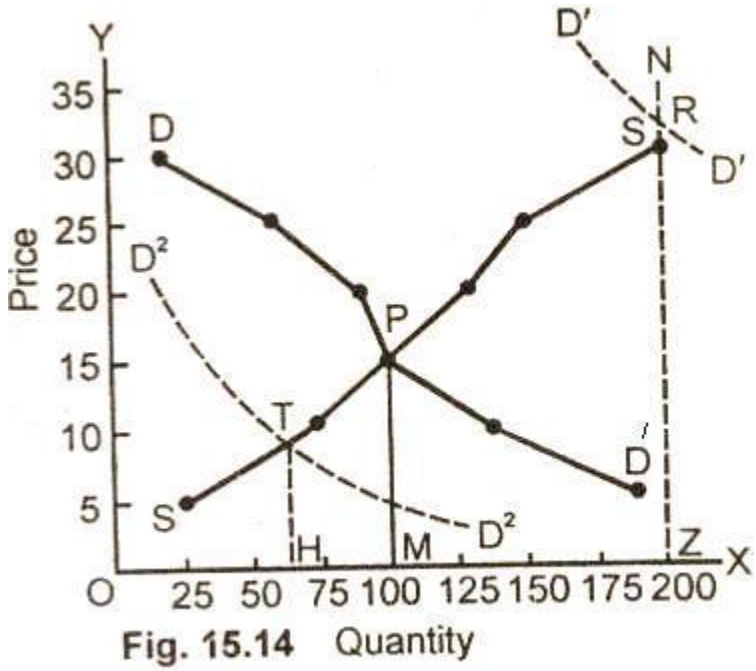

Fig. 15.14

It can also be illustrated with the help of a diagram. In the Fig. (15.14) SSN is the supply curve of non-perishable commodity in the very short period. OZ is the quantity of goods which can be brought into the market for sale. $DD^{/}$ is the market demand curve which intersects the market. supply curve at point P. PM which is equal to $15 is the equilibrium price or the market price point P. PM which is equal to $15 is the equilibrium price or the market price and OM the equilibrium amount If the demand rises, the new market demand curve intersects the supply curve at point R. RZ then will be the, market price. NS position of the supply curve is a vertical line showing that even if price rises, the quantity cannot be increased. However, the price will go up with the increase in demand.

If the demand falls, the new demand curve $D^2D^2$ cuts. The supply curve at point T. TH then is the market price. It shows that at lower price, less commodity is offered for sale. In this case, it is OH quantity only which is brought into the market for sale at TH price.

**Determination of Short Run Normal Price of Firm and Industry:**

**Definition:**

In the short run, the size of a firm and the number of firms comprising an industry remain the same. The time is considered to be so short that if demand for product increases, the old firm can use their existing equipments more intensively but new firms cannot enter into the industry. The short run normal price is established at a point where the short period supply curve and the demand curve intersect each other.

The short run supply curve of the industry is the lateral summation of the short period marginal cost curves of all the firms. While the market demand curve is a falling curve indicating that more is bought when price is low and less when price is high.

**Explanation:**

The determination of price and output in the short run can be explained with the help of the above diagrams.

**Diagram/Figure:**

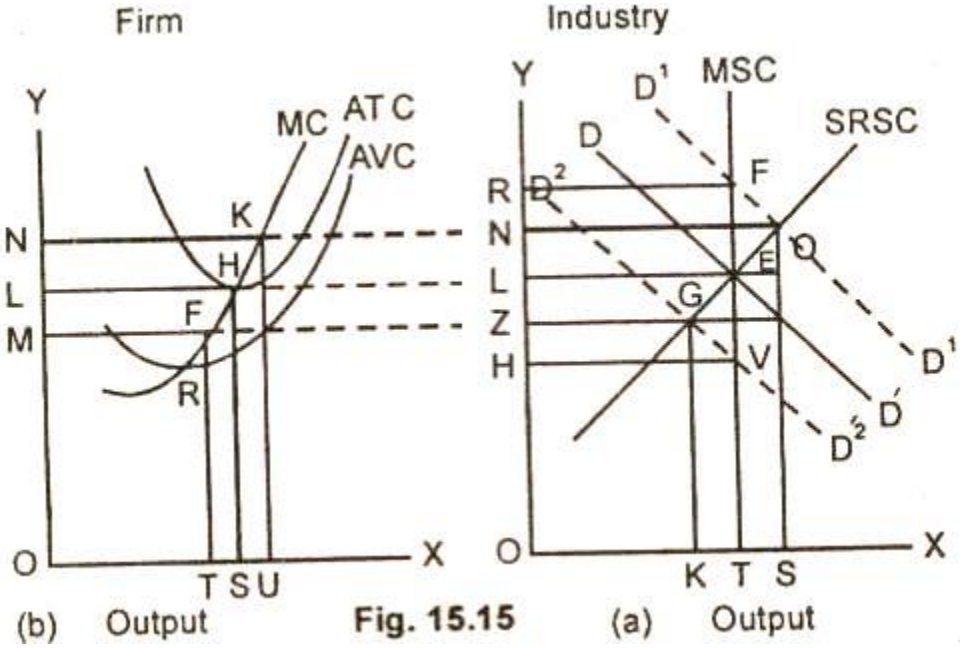


Fig. 15.15

In the fig. 15.15(a) the short run supply curve (SRSC) of the industry intersects the market demand curve at point E. The price will be OL and the quantity supplied OT.

We suppose now that the demand for the commodity has gone up. The new demand curve $D^1D^1$ intersects the market supply curve (MSC) at point F. The price rise from OL to OR without affecting the output which remains OT as before. The entrepreneur lured by higher prices will use the fixed capital equipment more intensively. The old machines will also be repaired and the production expanded. The new demand curve then intersects the short period supply curve SRSC at point Q.

In fig 15.15(b) ON will be the short run normal price which is higher than the original market price OL but lower than the raised market price OR. ON thus is the short run normal price of an industry. This price cannot be changed by the action of an individual firm as it produces an insignificant portion of the total supply of the output. It will have to adjust its product accordingly. At price ON, the firm is earning abnormal profits because the price is higher than the normal price OL.

If the market demand falls, the new demand curve $D^2D^2$ intersects the market period supply curve at point G. OZ then is the new equilibrium market price which is lower than the original OL market price. The fall in the market price will affect the supply of the commodity. The firms will reduce their output by decreasing the variable factors

**Long Run Normal Price and the Adjustment of Market Price to the Long Run Normal Price:**

**Definition and Explanation:**

When we speak of a long period, we do not mean an interval of time in which we all may be dead. By long run is meant the period in which the factors of production can be adjusted to changes in demand. The long run period differs with different industries. In some industries, the preparation of the plan, the expansion, construction of the new building, installation of new machinery, training of new labor may take only a few months and in others, it may take a few years.

In the long run, the price will be determined at a point where the demand curve and the long run supply curve intersect each other. The shape of the long run supply curve will, however, be different with different industries. If the industry is subject to increasing cost, the long run supply curve will slant upward from left to right. If the industry is subject to diminishing cost, it will fall downward from left to right. If the industry is subject to constant cost, it will be parallel to the quantity axis.

Let us examine now the determination of long run price under the above three conditions and also see as to how the market price adjusts itself for the long run normal price.

**Dynamic Changes and Industry Equilibrium:**

**(1) Increasing Cost Industry and Long Period Price Determination:**

The long run supply curve in increasing cost industry slants upward from left to right but the rise is less steep as compared to short period supply curve. The market price is determined at a point where the long run supply curve cuts the demand curve as is illustrated below.

**Diagram:**

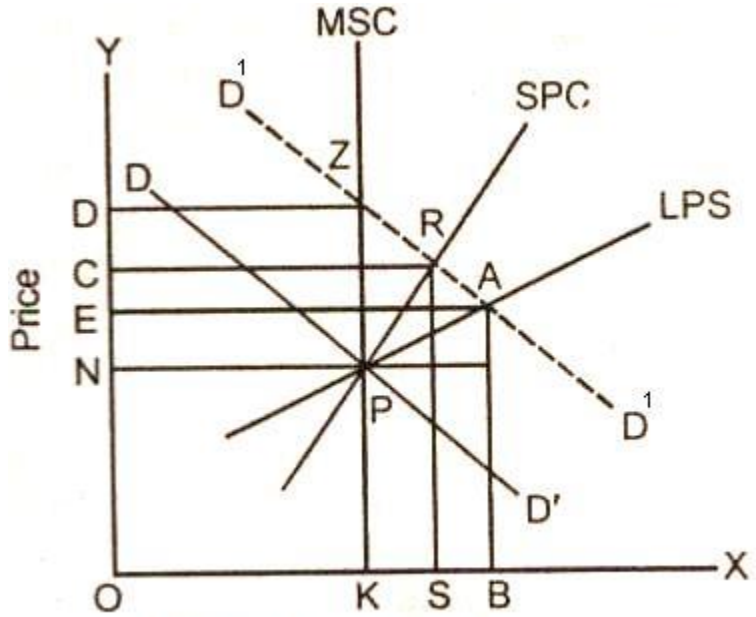


**Fig. 15.16**

In this fig. 15.16 market supply curve (MSC), short period supply curve (SPC), long period supply curve (LPSC), pass through the point P. The market price, short period price and the long run normal price thus is equal to ON.

Let us suppose that there is once for all increase in the market demand. The new demand curve $D^1$ $D^1$ intersects the market supply cure, short, period supply curve, and long period supply curve (LPSC) at points Z, R, A, respectively. The new market price with be equal to OD, the short period price equal to OC and long period price equal to OE.

The market price OD is higher than short period normal price and long run normal price. The short period normal price OC is lower than the market price but higher than long run normal price. The long run normal price OE is the lowest of the two but is higher than the original market price ON. How much the long run price will differ from the market price depends upon the supply condition in a particular industry. The fact in that the market price oscillates round the long run normal price.

**(2) Decreasing Cost Industry:**

In case of decreasing cost industry, the long run supply curve will have a negative slope. The price will be determined at a point where the market demand curve intersects the long period supply curve as shown below.

**Diagram:**

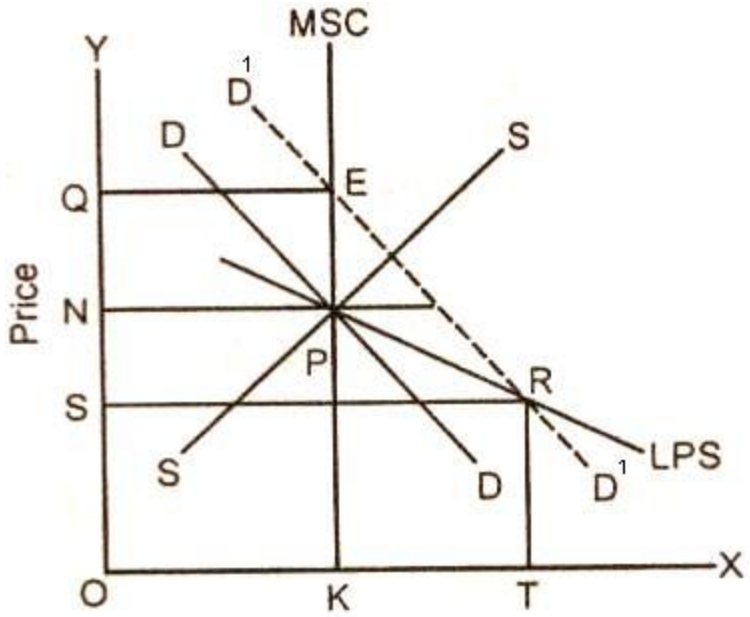


**Fig. 15.17** Output

In Fig. (15.17) market supply curve, long period supply curve and demand curve intersect at point P. ON is the original market price. If demand rises, the new demand curve $D^1D^1$ intersects the market supply, curve at point E and long run supply curve at point R. OQ then will be the new market price and so the long run normal price. The long run normal price OS is now lower than the original market price ON. The market supply increases from OK to OT in the long run.

**(3) Constant Cost Industry:**

If the industry is subject to constant cost, the long run supply curve will be a horizontal straight line parallel to the base axis.

**Diagram:**

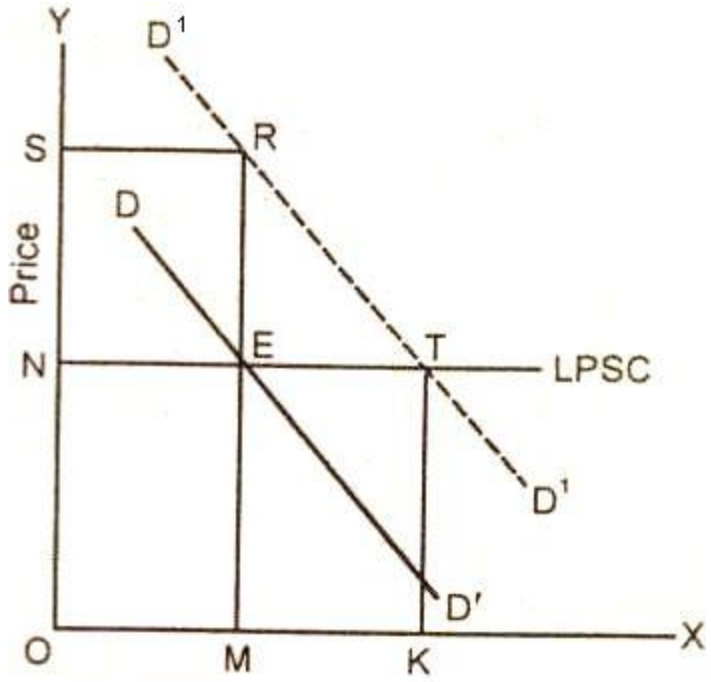


**Fig. 15.18**

In Fig. 15.18 long period supply curve, market supply curve and the market demand curve pass through point E, ON is thus the original! market price. If demand rises, the new market price will be higher than the original market price. It is OS in the diagram. In the long run, however, the price falls to ON because the long period supply curve is a horizontal straight line. The quantity supplied increases from OM to OK.

We, therefore, conclude by saying that the long run normal price will be higher than, lower than or remains equal to the original market price depending open the additional supply which can be acquired according to the changed conditions in the long run.

**Distinctions/Difference Between Market Price and Normal Price:**

The main points of ***distinction/difference between market price and normal price*** are as follows:

(1) Market price is the price which prevails in the market at, any particular moment due to the temporary equilibrium of the forces of demand and supply. The normal price on the other hand, is the price which tends to prevail in the market in the long run. it is the result of long run equilibrium between demand and supply.

(2) Market price is the result of temporary causes and passing events which influences demand and supply or both; whereas normal price is affected by persistent and permanent causes in the long run. The market price oscillates round the normal price.

(3) Market price is the actual price which prevails in the market at any particular moment but this is not the case with the normal price. The normal price in actual practice seldom prevails in the market, because in the long run a change takes place either in demand or in supply conditions. In fact, the long run normal price like tomorrow
never comes.

(4) In the very short period, the cost of production has no effect on market price but in the long run, the normal price must be equal to both the marginal cost and the minimum average cost.

(5) All kinds of commodities have a market price but the normal price will be of those commodities which are reproducible. For instance, unique, diamonds or some old manuscript cannot be reproduced even if their demand rises. The supply will remain fixed. So we cannot measure their normal price.

**Interdependent Prices:**

We have discussed the determination of price and output of a firm (Market Price) producing a single commodity. We will be dealing now with the pricing of interconnected commodities. Let us, first, take the pricing of jointly demanded goods.

**Prices of Jointly Demanded Goods:**

When goods are demanded jointly in order to satisfy a particular want or for producing a certain commodity, they are said to be in joint demand. For instance, pen and ink are needed for writing; ball, bat and wickets are demanded together for playing cricket; masons, carpenters plaster, etc., are jointly required for constructing a building. The commodities which are Jointly demanded are also called ***complementary goods.***

The demanded for the final product in the Jointly demanded goods is called the ***direct demand*** and the demand for various factors of production used for making a final product is called the ***indirect demand or derived demand***.

**For instance,** the demand for house is a direct demand, while the demand for various raw materials and labor used in constructing the house is a derived demand.

A demand for the jointly demanded goods represent two types of relations:

(i) Substitutive and (ii) Complementary.

**(1) Substitutive Relationship:**

If two commodities are close substitutes of each other, then the rise in the price of one commodity will result in the rise in price of the other.

**For instance,** if the price of tea rises, the price of coffee will also go up and vice versa. Here, the concept of cross elasticity will be very useful for measuring the mutual relationship of the demand for interrelated commodities. The cross elasticity of the demand is measured with the help of the following formula:

**Formula:**

$$\text{Cross Elasticity} = \frac{\text{Proportionate Change in the Quantity of Good X}}{\text{Proportionate Change in the Price Good Y}}$$

Here X stands for tea and Y for coffee.

**(2) Complementary Relationship:**

When two or more commodities are demanded jointly to satisfy a particular want, they are said to be complementary goods.

**For instance,** the demand for car is directly related to the demand for petrol. Car as alone or petrol alone does not serve any useful purpose. If the demand for cars increases, the price of the related goods, i.e., petrol will also go up. The extent of the price movement will depend on the elasticity of demand, for car and the elasticity of supply of petrol.

**Is a factor of production in joint demand able to obtain higher price by withholding its supply?** In order to answer this question, we suppose the demand of cars goes up and their prices rise. The direct result of the rise in prices of cars will be that the prices of raw material such as steel, rubber, glass, etc., used in manufacturing the cars will also go up.

But the rise in prices of each of them will be affected differently depending upon their (i) conditions of supply, (ii) elasticity of demand, and (iii) the possibility of varying it in combination with other commodities.

**First**, just to make it more clear, we take one item; say rubber which is in Joint demand and see how its price is affected by rise in the price of the cars, if its supply is withheld. Other things remaining the same, if the demand for rubber is indispensable and there are no good substitutes available, then its price will have a tendency to rise.

**Secondly**, if demanded for cars remains inelastic, i.e., a considerable change in price is followed by a slight change or practically no change in the quantity demanded, then the price of rubber will show upward trend.

**Thirdly**, if the price of rubber forms a small part of the total cost, then its price can rise as the total cost is not very much affected by its rise and the entrepreneur can afford to pay higher price for it.

**Fourthly**, if the demand for other co-operating factors is squeezable, i.e., it is elastic, then the price of the non-co-operative factor, i.e., rubber will go up.

**Joint Supply:**

**Definition:**

When two or more commodities come into existence as a result of a single process and with the same expenses, they are said to be in ***joint supply.***

**Explanation:**

**For instance,** if we want to raise the output of wheat, the production of straw will be automatically increased. So is the case with the production of

mutton and wool, cotton and cottonseeds, beef and hide, gas and coke, etc. The less important product in joint cost, whose price is low, is called by product.

The question to be tackled here is as to how the price of each separate product is determined in the market. For the purpose of analysis, we divide joint products into two distant sections:

(1) Products whose proportion can be varied.

(2) Products whose proportions cannot be varied, We take both these cases and discuss them one by one.

**(1) Products whose Proportion can be Varied:**

In case of those products whose proportions are variable, it is possible to find out the marginal cost of each product separately, in Australia and New Zeeland, for instance, it has been found possible to produce mutton and wool in variable proportions by cross breeding sheep. We can have a breed of sheep which yield more mutton and less wool or less mutton and more wool. The marginal cost of production of each product can be found by considering the quantity of one commodity to remain the same and the other to increase. When we get marginal cost of production of one by applying the marginal analysis, then the commodities become separate. The firm equates marginal cost and price of each product and the total output will be regulated as such in the short period.

In case of long run, normal price of the joint products, it is not possible to ascertain the average cost of the production. So, we cannot equate price and average cost. What we have to do is to balance total cost of producing the joint product and the total receipts from the sale of the commodities. When the total receipts and the total costs are equal, firm is in equilibrium.

**(2) Products whose Proportions cannot be Varied:**

When the proportions of the joint products are not variable, a rise in the output of one commodity must necessarily be accompanied by a rise in the supply of the other. If, for instance, the price of cotton rises and output of cotton is increased, the total quantity of cotton seed will also increase automatically. In such conditions, it becomes impossible to separate the

marginal cost of such product by increasing its output individually. Under these circumstances, the market price of each product is determined by the interaction of the forces of demand and supply at that particular moment. In case of long run equilibrium, the total receipts of a firm must be equal to its total cost.

**Composite or Rival Demand:**

**Definition and Explanation:**

"If a commodity can be put to several uses, it is said to have ***composite or rival demand"*.**

**Example:**

Steel, for instance, can be used in making guns, bridges, cycles, cars, and several other machineries. The demand for steel in all its separate uses constitutes the composite demand. Take another case of land. It can be used for ploughing or for constructing houses or shops or factories on it.

The aggregate demand for all these rises is called the composite demand. The price of a commodity in composite demand is based on the principle of substitution. If the demand of a commodity for a particular use increases, the supply of the commodity in that particular direction will increase. It will result in the decease of supply for other uses. As a result, price of the commodity for all other uses will also rise. In the long run, the price of the commodity will tend to be the same for all the uses and will be high enough to cover its marginal cost of production.

**Composite Supply:**

A good is said to be in composite supply if its demand can be obtained from various sources. For instance, salt can be obtained from a salt mine or a sea. Take another case of the composite supply of beverage. The demand for drink can be met by coffee, tea, coca, oval tine, etc. The demand for meat can be satisfied by beef, fish, mutton, etc.

If the commodities of composite supply are perfect substitutes of one another, then there will be only one price for all of them in the market In case, the different sources of supply compete for the satisfaction of a

particular want and are not goods substitutes, then their prices will be different. But, on the whole, the prices of commodities will be directly related to the prices of other commodities. If the price of one commodity rises, the price of the other commodity which is in composite supply will also go up and vice versa.

## MACROECONOMICS

### Psychological Law of Consumption by J.M Keynes:

**J.M. Keynes,** in his book 'General Theory' analyzed the consumption behavior of the community on the basis of human psychology. He propounded a law which is known as ***Psychological Law of Consumption***.

**Statement:**

According to this law:

"The household sector spends a major part of its income on the purchase of consumer goods and services such as food, clothing, medicines, shelter etc., for personal satisfaction. The expenditure on consumption (C) is the largest component of aggregate expenditure. Whatever is not consumed out of disposable income is by definition called saving (S)".

**Formula:**

**Disposable Income = Consumption + Saving**

**I = C + S**

**Explanation:**

According to Keynes, the level of consumption in a community depends upon the level of disposable income. As income increases, consumption also increases but it increases not as fast as income i.e., it increases at a

diminishing rate. This relationship between consumption and disposable income is called ***consumption function.***

In the words of **Keynes:**

"Men are disposable as a rule and on the average to increases their consumption as their income increases, but hot by as much as the increases in their income."

**Properties of Consumption Behavior of Community:**

The psychological law of consumption brings out the following properties of the consumption behavior of the community:

(i) The level of consumption is directly functionally related to the level of disposable income = C = f(y)

(ii) With the rise in the level of income, the consumption level also rises, but at a decreasing rate = $\Delta C < \Delta y$

(iii) As the level of income increases, the households devote a part of the increase saving. Symbolically: $\Delta Y = \Delta C + \Delta S$

The ***Keynesian consumption function*** is now explained with the help of schedule and a curve.

**Schedule:**

**($ in billion)**

| **Disposable Income (Y)** | **Consumption (C)** | **Saving (S)** | **APC (C/Y)** | **MPC (ΔC/ΔY)** |
|---|---|---|---|---|
| 0 | 50 | -50 | | |
| 100 | 100 | 0 | 1.00 | 0.5 |
| 200 | 150 | 50 | 0.75 | 0.5 |
| 300 | 200 | 100 | 0.67 | 0.5 |

In the schedule, it is shown that as the nation's disposable income increases, the aggregate consumption at various levels of income also increases but at a decreasing rate.

The same data is now shown in graph 30.1 below:

**Diagram/Graph:**

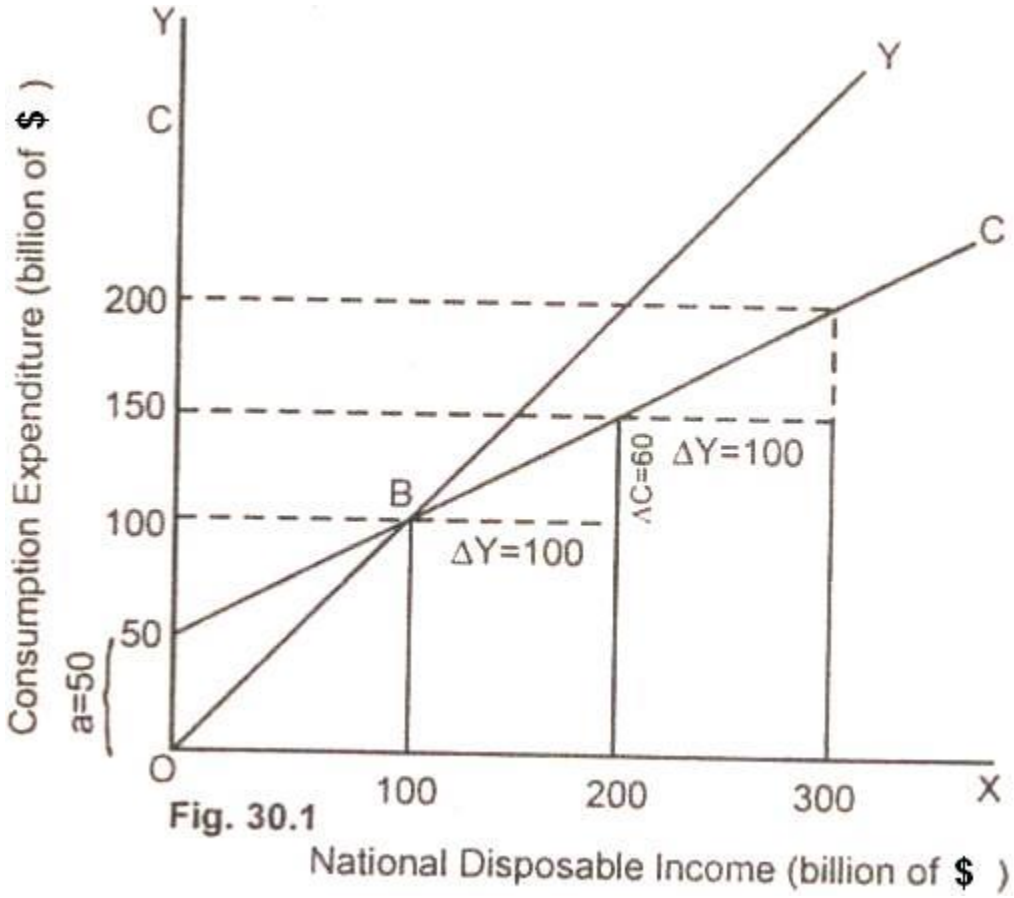


**Fig. 30.1**

Following are the **observations** about the functional relationship between the national disposable income and the economy's aggregate expenditure.

(i) At every point on the $45^0$ line OY, a vertical line drawn to the income axis is at the same distance from the origin as a horizontal line drawn to the consumption axis. The $45^0$ line thus is the line along which expenditure equals real income.

(ii) The consumption function is represented by consumption line (C). The consumption line C is positively sloped indicating that as the disposable income increases, the expenditure in the economy also increases.

(iii) The consumption line (C) intercepts at Y axis showing negative saving of $50 billion during a short period.

(iv) At point B the consumption line (C) intersects the $45^0$ helping line (OY) saving. At point B, consumption equals disposable income and there is zero saving. B is called the ***break even point.***

(v) Left to the point B, the consumption line C is above the income line Y. It indicates negative saving.

(vi) Right to the point B, the consumption line C is below the income line Y. It denotes positive savings.

**Summing up,** the relationship between ***consumption and disposable income is referred to as consumption function.*** A consumption function tells how much households plan to consume at various levels of disposable income.

**Meaning and Definition of Propensity to Consume:**

The **classical economists** were of the view that the supply of saving was determined by the rate of interest prevailing in the country. According to them, the higher the rate of interest, the larger is the saving and so less is the consumption.

**Keynes** disagreed with the above view. According to him interest is not the primary determinant of an individual's saving and consumption decisions. It is primarily the individual's real income which determines his, saving and consumption decisions. **J.M. Keynes** has developed two concepts:

(i) Average Propensity to Consume.

(ii) Marginal Propensity to Consume to Analyze the Consumption Function.

**Explanation:**

These two concepts are now explained in brief:

**(1) Average Propensity to Consume (APC):**

***Average propensity to consume ( APC)*** may be defined as:

**Definition:**

"A ratio of total consumption to total disposable income for different levels of disposable income It is calculated by dividing the amount of consumption by disposable income for any given level of income".

**Example:**

For instance, when nation's disposable income is $2,000 billion, consumption expenditure is $1,500 billion, the average propensity to consumption is 1500/2000 = 0.75.

This shows that out of the disposable income of $2,000 billion, 75% will be used for consumption purposes. The APC declines as income increases because the proportion of income spent on consumption decreases. The average propensity to consume spent on consumption decreases. The average propensity to consume at any level of income is expressed in **equation as C/Y.** Here C stands for consumption Y for income.

**Formula:**

$$APC = \frac{C}{Y}$$

**Diagram:**

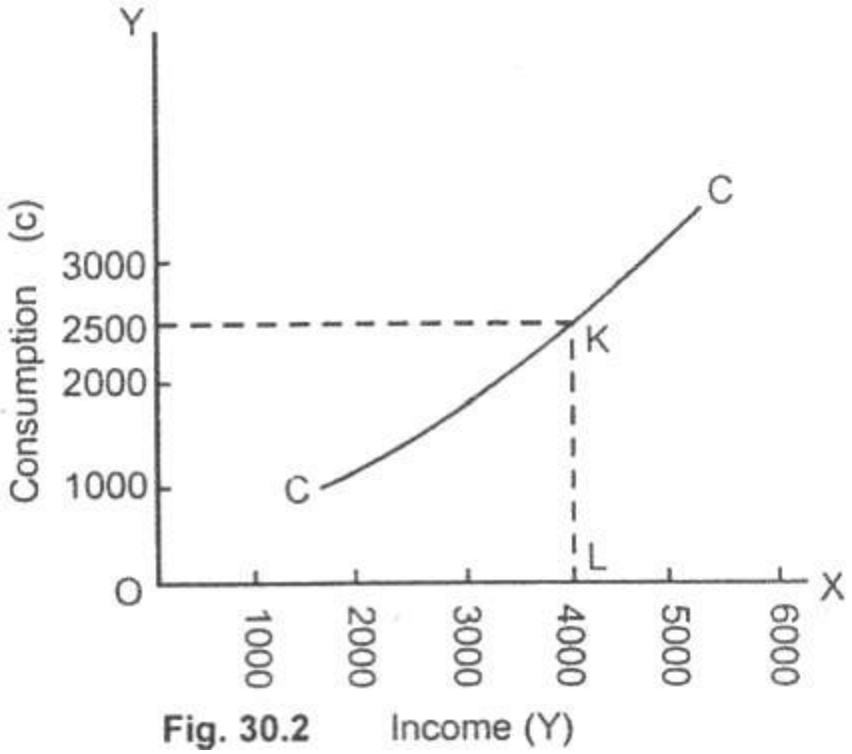


**Fig. 30.2**

In the Fig.(30.2) income is plotted on OX axis and consumption along OY. CC curve represents the propensity to consume schedule. At point K, the average propensity to consume is equal to 0.62.

**KL/OL = (C/Y) i.e., 2500/4000 or 25/40 = 0.62**

APC implies a point on the curve C which indicates the ratio of income consumed. The C curve is made up of a series such points.

**(2) Marginal Propensity to Consume (MPC):**

**Definition:**

The concept of ***marginal propensity to consume*** is very important is macro economics. **J.M. Keynes** has defined marginal propensity to consume (MPC):

"As the relationship between a change in consumption (ΔC) that resulted from a change in disposable income (ΔY)".

**Formula:**

It is found out by dividing change in consumption to a given change in disposable Income.

**MPC = Change in Consumption = Change in consumption ΔC / Change in Income ΔY**

**Example:**

Thus we make this concept clear by taking an example, let us suppose the disposable income rises from $2000 billion to $3000 billion ( by $1000 billion) and the consumption expenditure increases from $1500 billion to $2000 billion (by $500 billion). The marginal propensity to consume is:

**ΔC/ΔY = 500/1000 = 1/2 = 0.5**

All the concepts of consumption function are now explained whit help of schedule and a diagram.

**Schedule For Propensity to Consume:**

**($ in billion)**

| **Disposal Income (Y)** | **Consumption Expenditure (C)** | **Average Propensity to Consume (APC = C/Y)** | **Marginal Propensity to Consume (MPC = ΔC/ΔY)** |
|---|---|---|---|
| A 1000 | 1100 | 1.1 | 800/1000 = 0.9 |
| B 2000 | 2000 | 1.0 | 600/1000 = 0.6 |
| C 3000 | 2600 | 0.86 | 500/1000 = 0.5 |
| D 4000 | 3100 | 0.77 | 300/1000 = 0.3 |
| E 5000 | 3400 | 0.68 | 200/1000 = 0.2 |
| F 6000 | 3600 | 0.6 | 100/1000 = 0.1 |
| G 7000 | 3700 | 0.53 | |

The reader can easily understand from the above schedule that with the increase in the disposable income, the propensity to consume decreases and conversely with a fall in income, the propensity to consume and the marginal propensity to consume increases. The consumption schedule can also be explained with the help of a curve which is given below:

**Diagram For Propensity to Consume:**

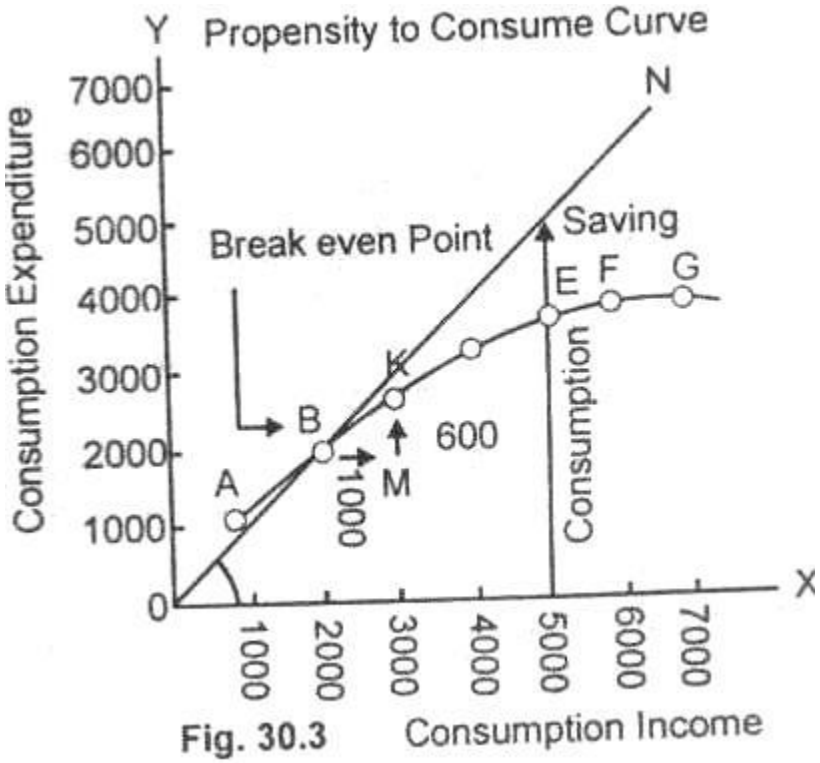


Fig. 30.3

In the figure (30.3), disposable income is measured along the horizontal axis OX and consumption along the vertical axis OY. Let us now draw $45^0$ helping line from O to ON. If we take any point on the $45^0$ helping line, income will be exactly equal to expenditure. The curve AG represents the income consumption schedule, indicating the propensity to consumer at various levels of income. Point A which is above $45^0$ helping line, shows us that the expenditure is greater than its income.

This deficit in income can be converted either by borrowing or from the sale of assets. At point B, consumption expenditures exactly equal to disposable income and there is neither saving nor dis-saving. This point is known is as ***break even point.***

From B onward up to G, the curve lies below the $45^0$ helping line. This shows that the consumption expenditure is less than the disposable income. Net saving is measured by the distance from the propensity to consume curve up to $45^0$ helping line.

For example, when the income is $5,000 billion, the expenditure is $3400 billion and saving $1,600 billion.

Marginal propensity to consume curve can also be illustrated from the very same figure. At point B, income is $2,000 billion and is equal to expenditure, i.e., $2,000. When income increases from $2,000 billion to $3,000 billion, consumption increases only by $600 billion.

Now we move from point B towards right up by $1,000 billion. BM line shows as the increases in income. Then we go vertically until we reach point K. MK line indicates addition made to the total consumption. It is equal to $600 billion. So the marginal propensity to consume will be equal to $600/$1000 = $6.

**Determinants/Factors of the Consumption Function:**

There are a number of ***determinants/factors*** both subjective and objective which determine the position of consumption function. The factors or causes of shifts in consumption function are as fallows:

**(1) Subjective Factors:**

**(i) Psychological Characteristics of Human Nature:** The ***subjective factors*** affecting propensity to consume are internal to the economic system. The subjective factors include characteristics of human nature, social practices which lead households to refrain or activate to appending out of their income.

For example, religious belief of the people towards spending, their foresight attitude towards life, level of education, etc. etc., directly affect propensity to consume or determine the slope and position of the consumptions curve. The subjective factors do not undergo a material change over a short period of time. These remain constant in the short run.

**(2) Objective Factors:**

The ***objective factors*** are external to economic system. The undergo rapid changes and bring market in the consumption function. The main objective factors are as under:

**(i) Real Income:** Real income is the basic factor which determines community's propensity to consume. When real income of the community increases, consumption expenditure also increases but by a smaller amount. The consumption function shifts upward.

**(ii) Distribution of wealth:** If there is unequal distribution of wealth in a country, the consumption function will also be unequal. People with low income group have high propensity to consume and rich people low propensity to consume. An equal distribution of wealth raises the propensity to consume.

**(iii) Expectation Change in Price:** If people expect prices are going to rise in near future, they hasten to spend large sum out of a given income just after the promulgation of first Martial Law in our country. So we can say that when prices are expected to be high in future, the propensity to consume increases or the consumption function shifts upward. When they are expected to be low, the propensity to consume decreases or the consumption function shifts downward.

**(iv) Changes in Fiscal Policy:** Taxes also play an important part in influencing the propensity to consume. If the nature of taxes is such that they directly affect the poor people and reduce their income, then the propensity to consume is high and if rich persons are not taxed at a progressive rate and they accumulate more wealth, then the propensity to consume is low.

**(v) Change in the Rate of Interest:** A change in the rate of interest exercises influence on the propensity to consume. When the interest rate is raised, it generally induces people to decrease expenditure and save more for lending purposes. On the other hand, when the interest rate is reduced, it usually encourages expenditure as lending then becomes less attractive. So we conclude that an increase in the rate of interest generally reduces propensity to consume or shifts the consumption function downward and a fall in the rate of interest usually helps to the increase of propensity to consume or shifts the consumption function upward.

**(vi) Availability of Goods:** Propensity to consume is also affected by the availability of consumption goods. If the goods are available in abundance, then the propensity to consume increases. If they are scarce and are priced very high, then the propensity to consume will decline.

**(vii) Credit Facilities:** cheap credit facilities are available in the country, the consumption function will move upward.

**(viii) Higher Living Standard:** If the real income of the people increases in the country and people adopt the use of new produce like television, washing machines, refrigerators, care, etc., etc., the consumption function is high.

**(ix) Stock of Liquid Assets:** If the consumer have greater amounts of liquid assets; there will be more desire for the households to spend out of disposable income. The consumption function shifts upward and vice versa.

**(x) Consumer Indebtedness:** In case the consumer are heavily indebted and they pay bigger monthly installments to replay the dept, then propensity to consume is low or the consumption function shifts downward and vice versa.

**(xi) Windfall Gains:** If there are unexpected gains due to stock market boom in the economy, it tends to shift the consumption function upward. They are windfall gains. The unexpected losses in the stock market lead to the downward shifting of the consumption curve.

**(xii) Demographic Factors:** The consumption function is also influenced by demographic factors like size of family, occupations, place of residence etc. Persons living in cities, for instance, spend more than those living in rural areas.

**(xiii) Attitude Towards Saving:** If a community is consumption oriented, there will be less saving in the country. The consumption function shifts upward. In case, people save more and spend less, then the consumption function will shift downward.

**(ix) Demonstration Effect:** If people are easily influenced by advertisements on radio and television and seeing pattern of living of the rich neighbors, the level of total consumption will go up.

**How to Raise the Propensity to Consume?**

The ***propensity to consume can raise*** by:

(i) Transferring wealth from rich to the poor.

(ii) Increased wages.

(iii) Provision of cheap end easy credit facilities.

(iv) Advertisements.

(v) Development of means of transport.

(vi) Urbanization and through advertisement.

**Concept of Saving:**

**Definition of Saving:**

The income not spent on consumption is defined as Saving. ***Saving*** is the act of not consuming all of one's current income. Whatever is not consumed out of disposable income is by definition saving.

**Formula:**

The ***economy's saving equation*** is:

**Saving = Disposable Income - Consumption**

**Motives of Saving:**

There are several motives which induce people to save. They can be groped under two headings (i) Power to save, (ii) Will to save.

**(1) Power to Save:**

***Power to save*** depends upon the level of income which a person earns. In case of a nation, power to save depends on proper utilization of natural resources. It is because when the income is low, then almost the whole amount is spent on meeting the bare necessities of life So saving is very nominal. But in case of high income, one can save if he likes because he has got the surplus income over consumption.

**(2) Will to Save:**

The willingness to save is influenced by subjective and objective considerations, which are as under:

**Subjective Considerations:**

**(i) Foresight:** People save money as a provision against some unforeseen circumstances which might arise in the future. A few other accumulate wealth for their dependants. All these prudential considerations can be constituted under the heading foresight.

**(ii) Social and political considerations:** Wealth gives power over other men in the economic sphere and also political and social influence. The desire of prestige, power and respect in social sphere and political life actuates human being to save.

**(iii) Temperamental considerations:** There are a few persons who save neither for their families nor for their own use but merely because they have acquired a short of mania for accumulation of wealth for its own sake.

**Objective Consideration:**

**(i) Security of life property:** If there is security of life and property in a country, the saving is encouraged.

**(ii) Facilities for investment:** If facilities of profitable investment are available, then saving is stimulated.

**(iii) Monetary stability:** Monetary stability also plays a very important part in the value of money, then saving is discouraged and if the value of money is expected to rise, the saving is encouraged.

**(iv) Saving and the rate of interest:** It is one the very important factors which exercises influences on the volume of saving. If the rate of interest is high, it generally induces people to save more money and if it is low, the saving is discouraged. However, there will of course be a few people who will try to save more when the interest rate is low save Jess when the interest rate is high just to provide for themselves a certain annual income for their old age of for their dependants.

For example, a man wishes to have an annual income of $2,000 after retirement. If we suppose the annual rate of interest is 10% then he has to save $20,000, to get an income of $2,000. If the rate of interest falls down to 5% then he has to save $40,000 to get the desired sum of $2,000. There will of course be many people who will go on saving whatever the rate of interest. On the whole what we can say is that saving encouraged when the interest rate is high and discouraged when it is low.

**Concept of Propensity to Save/Saving Function:**

**Definition:**

The propensity to save schedule which for the sake of brevity is called the ***propensity to save or saving function*** shows relation between saving and disposable income at varying levels of income **S = F(Y).**

The propensity to save schedule comes from subtracting consumption from income at each level of income. Since saving represents the difference between the 45$^{o}$ guideline and the consumption function, it may be positive or negative. The propensity to save schedule can easily be derived from the propensity to consume schedule, in our example given earlier, (Click here to read full example), the propensity to consume, is as follows:

| **Income ($ in billion)** | 50 | 100 | 140 | 200 | 300 |
|---|---|---|---|---|---|
| **Expenditure ($ in billion)** | 50 | 70 | 100 | 140 | 200 |

The propensity to save schedule can easily be derived by subtracting the amount of consumption from the corresponding amount of income. The saving schedule thus is as follows:

| **Income ($ in billion)** | 50 | 100 | 140 | 200 | 300 |
|---|---|---|---|---|---|
| **Save ($ in billion)** | 0 | 30 | 40 | 60 | 100 |

**Concepts of Propensity to Save:**

There are two concepts of propensity to save:

(1) Average Propensity to Save (APS).

(2) Marginal Propensity to Save (MPS).

**(1) Average Propensity to Save (APS):**

**Definition:**

***Average propensity to save*** is the percentage of income saved at a given level of income (APS).

The average propensity to save at any point can be found by dividing saving by income.

For instance, If the disposable income is $100 billion and expenditure $80 billion on consumption goods, then the saving win be equal to $20 billion. The average propensity at save will be = 0.2. The average propensity to save can also be found by subtracting average propensity to consume from 1. In the above example, the average propensity to consume is:

80/1000 = 0.8

So the average propensity save will be 1 - 8 = 2

**(2) Marginal Propensity to Save (MPS):**

**Definition:**

***Marginal propensity to save*** is the ratio of change in saving to change in income. The MPS measures the change in saving generated by a change in income.

**Formula:**

$$\textbf{MPS} = \frac{\textbf{Change in Saving}}{\textbf{Change in Income}}$$

$$\textbf{MPS} = \frac{\Delta S}{}$$

**ΔY**

It is also found out by subtracting marginal propensity to consume from 1. Thus:

**MPS = 1 - MPC**

**Schedule For APS and MPS:**
**($ in billion)**

| **Disposable Income (Y)** | **Consumption Expenditure (C)** | **Net Saving (S)** | **Average Propensity to Save (1 (1 - PC = PS)** | **Marginal Propensity to Save (1 - MPC = MPS)** |
|---|---|---|---|---|
| A 1000 | 1100 | $100 | 1 -1 = 1 | 1 - 9 = 0.1 |
| B 2000 | 2000 | $000 | 1 - 1 = 0 | 1 - 6 = 0.4 |
| C 3000 | 2600 | $400 | 1 - 0.86 = 0.14 | 1 - 5 = 0.5 |
| D 4000 | 3100 | $900 | 1 - 0.77 = 0.23 | 1 - 3 = 0.7 |
| E 5000 | 3400 | $1600 | 1 - 0.68 = 0.32 | 1 - 2 = 0.8 |
| F 6000 | 3600 | $2400 | 1 - 0.6 = 0.4 | 1 - 1 = 0.9 |
| G 7000 | 3700 | $3300 | 1 - 0.53 = 0.47 | |

It is quite clear from the above saving schedule that as the income increases, the average propensity to save and marginal propensity to save also increases and as income decreases, the average propensity to save and the marginal propensity to save also decreases.

**Diagram:**

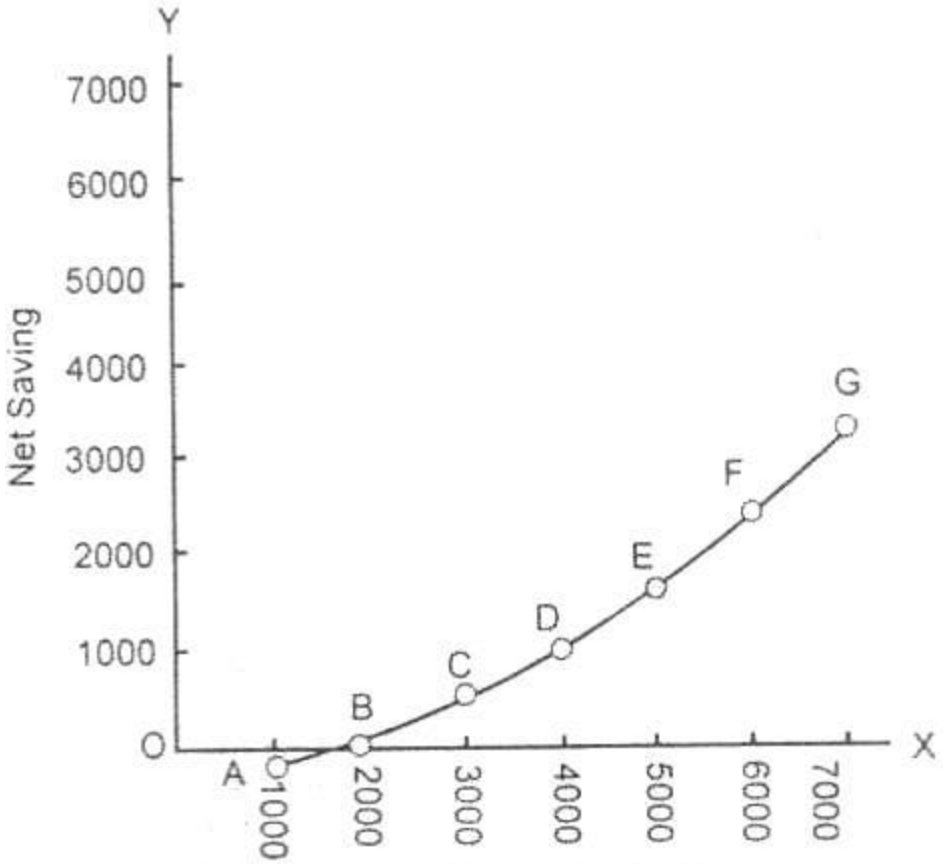


**Fig. 30.4**

In figure (30.4) disposable income is measured along the X axis and saving along the Y axis. At point A, the consumption expenditure $1,100 billion against the disposable income of $1,000 billion. The expenditure is more than the disposable income. There is dis-saving of $100 billion. The excess expenditure of $100 billion is met either out of accumulated saving or by borrowing. When income increases to $2,000 billion, the expenditure also increases to $2,000 billion.

At point B, consumption is exactly equal to expenditure. B is the **break even point** where C =Y. From B onward up to G point, saving goes or increasing with the increase in disposable income. AG thus is the saving curve which has risen with the rise in income.

It may here be noted saving as used by Keynes in consumption function is ***"real saving"*** and 'income is ***"real disposable income"***. The saving function like the consumption function remain stable in the short period.

**Concept of Investment:**

**Definition:**

***Investment*** is an important component of national income. It plays an important role in the determination of equilibrium level of national income and corresponding level of employment. When the term investment is used in economics, it refers to the:

"Expenditure incurred by individuals an businesses on the purchase of new plant and machinery, the building of the houses, factories, schools, construction of roads etc. It is, in other words the acquisition of new physical capital".

**Investment Expenditures:**

Investment, in brief, includes the following kinds of expenditures:

**(i) Stock or Inventories:**

The ***inventories expenditures*** incurred by businesses on the purchase of new raw material, semi finished gods and on stock of unsold goods (inventories) are counted as investment.

**(ii) Fixed Capital:**

The expenditure made on new plants and machinery vehicles, houses facilities, etc., are also included in investment. In the words of **J.M. Keynes:**

"***Investment*** means real investment which refers to increase in the real capital stock of the economy".

**Types of Investment:**

There are two types of investment (1) Induced investment and (2) Autonomous investment.

There two are now explained brief:

**(1) Induced Investment:**

Investment in the economy is influenced by the income or output of the economy. The large the national income, the higher is the investment. Induced investment is the change in investment which is induced by the change in the national income. The investment function signifies that as the real national income rises, the level of inducement investment also rises and as the real national falls. The level of investment also down.

**Diagram:**

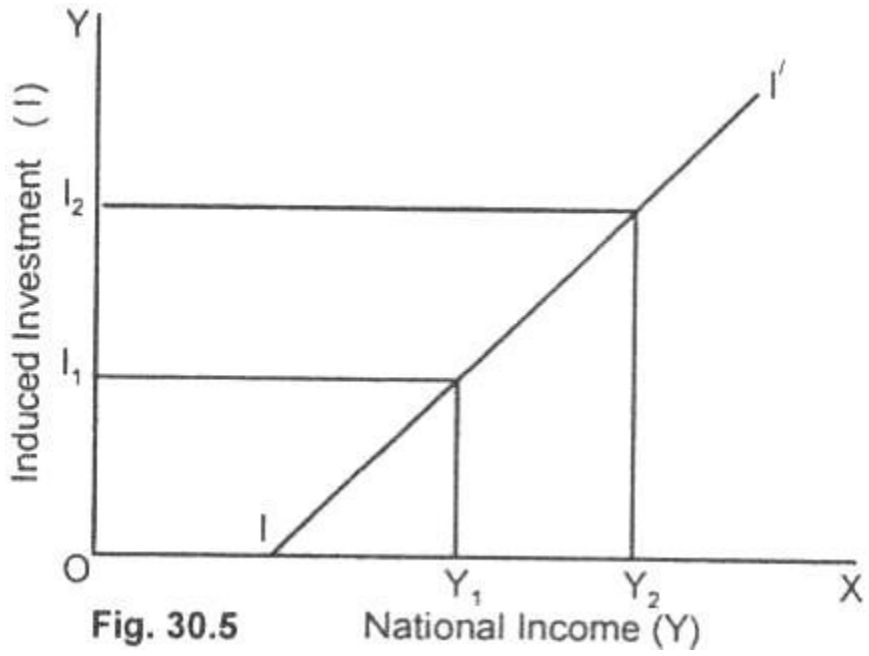


**Fig. 30.5**

In figure (30.5), it is shown that investment curve $I^{/}$ is positively sloped. It indicates that as the level of national income rises from $OY^1$ to $OY^2$, the level of induced investment also rises from $OI^1$ to $OI^2$.

**Shift in the Investment Curve:** The induced investment is the increasing function of profit. If firm expect profit, they are induced to invest. The profit expectation of firms depend upon aggregate demand for goods and services in the economy. The level of aggregate demand itself depends upon the level of national income. The higher the level of national income, the higher thus is the level of induced investment.

**(2) Autonomous Investment:**

The investment which is not influenced by changes in national income is ***autonomous investment.*** In other words an autonomous investment is independent of the level national income.

As regards the size of autonomous investment, it is influenced by many basic factors such as increase in population. Manpower, level of technology, the role of interest, the expectations of future economic growth and the role of capacity utilization etc.

**Diagram:**

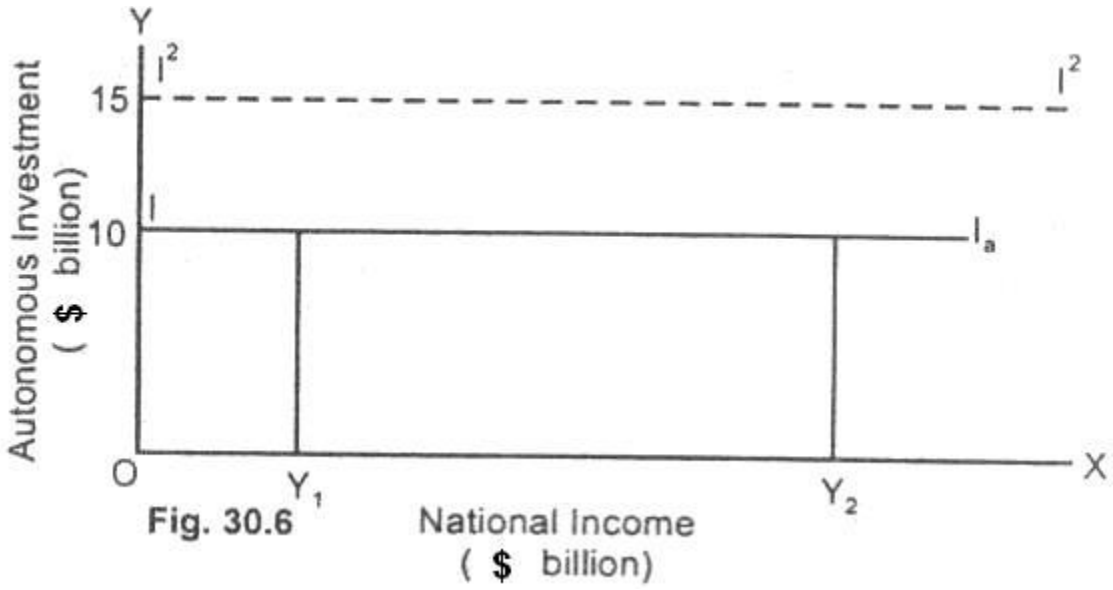


Fig. 30.6

In figure (30.6) it is shown that autonomous investment curve $I_a$ is a horizontal straight line. For example, when national income is $OY_1$ the autonomous investment is $10 billion. If national income increases to $OY_2$ the autonomous investment remains $10 billion and so on.

In case, there is an introduction of new technologies, or the rate of interest falls or if the businessmen expect the sales to grow more, the producer choose to operate to full capacity, the autonomous investment is influenced. The autonomous investment curve shifts upward from $10 billion to $15 billion.

**Concept of Marginal Efficiency of Capital (MEC):**

**Definition and Explanation:**

***Marginal efficiency capital (MEC) is a Keynesian concept.*** According to J.M. Keynes, nations output depends on its stock capital. An increase in the stock of capital increases output. The question is how much increase in investment raises output? Well, this depends on the productivity of new capital i.e. on the marginal efficiency of capital. Marginal efficiency of capital is the rate return expected to be obtainable on a new capital asset over its life time.

**J.M. Keynes** defines marginal efficiency of capital as the:

"The rate of discount which makes the present value of the prospective yield from the capital asset equal to its supply price".

A businessman while investment in a new capital asset, examines the expected rate of net return (profit) on it during its lifetime against the supply price of capital asset (cost of capital asset) if the expected rate of profit is greater than the replacement cost of the asset, the businessman will invest the money in the project.

**Example:**

For example, if a businessman spends $10,000 on the purchase of a new griding machine. We assume further that this new capital asset continues to produce goods over a long period of time. The net return (excluding meeting all expenses except the interest cost) of the griding machine expected to be $1000 per annum. The marginal efficiency of capital will be 10%.

**(1000/10000) X (100/1) = 10%**
**Formula:**

The following formula is used to know the present value of aeries of expected income throughout the life span of the capital assets.

$$\mathbf{S_p = (R^1/1+r) + (R^2/1+r^2) + ..... = (R^n/1+r^n)}$$

**Here:**

$S_p$ = Stands for supply price of the new capital asset.

$R^1 + R^2 - R^n$ = Stands for returns received on yearly basis.

R = It is the rate of discount applied each the years.

**Schedule:**

According to **J.M. Keynes**, the behavior of investment in respect of new investment depends upon the various stock of capital available in the economy at a particular period of time. As the stock of capital increases in the economy, the marginal efficiency of capital goes on diminishing. The MEC curve is negatively sloped as a shown in the figure 30.7.

| **Investment ($ in billion)** | **Marginal Efficiency of Capital** |
|---|---|
| 20 | 10% |
| 25 | 9% |
| 40 | 7% |
| 70 | 5% |
| 100 | 2% |

**Diagram/Curve:**

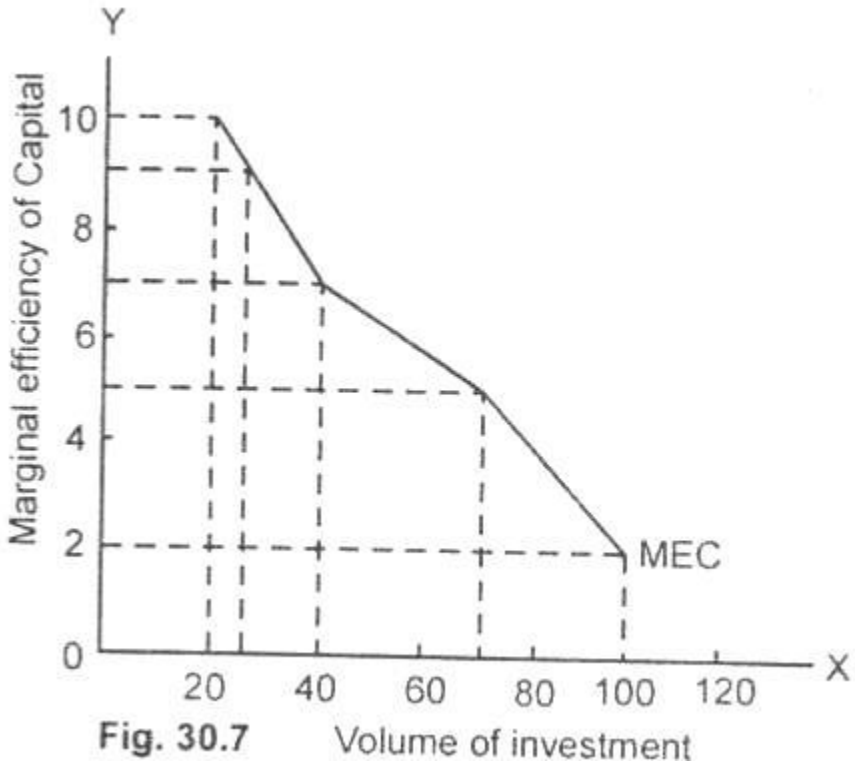


**Fig. 30.7**

In the above table, it is shown when stock of capital is equal to $20 billion, the marginal efficiency of capital is 10% while at a capital stock of $100 billion, it declines to 2%. This investment demand schedule when depicted graphically in figure 30.7 gives us the investment demand curve which goes on sloping downward from left to right.

**Relative Role of MEC and the Rate of Interest:**

The ***MEC and the rate of interest*** are the two important factors which affect the volume of new investment in a country. An investor while making a new investment, weighs the MEC of new investment against the prevailing rate of interest. As long as the MEC is higher than the rate of interest, the investment will be made till the MEC and the rate of interest are equalized.

For example, if the rate of interest 7%, the induced investment will continue to be made till the MEC and the rate of interest are equalized. At 7% rate of interest, the new investment will be $40 billion. In case, the rate of interest comes down to 2%, the new investment in capital assets will be $100 billion.

**Summing up,** if investment is to be increased in the country, either the rate of interest should go down or MEC should increase.

**Factors on Which Marginal Efficiency of Capital Depends:**

According to. **J .M. Keynes**, the volume of new investment depends on the following two factors:

(1) Marginal Efficiency of Capital (MEC).

(2) Market Rate of Interest.

The producer's decision as to whether or not, he should undertake a given investment project is arrived at by comparing marginal efficiency of capital (MEC) with the market rate of interest (or the cost of funds).

**Meaning of Marginal Efficiency of Capital:**

The marginal efficiency of capital is the expected annual rate of return on an additional unit of a capital good. It is also described as the rate of return expected to be received on money if it were invested in a newly produced asset. According to **J.M. Keynes:**

"The marginal efficiency of capital is the rate of discount which makes the present value of the prospective yield from the capital asset equal to its supply price. The marginal efficiency of capital will progressively diminish as investment in the asset increases. The marginal efficiency of capital (MEC) curve is, therefore negatively sloped".

**Factors Affecting MEC:**

The marginal efficiency of capital is influenced by short run as well as long run factors. These factors are now discussed in brief:

**Short Run Factors:**

**(i) Demand for the product.** It the market for a particular good is expected to grow and its costs are likely to fall, the rate of return from investment will be high. If entrepreneurs expect a fall in demand of goods and a rise in cost, the will decline.

**(ii) Liquid assets.** If the entrepreneurs are holding large volume of working capital, they can take advantage of the investment opportunities that come in their way. The MEC will be high and vice versa.

**(iii) Sudden changes in income.** The MEC is also influenced by sudden changes in income of the entrepreneurs. If the business community gets windfall profits, or there are tax concession etc., the MEC will be high and hence investment in the country will go up. On the other hand, MEC falls with the decrease in income.

**(iv) Current rate of investment.** Another factor which influences MEC is the current date of investment in a particular industry. If in a particular industry, much investment has already taken place and the rate of investment currently going on in that industry is also very large, then the marginal efficiency of capital will be low.

**(v) Wave of optimism and pessimism.** The marginal efficiency of capital is also affected by waves of optimism and pessimism in the business circle. If businessmen are optimistic about future, the MEC will be overestimated. During periods of pessimism the MEC is under estimated.

**Long Run Factors:**

The long run factors which influence the marginal efficiency capital are as under:

**(i) Rate of growth of population.** Marginal efficiency of capital is also influenced by the rate of growth of population. If population is growing at a rapid speed, it is usually believed that at the demand of various classes of goods will increase. So a rapid rise in the growth of population will increase the marginal efficiency of capital and a slowing down in its rate of growth will discourage investment and thus reduce marginal efficiency of capital.

**(ii) Technological development.** If investment and technological development take place in the industry, the prospects of increase in the net yield brightens up. For example, the development of automobiles in the $20^{th}$ century has greatly stimulated the rubber industry, the steel and oil industry, etc. So we can say that inventions and technological improvements encourage investment in various projects and increase marginal efficiency of capital.

**(iii) The quantity of capital goods of relevant types already in existence.** If the quantity of any particular of goods is available in abundance in the market and the consumers can partially or full meet the demand, then it will not be advantageous to invest money in that particular project. So in such cases, the marginal efficiency of capital will be low.

**(iv) Rate of taxes.** Marginal efficiency of capital is directly influenced by the rate of taxes levied by the government on various commodities, When taxes are levied, the cost of commodities is increased and the revenue is lowered.

When profits are reduced, marginal efficiency of capital will naturally be affected. It will be low.

**Concepts of Employment and Full Employment:**

**Meaning and Definition:**

By ***employment*** is meant an engagement of a person in some occupation, business, trade or profession, etc. The nation of desiring to be employment can be explained by taking **three established facts:**

(i) Working hours per day.

(ii) Wage rate.

(iii) A man's state of health.

If the normal ***working hours*** per day in an established firm are, say, seven and a health man has the capacity to work for nine hour, it cannot be said that the man is unemployed for two hours a day.

Similarly, if the ***wage rate*** in a particular occupation is $25 per day and a certain man demand $40 per day, then he would not be able to get employment. Finally, if a man is sick and is unable to work, he cannot be included in the rank of the unemployed.

The classical economists were of the view that in a free competitive economy, ***unemployment*** cannot exist for an indefinite period. If anyone remains jobless for a considerable period of time, then it can be only due to the fact that he is demanding more wages than that he is really worth for. The believed that in order to avoid this prolonged unemployment, the worker should accept wage cuts.

The classical economists, however, admitted that in short period unemployment can exist due to various reasons. **For example**, some unemployment may be caused by the introduction of machinery and other labor saving devices in the factory or it may be due to industrial disputes which lead to temporary unemployment among the factory workers. Some unemployment can also exist in factories for a part a year where the work is carried out seasonally.

For instance, sugar factory works only in winter and ice factory in summer. Some unemployment can also be due to the fact that unions are maintaining high level of wages. The employers do not find it advantageous to keep this at a higher level of wages .They retain a few competent workers and dispense with the services of less efficient ones.
The modern economists have, however, rejected the above view point given by the classical economists. They believe that in actual word, perfect competition dose not prevail. It is not necessary that by lowering the wage rate only, the economy can operate at the level of full employment.

During the great **Depression of Thirties**, the economy could not be lifted out even by lowering the wage rates. **J.M. Keynes** is of the opinion that unemployment can only take place when the current demand for goods and services is not efficient to absorb the available labor into different occupations.

Employment depends on spending of the whole income of the people either on consumption or on investment goods. As the level of money income increases in a community, people tend to spend a smaller portion of their income on immediate consumption. So there will be a deficiency of return to entrepreneurs. They try to cut down the volume of employment they offer to the factors. This tendency may be counteracted if investment in capital goods expands sufficiently. But in a wealth country, there may be comparatively less new opportunities for investment. Hence the necessary increase in the volume of investment may be not made with the result that a portion of labor force is unable to find employment.

**Full Employment:**

**Definition and Explanation:**

The concept of ***full employment*** has been defined differently by different economists. **Lord Beveridge** defines full employment as:

"Having always more vacant jobs men".

**Keynes** defines full employment negatively as:

"The absence of involuntary unemployment".

If we take literary **meaning** of full employment, it means complete absence of unemployment. Then practically speaking, it is not possible to achieve full employment. Some sort of unemployment is bound exist in a country.

For instances, there are some people who remain unemployed for a short time due to changing over from one job to another. Then there are some people who are learning a new job and are on probation getting a very meager sum or receiving nothing. All such person are fractionally unemployed. So long as the number of fractionally unemployed person dose

not exceed three to five percent the total labor force, then full employment is said to exist.

We may, If we like name it as ***high level of employment.*** It should be noted that while considering the aggregate labor force a country, children, old persons, disabled persons, and the drones who do not care work, or who are not able to work are excluded from the total labor force. The total labor force of a country consists of only those persons who are able and willing to work.

We can thus up that the existence of full employment all that is necessary is that there should be at least:

"As may unfilled jobs as there are unemployed persons and that normal time lag between losing one job and finding another is short".

**Measures of Full Employment:**

There are three main measures by which full employment can be attained and maintained in a country. They are:

(1) Fiscal Policy.

(2) Monetary Policy.

(3) Public Works.

**(1) Fiscal Policy:**

***Fiscal policy*** refers to the measures which a government takes for the management of its budget. It is the desire of every government that the budget of a country is shaped in such a manner that it should help in slowing down the swings of business cycle and maintaining high progressive level of employment without causing inflation in the country. So when a government finds that private investment is decreasing in a country and the income of people is falling, it increases public expenditure. In order to encourage private investment, it gives grant or bounties or relief in taxation to the people. When private investment increases too high, the government reduces its own expenditure and increases taxes so that full employment without inflation is achieved at.

**(2) Monetary Measures:**

***Monetary policy*** refers to the measures which a, government takes for regulating the money supply in a country. It is generally associated with the supply of credit and the rate of interest- The government can encourage investment and maintain high level of employment by lowering the rate of interest and keeping the supply of money adequate.

**(3) Construction of Public Works:**

By ***public works is meant the construction*** of projects designed for public welfare or works carried out by government with the public funds. Highways, canals, bridges, parks, and public buildings, etc.. etc., are examples of public works. In the period of depression, government can increase the level of employment by launching public works program. In case of over full employment, the expenditure on public works can be curtailed so that the level of full employment is attained at without inflation. It should be noted that in a country it is not simply the high level employment or full employment which is the desired goal. If a country achieves full employment through inflation, then certainly its consequences will be disastrous. So what the economy needs is that there should be high level of employment but not accompanied by inflation.

**Logical Identity of Saving and Investment:**

The classical economists were of the view that ***saving and investment*** are always equal. They believed in the existence of a fully employed economy. According to them, whenever their is inequality between saving and investment, it is brought to equality through the rate of interest. **J.M. Keynes** differs with this classical view. According to him, the equality between saving and investment is brought about not through the mechanism of rate of interest but through the changes in income. He also disagrees with the classical view that when saving and investment are equal, the economy is in full employment equilibrium. According to Keynes, the equality between saving and investment can take place below or above the level of employment. The equality of saving and investment at full employment level is a rare phenomenon.

**Keynesian View of Saving and Investment Equality:**

**J.M. Keynes** has put forward two views of ***saving and investment equality:***

(1) Definitional Equality and (2) Functional Equality.

**(1) Accounting or Definitional Equality:**

According to J.M. Keynes actual saving and actual Investment are always and necessarily equal at any level of income. He writes in his book 'General Theory':

**Definition:**

"Saving and investment are necessarily equal in amount for the community as a whole, being different aspects of the same thing".

In order to prove it, he defined **saving** in the current period as the excess of income over expenditure.

**Formula For Saving:**

**S = Y - C**

Here, S stands for current saving, Y for current income and C for current consumption.

As regard **investment,** it is the value of current output of capital goods together with the value of any addition to work in progress or the stock of finished goods. Investment is equal to the output of the community minus consumption.

**Formula For Investment:**

**I = Y - C**

Where I stands for investment, Y for income and C for consumption.

**Keynesian's Equation For Saving and Investment:**

S = Y - C ..... (i)

I = Y - C ..... (ii)

Taking, Y - C is common from both equations (i) and (ii). So we have:

**S = I**

**Saving = Investment**

**(2) Functional Equality:**

According to the second version of **Keynes**:

**Definition:**

"Saving is equal to investment at the equilibrium level of income".

It is brought about by the adjusting mechanism of income compared to the classical view of variations in the rate of interest. Keynes establishes equality between saving and investment by defining income (Y) as equal to current consumption plus current investment.

Y = C + I ..... (i)

Income (Y) is also equal to consumption plus saving.

Y = C + S ..... (ii)

From equations (i) and (ii), we have:

C + I = C + S

C will cancel from both sides of the equation, so:

**I = S**

**Investment = Saving**

The basic idea of **explaining equality between saving and investment** is that it is brought about by changes in income and not through the mechanism of interest rate.

According to the ***functional equality*** version when people save more than what the investors think it worthwhile to invest, the demand for consumer and producer goods falls down. When the goods produced are not profitably sold, the entrepreneurs curtail production of goods and the national income falls. If investment is more than saving, the national income rises. The process of changes is income, saving and investment continues till saving and investment are in equilibrium. The saving and investment equality is explained with the help of a schedule and a curve.

**Schedule For Saving-Investment Equality:**

**($ in crore)**

| **Income** | **Saving** | **Investment** | **Income Movements** |
|---|---|---|---|
| 200 | -30 | 20 | Expansion |
| 400 | 0 | 40 | |
| 600 | 30 | 60 | |
| 800 | 60 | 80 | |
| 1000 | 90 | 100 | |
| **1200** | **120** | **120** | **Equilibrium** |
| 1400 | 150 | 140 | Contraction |
| 1600 | 180 | 160 | |
| 1800 | 210 | 180 | |

In the above schedule, it is shown that so long investment is higher than saving, income level continues to rise. When income is $1200 crore, saving and investment are equal to $120 crore each. After this equilibrium point, saving exceeds investment. The equilibrium between saving and investment is reached when income contracts and again reaches $1200 crore. Saving and investment equality is now explained with the help of a curve.

**Diagram/Curve/Figure:**

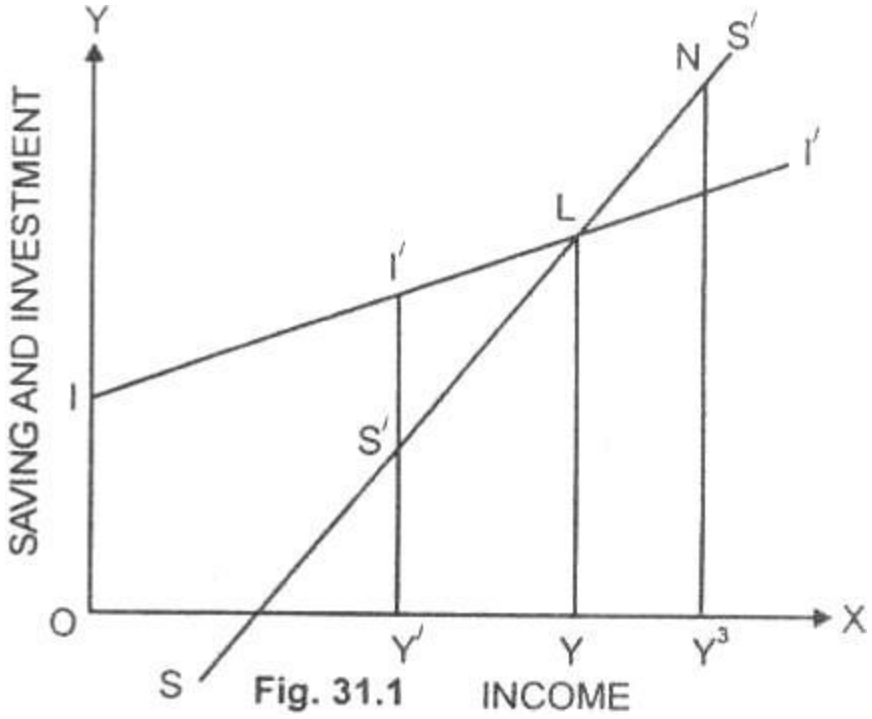

Fig. 31.1

In figure (31.1), income is measured on X-axis and saving and investment on Y-axis. $SS^{/}$ is the saving curve and $II^{/}$ the investment curve. When income is $OY^{/}$, the investment is greater than saving, $l^{/}$. When investment is more than saving, then income rises. At point L, saving and investment are equal at the equilibrium level of income OY. At point N, saving is greater than investment. The higher saving will bring a fall in income, till the equilibrium is reached at OY, equilibrium income level.

The modem economists make use of functional concepts of saving and investment for emphasizing the behavior of the economy as a whole.

**Logical Identity of Saving and Investment:**

The classical economists were of the view that ***saving and investment*** are always equal. They believed in the existence of a fully employed economy. According to them, whenever their is inequality between saving and investment, it is brought to equality through the rate of interest. **J.M. Keynes** differs with this classical view. According to him, the equality between saving and investment is brought about not through the mechanism of rate of interest but through the changes in income. He also disagrees with the classical view that when saving and investment are equal, the economy is in full employment equilibrium. According to Keynes, the equality between saving and investment can take place below or above the level of

employment. The equality of saving and investment at full employment level is a rare phenomenon.

**Keynesian View of Saving and Investment Equality:**

**J.M. Keynes** has put forward two views of ***saving and investment equality:***

(1) Definitional Equality and (2) Functional Equality.

**(1) Accounting or Definitional Equality:**

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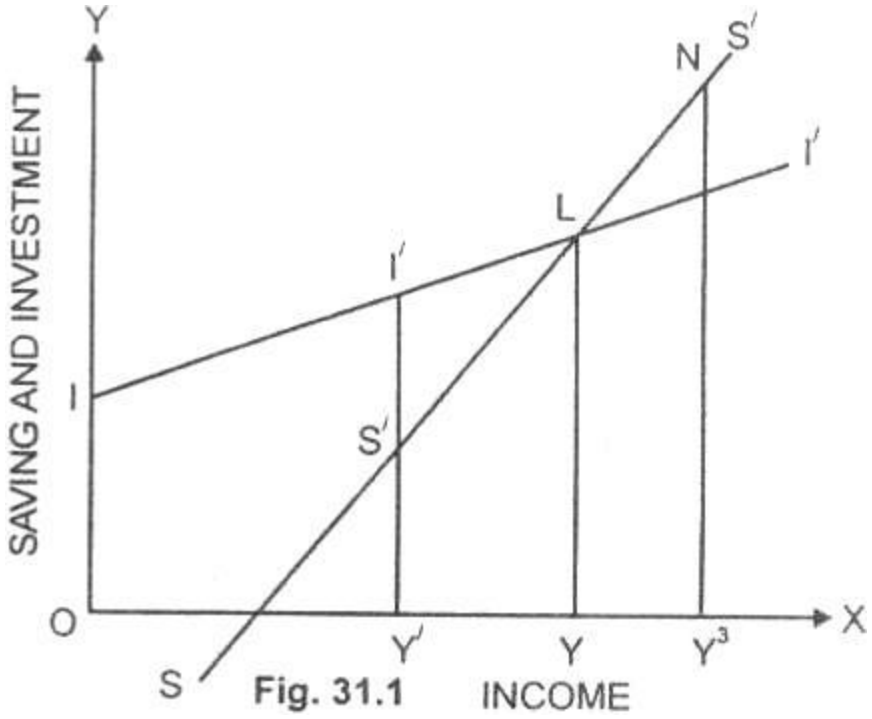

Fig. 31.1

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The modem economists make use of functional concepts of saving and investment for emphasizing the behavior of the economy as a whole.

**Inflationary and Deflationary Gaps:**

**J. M. Keynes** in his famous book 'General Theory' put forward an analysis of unemployment and inflation. The Keynesian theory assumes that a maximum level of national output can be obtained at any particular time in the economy. According to him the maximum level of national income is generally referred to as full employment level of national income. If the equilibrium level of national income coincides with the full employment, there will be no deficiency of aggregate demand and hence no dis-equilibrium unemployment (seasonal, frictional unemployment can exist at this level).

Now if the equilibrium level of income as determined by the AD (aggregate demand) and AS (aggregate supply) is not equal to the level of full employment, then two situations can arise. Either this equilibrium level will be below the full employment level or above the lull employment level. In case, the equilibrium income is below the potential income, it indicates the presence of recessionary gap. If it is above the full employment income, it shows the presence of inflationary gap. Both the situations of deflationary and inflationary gaps are situations of disequilibrium in the economy. These gaps are now explained with the help of graphs.

**Deflationary Gap/Recessionary Gap:**

**Definition and Explanation:**

***Deflationary gap*** is also called ***re-cessionary gap***. When there is an insufficient demand for goods and services in the economy, the equilibrium will occur at the lower level of full employment income and to the left of full employment line. In other words, re-cessionary gap occurs when the aggregate demand is not sufficient to create conditions of full employment.

The deflationary gap thus is the difference of amount by which aggregate expenditure falls short of the level needed to generate equilibrium national income at full employment without inflation.

**Example and Diagram/Figure:**

The deflationary gap is illustrated in figure below:

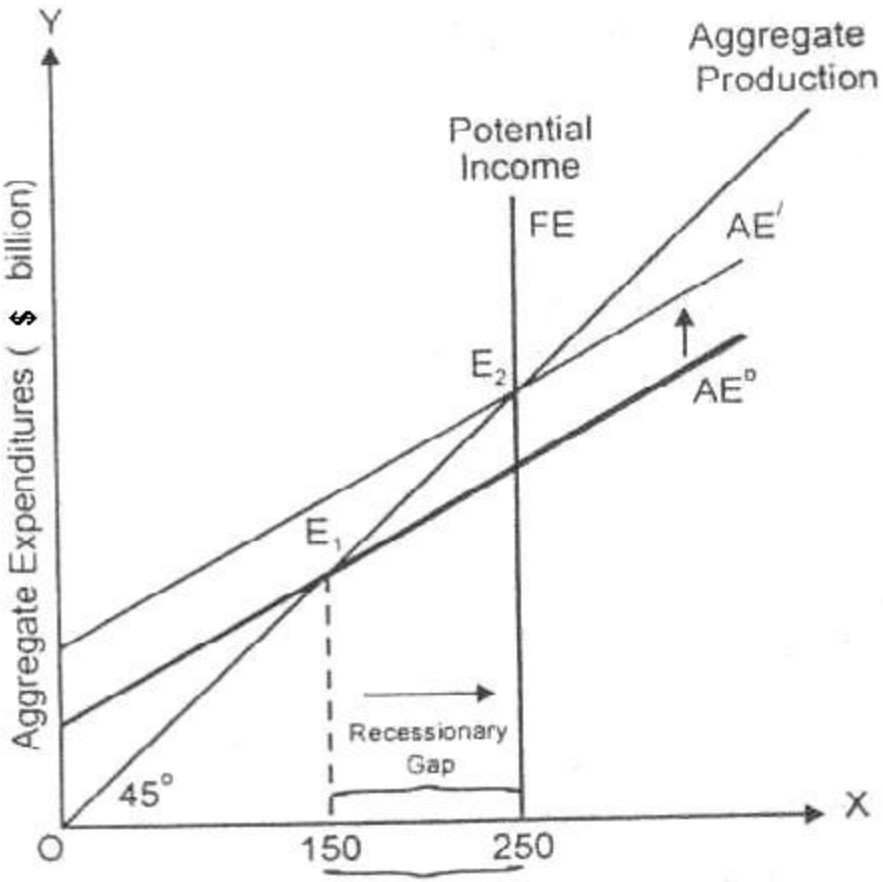


Fig. 31.4

In this diagram 31.4, the national income is measured on OX axis and aggregate expenditure on OY axis. Let us assume initially that the aggregate expenditure curves AE° interests the 45 degree line at point E/ to the left of full employment line or potential income.

The economy is operating at equilibrium income level of $150 billion which is below potential income of $250 billion. There is a deficiency of $100 billion in aggregate expenditures. This shortfall of national expenditure ($100 billion) below the potential income or the full employment level of national income is called ***Re-cessionary Gap.***

**Fighting Recession:**

When the economy is operating below its potential income, the government recognizes the re-cessionary gap in aggregate income. It increases its expenditures to stimulate the economy. The multiplier process takes over. The increase in government expenditure shifts the AE/ curve from AE° to

$AE^1$ increasing aggregate income to the full employment income level. Such government action is expansionary fiscal policy.

***Deflationary gap*** thus represents the difference between the actual aggregate demand and the aggregate demand which is required to establish the equilibrium at full employment level of Income.

**Inflationary Gap:**

**Definition and Explanation:**

An ***inflationary gap*** is just the opposite of deflationary gap. It is said to exist when equilibrium income exceeds full employment income. It is created due to the effective demand being in excess of the full employment level. It is the difference between equilibrium income and full employment income (potential income) when equilibrium income exceeds the full employment income. Here people are trying to buy more goods and services than can be produced when all resources are fully employed. There is too much money chasing too few goods. The result is that the excess demand pulls up prices and there is inflation. The excess demand for goods and services is being met in money terms but not real, terms.

**Example and Diagram/Figure:**

An inflationary gap is explained with the help of figure below:

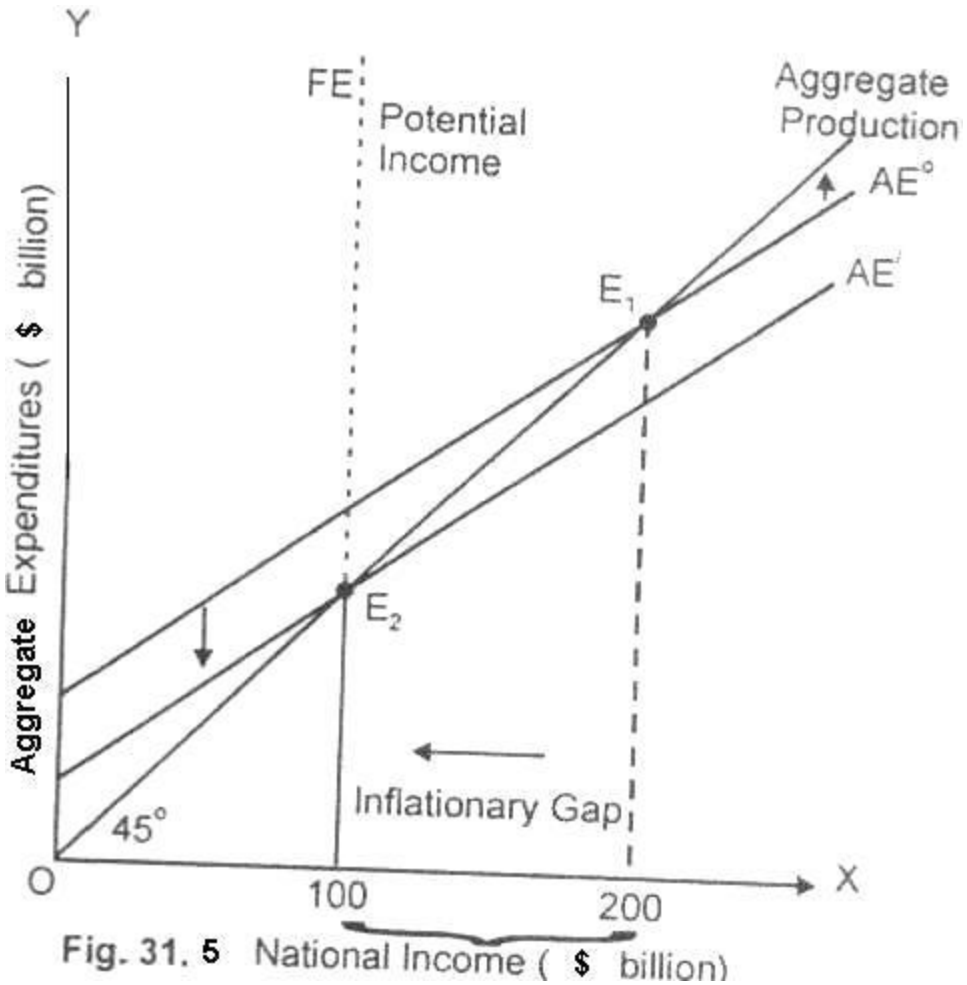


**Fig. 31. 5**

In this figure 31.5 aggregate expenditure curve AE° intersects the aggregate production curve (45 degree helping line) at point $E^{/}$ to the right of potential line or full employment line (FE).

The equilibrium level of income is $200 billion whereas the potential income is $100 billion. When the equilibrium income exceeds potential income, there is said to be inflationary gap which in the diagram is $100 billion. The excess expenditure of $100 billion causes upward pressure on prices when there is no additional output produced.

**Fighting Inflation:**

Whenever there is an inflationary gap in the economy, the government adopts deflationary fiscal policy of lowering government expenditure or raising taxes. It also adopts deflationary monetary policy for reducing the amount of money in the economy.

**Summing Up:**

(i) When equilibrium income is below its potential income level, the difference is called ***deflationary gap***. The government can increase its expenditure to stimulate the economy.

(ii) When equilibrium income exceeds the potential income, the difference is called an ***inflationary gap***. To prevent inflation. Keynes believes that the government should exercise contractionary fiscal policy, cutting government expenditure, raising taxes etc.

**What is Fiscal Policy?**

**Definition and Explanation:**

The classical economists were of the view that the economy automatically moves towards full employment in the long run. They ruled out the possibility of over production and hence unemployment in the long period. The role of the government in the economy, according to the classical economists, should be the minimal.

The **J. M. Keynes** in his famous book, "General Theory of Employment, Interest and Money", disagreed with the views of the classical economists that the economy has the tendency to move towards full employment in the long run.

He was of the strong view that the government must interfere in economic matters to achieve full employment, to prevent inflation and to promote rapid economic growth. In order to achieve the macro economic goals, he stressed that the government must step in and use government expenditure and taxes for changing the size of national income and the tempo of aggregate economic activity in the country. The use of deliberate changes in government expenditure and or taxes to achieve certain national economic goals is called ***Fiscal Policy.***

***Fiscal policy*** thus is the deliberate change in government spending and taxes to stimulate or slow down the economy. In the words of **F.R. Glahe:**

"By fiscal policy is meant the regulation of the level of government expenditure and taxation to achieve full employment without inflation in the economy".

**J. M. Keynes** describes fiscal policy as the steering wheel for the aggregate economy.

**Objectives/Goals of Fiscal Policy:**

The ***objectives of fiscal policy*** differ with the state of development in the country. In advanced countries of the world, the goal of fiscal policy may be the maintenance of full employment without inflation. In developing countries, the objectives of fiscal policy may be to achieve maximum level of employment and reduction in economic inequalities. However, the main ***goals of fiscal policy*** are in brief as under:

**(i) Removing Deflationary Gap:**

J. M. Keynes is of the view that fiscal policy can play a major role in lifting the economy out of depression and closing the deflationary gap. When the economy is in depression, it is faced with rising unemployment, falling income, severe declining investment and shrinking of economic activities. The government, by undertaking public works programme, increases its expenditure which helps in raising the level of aggregate demand out employment in the economy.

The government can also induce changes in aggregate investment by reduction of taxes, tax relieves, abolition of sales tax, reducing excise duties etc. The tax relief measures are also an effective methods to raise the level of aggregate demand and removing deflationary gap from the economy.

**(ii) Fiscal Policy in Inflation:**

If the economy of a country is faced with inflationary gap, then anti cyclical fiscal policies should be adopted to bring down the prices and for closing the inflationary gaps. The main fiscal measures to bring down the excess

demand in the economy are: (a) reduction in government expenditure, (b) increase in taxes and (c) creating a budget surplus.

By adopting contractionary fiscal policy, the aggregate demand curve shifts downward and the economy begins to operate at the desired potential level of income.

**(iii) Counter Cyclical Fiscal Policy:**

Another important objective of fiscal policy is to minimize the fluctuations in aggregate demand so that the economy is always at its target and potential level of income. The fluctuations in the economy which are associated with the business cycles can be smoothed in a number of ways.

**For example**, when the aggregate demand rises rapidly in the expansionary phase of the business cycle, it can be tuned by reducing government expenditure or raising taxes. This will help in dampening down the expansionary phase. In the recessionary phase, the problem of unemployment and low growth can be covered and remedied by cutting taxes and raising government expenditure. If timely counter cyclical fiscal measures are adopted the problems of excess or deficiency of demand will never be severe and the economy operates at the potential level of income which is called fine tuning.

**Diagram:**

**Keynesian Fiscal Policy in the Short Run**

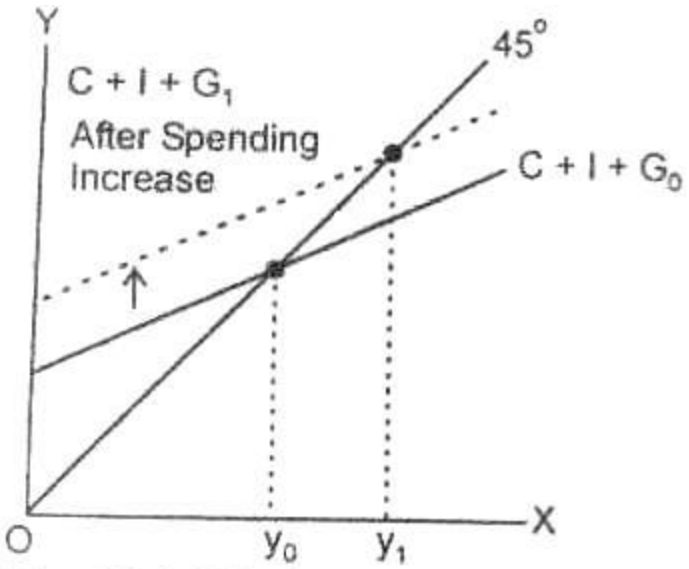


Fig: 27.1 (A)

An increase in government spending leads to an increase in income.

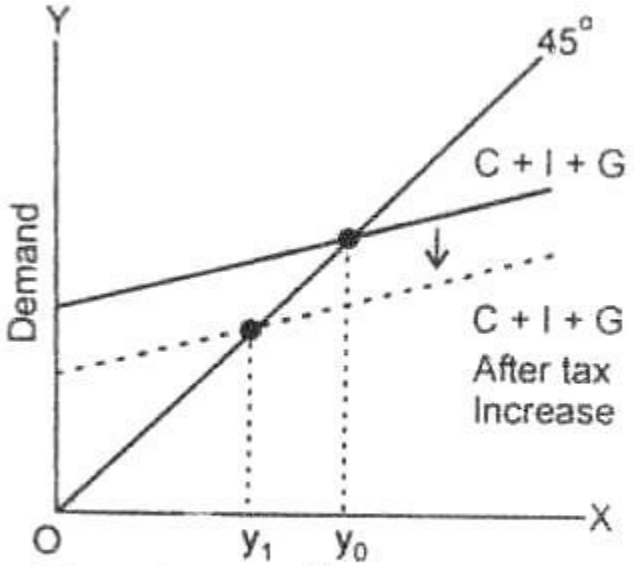


Fig: 27.1 (B)

An increase in taxes leads to a decrease in income.

In figure 27.1 (A), it is shown how an increase in government spending increases the level of national income in the short run. The increase in

government spending from $G_0$ to G, shifts the $C + I + G_0$ line upward and increases the level of income from $Oy_0$ to $Oy_1$.

In figure 27.1 (B), it is shown how an increase in taxes and reduction in government expenditure leads to a decrease in national income in the short run. It is clear from the diagram that as the level of tax increases and government expenditure falls down, the aggregate demand curve $C + I + G_1$ shifts downward. The equilibrium income falls from $Oy_0$ to $Oy_1$.

**(iv) Equilibrium in Balance of Payments:**

The level of national income is also affected by the balance of payments position of the country. If the country has a favorable balance of payments, it will lead to increase in income. The rise in aggregate demand will shift the demand line upward and will increase the level of national income. The fall in the balance of payments has the opposite effect. The government uses fiscal policy in such a way that the balance of payments remains in equilibrium in the short run.

**(v) Economic Growth:**

The elements of Keynes fiscal policy were developed in 1930's. Since then, the Keynesian fiscal policy is in action. The economists believe even now that if the economy is operating below its potential level, the increase in government expenditure and cut in taxes is the perfect medicine to bring the economy back to its full employment level. The economists stress that government should encourage investment to increase the rate of capital formation by using timely proper fiscal measures. The government borrowing for financing schemes of development, the increase in ratio of savings to national income, cut in taxes to increase investment spending can accelerate the rate of capital for nation in the country and lead to ***economic growth.***

**Principles/Tools of Fiscal Policy:**

The government uses various ***fiscal principles/tools*** in order to achieve rapid economic growth. The main tools of fiscal policy are grouped under two main heads:

(1) Discretionary Fiscal Policy.

(2) Non Discretionary Controls.

**(1) Discretionary Fiscal Policy:**

By ***discretionary policy*** is meant the deliberate changing of taxes and government spending by the central authority for the purpose of offsetting cyclical fluctuations in output and employment. The discretionary fiscal policy has short, as well as long-run objectives.

The short-run counter cyclical fiscal policy aims at eliminating business fluctuations and maintaining moderate stability. In case of deflationary situation, the long-run program of fiscal policy is to raise the level of income and employment in the country. In case of sustained long-run inflationary gap in the economy, the objective of fiscal policy is to reduce the average level of purchasing' power. Let us now examine the short and long run tools of discretionary fiscal policy in more detail.

**Short Run and Long Run Counter Cyclical Fiscal Policy:**

The main weapons or stabilizers of short-run and long run discretionary fiscal policy are: (i) Precautions or Guide map, (ii) Changes in tax rates (iii) Varying public works expenditure, (iv) Credit aids and (v) Transfer payments.

**(i) Guide maps:** In a capitalistic, society, the entrepreneurs are not aware of each other investment plans. They, therefore, in competition with one another over-invest capital in a particular industry or industries and thus cause overproduction and unemployment in the economy, similarly, in depression period, there is no agency to guide them, If government publishes the total investment plans and marginal efficiency of capital in various industries, much of the investment can proceed at a moderate speed and there can be stability to some extent in income, output and employment.

**(ii) Changes in tax rates:** it is an important weapon of fiscal policy for eliminating the swings of the business cycle. When the government finds that planned investment is exceeding planned savings and the economy is likely to be threatened with inflationary gap, it increases the rate of taxes. The higher taxes, other things remaining the same, reduce the disposable

income of the people they are forced to cut down their expenditure. The economy is, thus, saved from the inflationary situation.

If, on the other band, planned saving is in excess of planned investment and the economy is likely to be faced with deflationary gap, the taxes are lowered considerably so that people are left with more disposable income. When purchasing power of the people increases, the rate of spending on consumption and investment increases. The economy is. thus, saved from the deflationary situation.

**(iii) Varying public works expenditure:** Another important factor which influences economic activity is public expenditure. In times of depression, the government can contribute directly to the income stream by initiating public works programs and in boom period, it can withdraw funds from the income stream by curtailing them. This policy have the following **limitations:**

It seems very easy that public works can be undertaken as a recession cure. But when we put these anti cyclical fiscal measures into actual practice, we find that the work on public investment project cannot be undertaken at a short notice. When a work is to be initiated, plans are to be made, blue-prints are to be prepared, land is to be acquired, material is to be purchased. All these preparations require time. The situation, on the other hand, demands that immediate step should he taken up to restore the economy to its full employment equilibrium level. Thus, the government may not be able to improve the deflationary situation in short period. When after some time, the program is undertaken, the conditions in the economy may change.

The state may not be able to control the inflationary or deflationary situation, if the private expenditure incurred on consumption and investment moves in the opposite direction. For instance, if the government apprehends that depression is likely to takes place in the near future, it initiates public works programs. This may give a signal to the private investors that country is likely to be threatened with a deflationary situation. They may curtail their expenditure on consumption and investment, the result will be that pace of economic development will be retarded and the economy quickly plunges into depression.

**(iv) Credit aids:** The government can also avert depression by offering long term credit aids to the needy industrialists for starting or expanding the

business. It can also give financial help to insurance companies and bankers to prevent their failures.

**(v) Transfer payments:** Variation in transfer expenditure programs can also help in moderating the business cycle. When the business is brisk, the government can refrain from giving bonuses to the workers and thus can lessen the pressure of too great spending to some extent. When the economy is in recession, these payments can be released and more bonuses can be given to stimulate aggregate effective demand.

**(2) Non Discretionary Control:**

**Automatic or Built in Stabilizers:**

The automatic fiscal stabilizers are those which contribute to keep economic system in balance without human control. These controls are built into the economy and so are called *built in stabilizers*. The main automatic stabilizer is given below:

**Progressive Income Tax:**

Personal income taxes are the largest source of revenue to the government. The tax rate, the individuals pay on their rising income is progressive. When the disposable income of the people increases in the boom period, the higher amount of tax reduces disposable income, reduces consumption and decreases the aggregate demand which help in curbing economic boom. A reduction in income tax increases disposable personal income, increases consumption, increases aggregate demand and thus helps in curbing recession. The expansionary and contractionary fiscal policies can be summed up and brought under two approaches.

**First:** Demand Side Fiscal Policy.

**Second:** Supply Side Fiscal Policy.

**(i) Demand side policy:** It was originated as a direct result of Keynesian belief. According to Keynes, during recession, the goal is to raise aggregate demand to the full employment level. This objective may be achieved by (a) an increase in government spending (G), (b) a decrease in tax revenue (T) brought about by reduction in tax rates.

During a period of rapid inflation, the goal is to lower aggregate demand to the full employment level. The fiscal policy will be (a) a decrease in government expenditure (b) an increase in taxes brought about by rise in the rates.

**(ii) Supply side fiscal policy:** It is a new approach to fiscal policy. The modern economists are of view that fiscal policies can also influence the level of economic activity through their impact on aggregate supply. When the firms experience, an increase in resource costs due to a sharp rise in the world price of a major raw material say oil, the higher costs causes a decrease in aggregate supply creating a recessionary gap. Therefore, an expansionary fiscal policy in the form of reduced corporate taxes and pay roll tax can help in closing the recessionary gap. Conversely, an increase in the corporate tax rate and pay roll tax etc., can help in closing the inflationary a gap.

**(iii) Unemployment compensation:** In advanced countries of the world, people receive unemployment compensation and other welfare payments when they are out of job. As soon as they get employment, these payments are stopped. When national income is increasing, the unemployment fund grows due to two main reasons: (a) The government receives greater amount of payroll taxes from the employees and (b) the unemployment compensation decreases.

Thus, during boom years, the unemployment compensation reserve funds help in moderating the inflationary pressure by curtailing income and consumption. When the economy is contracting, unemployment, consumption and other welfare payments augment the income stream and they prove a powerful factor increasing income, output and employment in the country. In the words of **Samuelson:**

"During ***boom years***, therefore, the unemployment reserve fund grows and exerts stabilizing pressure against too great spending. Conversely, during years of slack employment, the reserve funds are used to pay out income to sustain consumption and moderate the decline".

**(iv) Farm aid programs:** Farm aid programs also stabilize against the wave like cyclical fluctuations. When the prices of the agricultural products are falling and the economy is threatened with depression, government

purchases the surplus products of the farmers at the set prices. The income and total spending of the agriculturists thus remain stabilized and the contraction phase is warded off to some extent. When the economy is expanding, the government sells these stocks and absorbs the surplus purchasing power. It, thus, reduces inflationary potential by increasing the supply of goods and contracting the pressure of too great spending.

**(v) Corporate saving and family savings:** The credit of having automatic or built in stabilizer does not go to the state alone. The corporations and companies and wise family members withhold part of the dividends of the boom years to pay in the depression years. Thus holding back some earnings of good years contracts the purchasing power and releasing of money in poorer years expands the purchasing power of the people. Similarly, wise persons also try to save something during the prosperous days in order to spend the savings in the rainy days.

**Limitation of built in stabilizers:** The automatic or built in stabilizers can no doubt minimize the upward and downward movements of business cycle to some extent but they cannot help in achieving full employment without inflation. They can be used as a first line of defense but they cannot cure the economic ills of the society. So the policy makers have to be vigilant and adopt other suitable fiscal measures which can counter cyclical fluctuation in the economy.

**Fiscal Policy With Reference to Underdeveloped Countries:**

**What is Fiscal Policy/Budgetary Policy?**

***Fiscal policy*** also called ***budgetary policy*** is a powerful instrument in the hands of the government to intervene in the economy. Fiscal policy relates to a variety of measures which are broadly classified, as: (a) taxation, (b) public expenditure and (c) public borrowing.

Fiscal policy is considered an essential method for achieving, the objectives of development both in ***developed and underdeveloped countries*** of the world.

**Definitions of Fiscal Policy:**

Fiscal policy has been defined in a number of ways. According to **Samuelson:**

"Fiscal policy we mean the process of shaping taxation and public expenditure in order to (a) help dampen the swings of the business cycle and (b) to contribute to the maintenance of a growing high employment economy".

In the words of **Arthur Smithees:**

"Fiscal policy under which the government uses its expenditure and revenue programs to produce desirable effects and to avoid undesirable effects on the national income, production and employment"?

**Roger** defines fiscal policy as:

"Changes in taxes and expenditure which aim at short run goals of full employment and price level stability".

**Role of Fiscal Policy:**

The **role of fiscal policy** in less developed countries differs from that in developed countries. In the developed countries, the role of fiscal polity is to promote fall employment without Inflation through its spending and taxing powers. Whereas the position of the developing countries is very much different. The LDC's (Less Developed Countries) or backward countries are caught in a vicious circle of poverty.

The vicious circle of low income, low consumption, low savings, low rate of capital formation and therefore low income has to be broken by a suitable fiscal policy. Fiscal policy in developing countries is thus used to achieve objectives which are different from the advanced countries.

**Objectives of Fiscal Policy:**

(i) To mobilize resources for financing development.

(ii) To promote economic growth in the private sector.

(iii) To control inflationary pressure in the economy.

(iv) To promote economic stability with employment opportunities.

(v) To ensure equitable distribution of income and wealth.

**Fiscal Policy Measures/Weapons:**

The main fiscal policy ***measures/tools*** which are used to achieve the above objectives are now discussed in brie:

.

**(1) Resource Mobilization for Financing the Development Programs in the Public Sector:**

**(a) Taxation.** Taxation is an important instrument for fiscal policy. It is widely used to mobilize the available resources for capital formation in the country. There are two type of taxes which are levied to transfer funds from private to public use (i) The ***direct taxes*** are levied on the income, profits and wealth of the people who have potential economic surplus. (ii) The ***indirect taxes*** such as excise duty, sales tax etc., are imposed mostly on goods which have higher income elasticity of demand. The moping up of surplus resources through taxation is an effective means of raising resources for capital formation. A rise in tax rates causes a reduction in aggregate demand for three reasons (i) it reduces consumption (ii) It reduces investment and (iii) it reduces net exports. A fall in the tax rates has the opposite effect.

**(b) Tax on farm income.** Agriculture sector is another important source of revenue which can be tapped for capital formation. With the use of improved methods of cultivation, the agricultural production has fairly increased. It is, therefore, justified that this largest sector of the economy should be brought under progressive tax net. The government will not only raise large amount of revenue but also remove the disparity between agriculture income and non agriculture income for tax purpose. Tax should promote equity whether It is from agriculture or not agriculture.

**(2) Promoting Development in the Private Sector:**

In a mixed economy, private sector constitutes an important part of the economy. While framing fiscal policy, the interests of the private sector should not be ignored. The private sector should make significant

contribution to the development of the economy. The fiscal methods for stimulating private investment in developing countries are:

(a) Tax on national saving certificates and other approved forms of saving be exempted from taxation, this will encourage private savings.

(b) The rates of return on voluntary contribution to provident fund, insurance premium etc., be raised for incentive to save.

(c) The retained profits of the public companies should be taxed at preferential rates or exempted from taxation. This move will boost private investment.

(d) Private investment can also be stimulated by giving tax holidays or relief from tax for some specified period of time to certain selected industries.

(e) Rebates and liberal depreciation allowances can also be granted to encourage investment in the private sector.

**(3) Restraining Inflationary Pressure in the Economy:**

One of the important objectives of fiscal policy is to use taxation as an instrument for dealing with inflationary or deflationary situations. In developing countries there is a tendency of the general prices to go up due to expenditure on development projects, pressure of wages on prices, long gestation period between investment expenditure and production etc. Fiscal measures are used to counter act the inflationary pressure. Tax structure is devised in such a manner that it mops, up a major proportion of the rise in **income.** Government also tries to reduce its own spending and achieve budgetary surplus. If helps in **reducing** inflationary pressure in the economy.

**(4) Securing Equitable Distribution of Income and Wealth:**

A wider measure of equality in income and wealth is an integral part of economic development and social advance. The fiscal operations if carefully worked out can bring about a redistribution of income in favor of the poorer sections of the society. The government can reduce the high bracket incomes by imposing progressive direct taxes. For raising the income of the poor

above the poverty line and narrowing the gap between rich and poor, the government can take direct investment on economic and social overheads.

**(5) Promoting Economic Stability with Increased Employment Opportunities:**

The ultimate objective of economic development is to increase conditions of employment and to provide rising standard of living.

**Summing up,** the principal aim of the fiscal policy in underdeveloped countries is to provide incentives for promoting saving and investment and thereby high rate of economic growth.

**Classical Theory of Employment:**

**Definition and Explanation:**

Classic economics covers a century and a half of economic teaching. **Adam Smith** wrote a classic book entitled, '*An Enquiry into the Nature and Causes of the Wealth of Nations*' in 1776. Since the publication of that book, a body of classic economic theory was developed gradually. However, the classic theory owes its origin to the works of **David Ricardo** (1772 -1823), **T. S. Mill, J. B. Say** and finally ends with the works of **A. C. Pigou** (1877-1959).

There is no one single theory which can be labeled as ***classical theory of employment.*** In fact the classical theory of employment is composed of different views of classical economists on the issue of income and employment in the economy.

According to the classical economists, the economy normally operates at the level of full employment without inflation in the long period. They assumed that wages and prices of goods were flexible and the competitive market existed in the economy (laisse-fair economy). The classical model, however, did not rule out the existence of over production and hence temporary unemployment in the economy.

According to classics, if market forces are allowed to operate in the economic system, they will eliminate over production and make the economy produce output at the level of full employment. The classical economists were of the view that when the economy was at full employment

level, that did not mean non existence of unemployed workers. Even at full employment level, there would be workers who would be frictionally or voluntarily unemployed. In a normal situation, if prices and wages are assumed to adjust freely and quickly, then in the commodity and labor market, the economic system will operate at the level of full employment in the long run.

**Principles of Classical Theory of Employment:**

The classical theory of employment is based on the following principles:

(1) Say's Law of Market.

(2) Equilibrium in the Labor Market.

(3) Classical Analysis of Price and Inflation.

**(1) Say's Law of Market:**

**J. B. Say** (1776 - 1832) was a French economist and an industrialist. He was influenced by the writings of Adam Smith and David Ricardo. According to **J. B. Say:**

"When goods are produced by firms in the economy, they pay reward to the factors of production. The households after receiving rewards of the factors of production spend the amount on the purchase of goods and services. From this it follows that each product produced in the economy creates demand equal to its value in the market".

This conclusion came to be known as ***Say's Law of Market.***

**Statement and Explanation of Say's Law of Market:**

**"Say's Law of market states** that supply creates its own demand".

The income a person receives from production is spent to purchase goods and services by others. For the economy as a whole, therefore, total production equals total income.

From this it implies that when the production of goods generate income sufficient to purchase goods, then there will be no deficiency of demand for goods, there will be no over production of goods and so no lay off or genera! unemployment for the workers. The essence of Say's law is that whatever the economy generates is automatically spent on the purchase of goods and services The economy is, therefore, self correcting. Its market always clear. Because of this self-adjustment, the economy operates automatically to full employment level as if guided by **Adam Smith's "Invisible hand".**

**Diagram/Figure:**

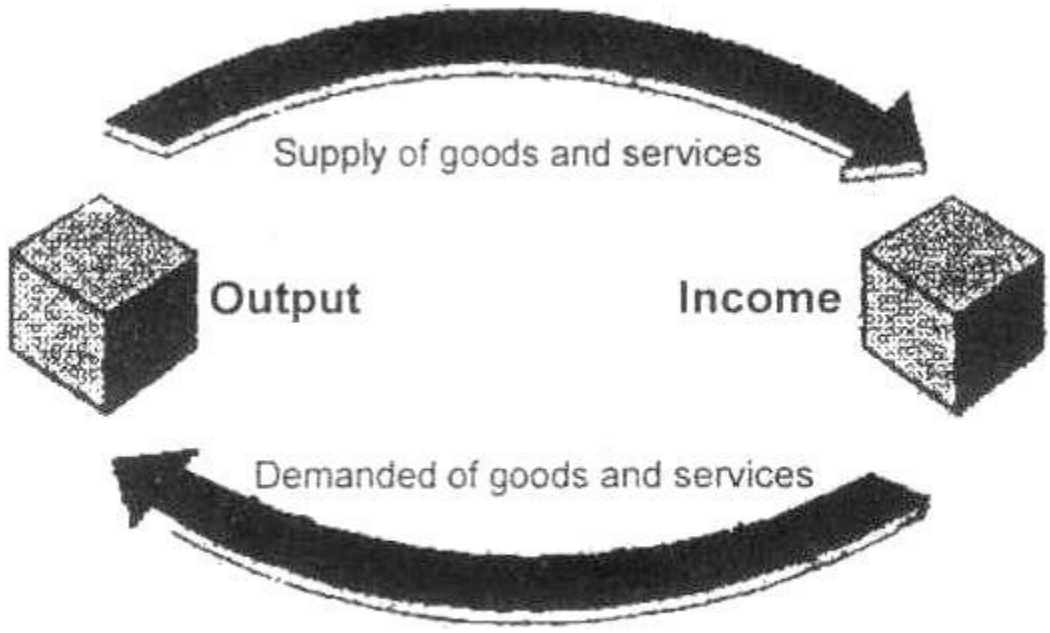


Fig: 32.1

Say's Law is explained with the help of simplified circular flow in figure 32.1. Says Law means that supply creates its own demand for goods and services. The income persons receive from output is spent to purchase goods and services produced by others. The very act of supplying certain level of goods and services necessarily equals the level of goods and services demanded. For the economy as a whole, total production therefore equals total income.

**Assumptions of the Say's Law of Market:**

The classical model is based mainly on the following four assumptions:

**(i) Pure competition exists.** No single buyer or seller of commodity or an input can affect its price.

**(ii) Wages and prices are flexible.** The wages and prices of goods are free to move to whatever level the supply and demand dictate.

**(iii) Self interest.** People are motivated by self interest. The businessmen want to maximize their profits and the households want to maximize their economic well being.

**(iv) No government interference.** There is no necessity on the part of the government to intervene in the business matters.

It may here be noted that if a part of the economy's income is saved, the Say's Law of Market would still hold good, It is because of the reason that whatever amount is saved is invested by businessmen on capital goods. Saving is equal to investment. Aggregate spending thus will be equal to aggregate income and the economy operates at the level of a full employment.

The classical economists, however, maintained that if at any time there is divergence between saving and investment, the equality between the two is maintained through the mechanism of rate of interest. For example, if at any time, the flow of savings is greater than the flow of investment, the rate of interest will fall. This will lead to an increase in investment and fall in saving till the two are equal at the full employment level. We find from Say's Law of Market, that saving is an increasing function of the interest rate and investment a decreasing function of the rate of interest.

**(2) Equilibrium in the Labor Market:**

Another feature of the classical theory of employment is in its belief that that if real wages of the workers are flexible in the labor market, then the economic system automatically adjusts itself at the level of full employment. According to **A. C. Pigou:**

"The equilibrium level of employment is determined by the demand for and supply of labor in the labor market. So far the demand for labor is concerned, it is the decreasing function of higher wages. This means that at

higher wages, the firms will employ less units of workers. As the real wage rates fall, then more units of workers are demanded by the firms".

As regards the supply of labor, it is the increasing functions of real wages. This means that at higher wage rates, more workers will be willing to work. The equilibrium level of employment which is the full employment level is determined by the equation of demand for and supply of labor. The classical theory of employment is now explained with the help of diagram.

**Diagram/Figure:**

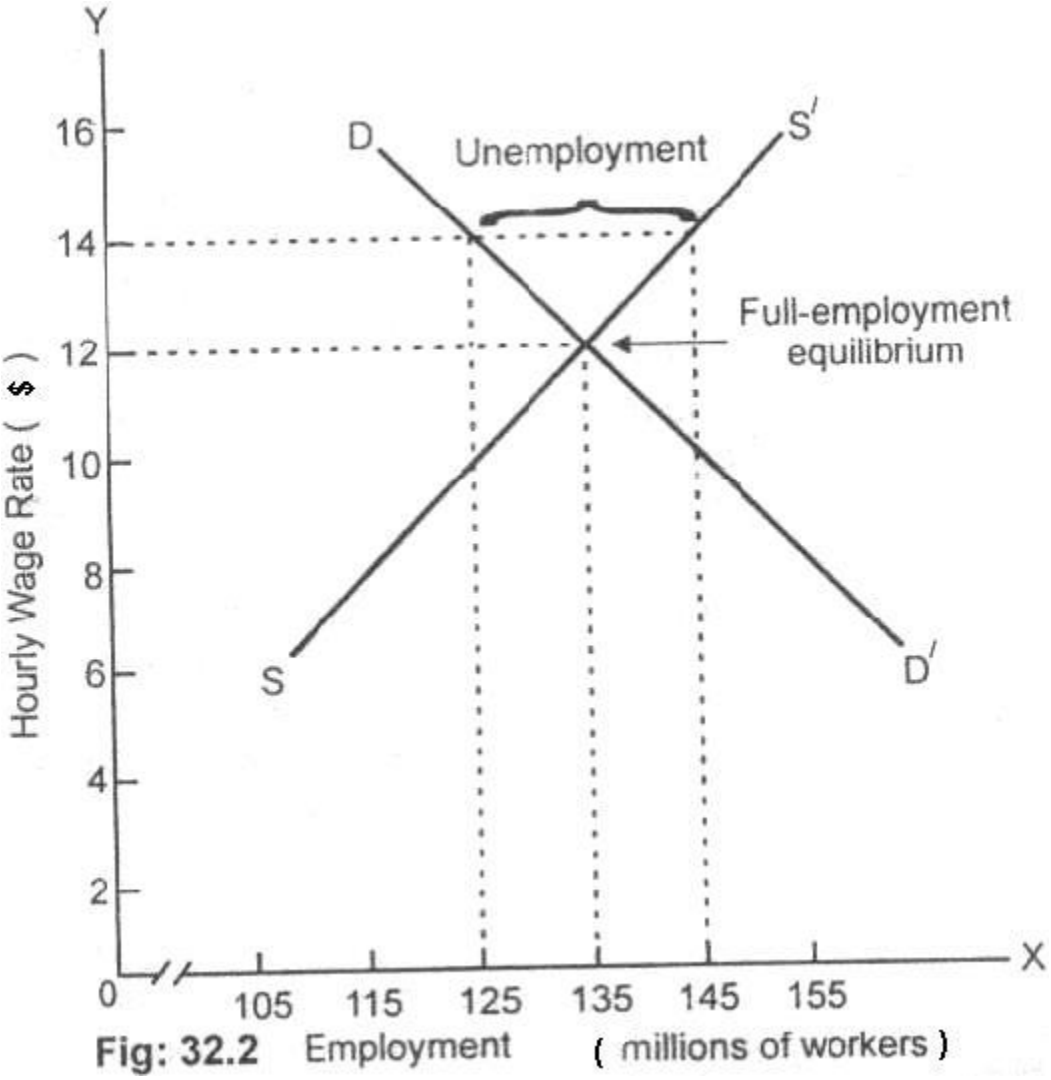


**Fig: 32.2**

In the Fig. 32.2, the labor demand curve DD/ shows the total quantity of workers that firms plan to hire at each possible real wage rates. The labor supply curve SS/ shows the total quantity of workers that households plan to

supply at each possible wage rate. The labor demand curve $DD^{/}$ and the labor supply curve $SS^{/}$ interact to determine the level of employment.

In this fig, it is shown that when the real wage rate is $12 per day, then 135 million workers employed represented full employment equilibrium. In case the real wage rate is $14 per day, the supply of workers is 145 million whereas the firms would want to hire only 125 million workers, there would be surplus labor or unemployment of 20 million workers. In the classical model, the unemployment of 20 million workers will be eliminated by real wage rate dropping to $12 per day. At wage rate below $12 per day, there is labor shortage. The situation of labor shortage does not last for a longer period. The real wage rate rises to $12 per day with full employment equilibrium of 135 million workers.

**(3) Classical Analysis of Prices and Inflation:**

The classical economists were of the view also that price level (P) in the economy is dependent upon the supply of money (M) in the country. The greater the quantity of money, the higher is the price level and vice versa. This analysis of price level was based on the **Quantity Theory of Money**, which in brief rates that price level (P) is directly related to the quantity of money in circulation in the economy (M).

**Keynes Criticism on Say's Law:**

The law of J.B. Say was finally falsified and laid to rest with the writings of Lord J.M. Keynes. He in his book, 'General Theory', has severally criticized the Say's Law on the following grounds:

**(i) Possibility of deficiency of effective demand.** According to Keynes, the classical theory based on Say's Law is unreal. In a competitive market, he says, it is not necessary that all income earned is automatically spent on consumption and investment. A part of income may be saved and may go to increase individual holdings. There may, thus, appear a deficiency in aggregate demand causing overproduction and unemployment in the country.

**(ii) Pigou's view on wage cuts.** Keynes criticizes Pigou's view that a general cut in real wages in times of depression is a cure for unemployment. Keynes

is of the opinion that a general cut in real wages may reduce the aggregate demand for goods and deepen depression.

**(iii) Not a general theory.** The Say's Law assumes that micro economic analysis can profitably by applied to the economy as a whole. Keynes rejects this view and says that for the explanation of the general theory of income and employment, the macro economic analysis is required.

**(iv) Saving investment equality.** Keynes was never convinced of the classical version that interest elasticity can equate savings and investment. According to him, it is the income and not the rate of interest which is the equilibrium, force between saving and investment.

**(v) Monopoly element.** Say's Law assumes perfect competition in the economy. Keynes says it is the imperfect competition which in practice prevails in the product and factor markets. The Say's Law is therefore, not operative.

**(vi) Role of trade unions.** In the contemporary capitalist world, the trade unions bargain with the employers for the fixation of wages. The state also fixes minimum wages in certain industries. The classical theory did not attach much importance to these forces and relied more on the theoretical; aspect, J.M. Keynes emphasizes more on the practical side of the theory of employment. In the words of Dillard" the great fault of the classical theory is its irrelevance to conditions in the contemporary capitalist world. In capitalistic economy where widespread unemployment, business cycles, inflation, and other forms of instability constitute the chief problems of public policy, the basic need is for a theory that will diagnose these ills in a manner which wilt furnish a guide to action for their solution or alleviation. Such a new and more relevant theory has emerged in Keynes General Theory of Employment, Interest and Money.

**(vii) Short run economics.** Keynes rejects Says Law that aggregate demand will always be sufficient to buy what is supplied in the long run. Keynes remarks that "In the long run we are all dead". The length of long run is not clear in Say's Law.

**Keynesian Theory of Income and Employment:**

**Definition and Explanation:**

**John Maynard Keynes** was the main critic of the classical macro economics. He in his book '*General Theory of Employment, Interest and Money*' out-rightly rejected the Say's Law of Market that supply creates its own demand. He severely criticized **A.C. Pigou's** version that cuts in real wages help in promoting employment in the economy. He also opposed the idea that saving and investment can be brought about through changes in the rate of interest. In addition to this, the assumption of full employment in the economy is not realistic.

So long as the economy was operating smoothly, the classical analysis of aggregate economy met no serious opposition. However, Great Depression of 1930's created problems of increasing unemployment, reducing national income, declining prices and failing firms increased in intensity. The classical model miserably failed to explain and provide a workable solution for how to escape the depression.

It was at that time when **J. M. Keynes** wrote his famous book '*General Theory*'. In it he presented an explanation of the Great Depression of 1930's and suggested measures for the solution. He also presented his own theory of income and employment. According to **Keynes:**

"In the short period, level of national income and so of employment is determined by aggregate demand and aggregate supply in the country. The equilibrium of national income occurs where aggregate demand is equal to aggregate supply. This equilibrium is also called effective demand point".

**What is Effective Demand?**

***Effective demand*** represents that aggregate demand or total spending (consumption expenditure and investment expenditure) which matches with aggregate supply (national income at factor cost).

In other words, effective demand is the signification of the equilibrium between aggregate demand (C+I) and aggregate supply (C+S). This equilibrium position (effective demand) indicates that the entrepreneurs neither have a tendency to increase production nor a tendency to decrease production. It implies that the national income and employment which correspond to the effective demand are equilibrium levels of national income and employment.

Unlike classical theory of income and employment, Keynesian theory of income and employment emphasizes that the equilibrium level of employment would not necessarily be full employment. It can be below or above the level of full employment.

**Determinants of Income:**

The determinants of effective demand and so of equilibrium level of national income and employment are the aggregate demand and aggregate supply.

**(1) Aggregate Demand (C+l):**

***Aggregate demand*** refers to the sum of expenditure, households, firms and the government is undertaking on consumption and investment in an economy. The aggregate demand price is the amount of money which the entrepreneurs expect to receive as a result of the sale of output produced by the employment of certain number of workers. An increase in the level of employment raises the expected proceeds and a decrease in the level of employment lowers it.

The aggregate demand curve AD (C+I) would be positively sloping signifying that as the level of employment increases, the level of output also increases, thereby increasing of aggregate demand (C+l) for goods. The aggregate demand (C+l), thus, depends directly on the level of real national income and indirectly on the level of employment.

**(2) Aggregate Supply (C+S):**

The ***aggregate supply*** refers to the flow of output produced by the employment of workers in an economy during a short period. In other words, the aggregate supply is the value of final output valued at factor cost. The aggregate supply price is the minimum amount of money which the entrepreneurs must receive to cover the costs of output produced by the employment of certain number of workers.

The aggregate supply is denoted by (OS) because a part of this is consumed (C) and the other part is saved (S) in the form of inventories of unsold output. The aggregate supply curve, (C+S) is positively sloped indicating that as the level of employment increases, the level of output also increases,

thereby, increasing the aggregate, supply. Thus, the aggregate supply (C+S) depends upon the level of employment through4he economy's aggregate production function.

**Determination of Level of Employment and Income:**

According to Keynes, the equilibrium levels of national income and employment are determined by the interaction of aggregate demand curve (AD) and aggregate supply curve (AS). The equilibrium level of income determined by the equality of AD and AS does not necessarily indicate the full employment level. The equilibrium position between aggregate demand and aggregate supply can be below or above the level of full employment as is shown in the curve below.

**Diagram/Figure:**

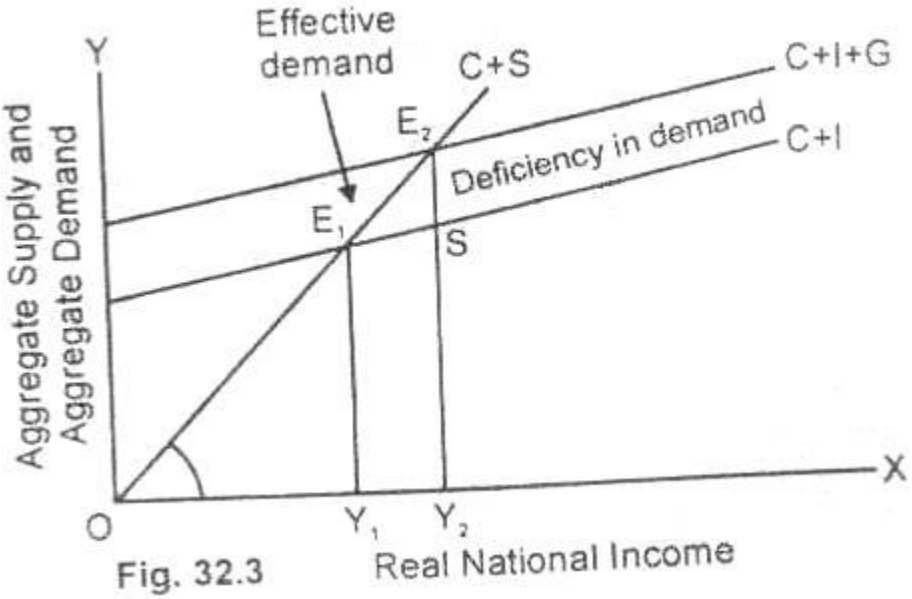

Fig. 32.3

In figure (32.3), the aggregate demand curve (C+l), intersects the aggregate supply curve (OS) at point $E^1$ which is an effective demand point. At point $E^1$, the equilibrium of national income is $OY^1$. Let us assume that in the generation of $OY^1$ level of income, some of the workers willing to work have not been absorbed. It means that $E^1$ (effective demand point) is an under employment equilibrium and $OY^1$ is under employment level of income.

The unemployed workers can be absorbed if the level of output can be increased from $OY^1$ to $OY^2$ which we assume is the full employment level. We further assume that due to spending by the government, the aggregate demand curve (C+I+G) rises. As a result of this, the economy moves from lower equilibrium point $E^1$ to higher equilibrium point $E^2$. The OY is now the new equilibrium level of income along with full employment. Thus $E^2$ denotes full employment equilibrium position of the economy.

Thus government spending can help to achieve full employment. In case the equilibrium level of national income is above the level of full employment, this means that the output has increased in money terms only. The value of the output is just the same to the national income at full employment level.

**Importance of Effective Demand:**

The principle of effective demand is the most important contribution of **J.M. Keynes.** Its importance in macro economics, in brief, is as under:

**(i) Determinant of employment.** Effective demand determines the level of employment in the country. As effective demand increases employment also increases. When effective demand falls, the level of employment also decreases.

**(ii) Say's Law falsified.** It is with the help of the principle of effective demand that Says Law of Market has been falsified. According to the concept of effective demand whatever is produced in the economy is not automatically consumed. It is partly saved. As a result, the existence of full employment is not possible.

**(iii) Role of investment.** The principle of effective demand explains that for achieving full employment level, real investment must equal to the gap between income and consumption. In other words, employment cannot expand, unless investment expands. Therein lies the importance of the concept of effective demand.

**(iv) Capitalistic economy.** The principle of effective demand makes clear that in a rich community, the gap between income and expenditure is large. If required investment is not made to fill this gap, it will lead to deficiency of effective demand resulting in unemployment.

**Criticism on Keynesian Theory:**

From mid 1970 onward, the Keynesian theory of employment came under sharp criticism from the monetarists. **Milton Frsadman,** the Chief advocate of monetarists rejected the Keynesianism as a whole. The monetarists returned back to the old classical theory for the explanation of the rise in general price level and stated that inflation is always and every where a monetary phenomenon.
The monetarists are of the view that J. M. Keynes laid more emphasis on the determinants of aggregate demand and to a greater extent ignored the determinants of aggregate supply. The monetarists encouraged the supply side policy and thus favored free enterprise economy for solving the problems of unemployment and inflation.

**J. R. Hicks** describes Keyne's '*General Theory*' as depression economics. Further, the 'General Theory of Keynes is applicable to the developed economies. The Keynesians concepts are not very useful for policy purposes in less developed countries.
**Keynesian Technique of Economic Analysis and Under Developed Countries:**

**Definition and Explanation:**

**Keynes** '*General Theory*' explains, the short period fluctuations in income and employment of a highly industrialized economy. It also suggests positive measures for increasing income and curing unemployment. According to **Keynes:**

"Whenever there is cyclical unemployment in the country, its main reason is the deficiency of aggregate effective demand".

The deficiency of effective demand can be met by adopting the following policy measures.

(i) The government should prepare a plan of public works which can be put into execution at a short notice. When a government finds that the gap between community income and community expenditure is widening, it should increase investment by starting .public works program such as construction of railways, canals, buildings, roads, etc.

(ii) The government should adopt suitable fiscal and monetary measures for encouraging increased purchases of output so that the level of business activity and employment is increased. It can adopt cheap money policy for stimulating business investment. It can decrease tax rates for encouraging investment. Deficit financing can also be adopted to even out the cyclical fluctuations.

We agree with Keynes that in a developed economy, short run ups and downs in business activity result from deficiency of aggregate effective demand and temporary unemployment can be cured by increasing investment. The economic conditions in underdeveloped countries are different from the advanced countries.

**Reasons of Unemployment in Under Developed Countries:**

The ***unemployment in backward countries*** is caused by the dearth of stock of capital in relation to the requirements of the increasing labor force. In addition to this, the other **main reasons of unemployment in backward countries are:**

(i) Greater dependence upon agriculture for livelihood.

(ii) Faster rate of growth of population than the developed countries of the world.

(iii) Old methods of production.

(iv) Absence of large scale industries.

(v) Unplanned economic development.

(vi) Ineffectiveness of monetary and fiscal policy measures.

Under the conditions stated above, if we blindly apply ***Keynesian technique for removing unemployment in underdeveloped countries***, it will prove ineffective. The cure is to be sought according to the disease. So the following policy measures are prescribed for healing the economic ills of the backward countries:

(j) The scarce resources of the countries should be utilized through planned program of development.

(ii) The rate of growth of population should be reduced by introducing family planning methods.

(iii) In order to encourage savings, prize bonds and internal loans should be issued.

(iv) Banking, insurance, trade and commerce should be encouraged in the country so that there is less dependence on agriculture.

(v) Small scale industries should be encouraged with large scale industries.

(vi) Foreign loans should be obtained so that the unemployed resources are utilized at a rapid rate.

(vii) Special institutions should be opened for providing technical knowledge to the workers.

(viii) The monetary and fiscal measures should be adopted with utmost care as they are liable to create inflation rather than cure unemployment in the country. This is because of the fact that economic conditions of backward countries are basically different from that of the advanced countries.

In ***advanced countries of the world, unemployment occurs*** because of deficiency of aggregate demand, whereas in backward countries, unemployment results from the glaring deficiency of stock of capital. So if monetary and fiscal measures are applied unintelligently to increase capital equipment and technical Knowledge, it is liable to create inflation in underdeveloped countries. Similarly, deficit financing is also very delicate tool to be used for Increasing the productive capacity of the country. If it is not wisely applied, it will also lead to inflation.

From the above discussion it can be easily concluded that the first two measures, i.e., vigilance and plan of public works as suggested by Keynes can be applied in solving the problems of underdeveloped countries, but the third measure, i.e., monetary and fiscal policy is to be very carefully used. The other tools of economic analysis such as marginal propensity to consume, multiplier, liquidity preference, marginal efficiency of capital, etc.,

developed by Keynes are very useful for the developed as well as underdeveloped countries.

**Classical Versus Keynesian Economics:**

**Definition of Classical and Keynesian Economists:**

The economists who generally oppose government intervention in the functioning of aggregate economy are named as ***classical economists.*** The main classical economists are Adam Smith, J. B, Say, David Ricardo, J. S. Mill. Thomas.

The economists who are in favor of general intervention by the state in the aggregate economy are named as ***Keynesian economists*** (Alvin Nansen, Paual Samuelson, Tinburgen, R. Frisch etc.,).

**Contrast Between Classical and Keynesian Economics:**

The main points of ***contrast between the classical and Keynesian theories of income and employment*** are discussed in brief as under:

**(1) Unemployment:**

The classical economists explained unemployment using traditional partial equilibrium supply and demand analysis. According to them:

"Unemployment results when there is an excess supply of labor at a particular higher wage level. By accepting lower wages, the unemployed workers will go back to their jobs and the equilibrium between demand for labor and supply of labor will be established in the labor market in the long period. This equilibrium in the economy is always associated with full employment level. According to the classical economists, unemployment results when the wage level of the workers is above the equilibrium wage level and as a result, thereof, the quantity of labor supplied is higher than quantity of labor demanded. The difference between the two (supply and demand) is unemployment.

J. M. Keynes and his followers, however, reject the fundamental classical theory of full employment equilibrium in the economy. They consider it as unrealistic. According them:

"Full employment is a rare phenomenon in the capitalistic economy. The unemployment occurs, they say, when the aggregate demand function intersects the aggregate supply function at a point of less than full employment level. Keynes suggested that in the short period, the government can raise aggregate demand in the economy through public investment programs to reduce unemployment".

**(2) Says Law of Market:**

According to Say's Law 'Supply creates its own demand', is central to the classic vision of the economy. According to French classical economist, J. B. Say, the production of goods and services generates expenditure sufficient to ensure that they are sold in the market. There is no deficiency of demand for goods and hence no need to unemployed workers. According to him, full employment is a normal condition of market economy.

J. M. Keynes has strongly refuted Say's Law of Market with the help of effective demand. Effective demand is the level of aggregate demand which is equal to aggregate supply. Whenever there is deficiency in aggregate demand (C + I), a part of the goods produced remain unsold in the market which lead to general over production of goods and services in the market. When all the goods produced in the market are not sold, the firms lay off workers. The deficiency in demand for goods create unemployment in the economy.

**(3) Equality Between Saving and Investment:**

The classical economists are of the view that saving and investment are equal at the full employment level. If at any time, the flow of savings is greater than the flow of investment, then the rate of interest declines in the money market. This leads to an increase in investment. The process continues till the flow of investment equals the flow of saving. Thus, according to the classical economists, the equality between saving and investment is brought about through the mechanism of rate of interest.

J. M. Keynes is, however, of the view that equality between saving and investment is brought about through changes in income rather than the changes in interest rate.

**(4) Money and Prices:**

The classical economists are of the opinion that price level varies in response to changes in the quantity of money. The quantity theory of money seeks to explain the value of money in terms of changes in its quantity.

J. M. Keynes has rejected the simple quantity theory of money. According to him, if there is recession in the economy, and the resources are lying idle and unutilized, an increased spending of money may lead to substantial increase in real output and employment without affecting the price level.

**(5) Demand For Money:**

According to classical economists, money is only demanded to make regular expenditure under the need transactions demand.

The Keynesian economists are of the view that people hold money for transaction as well as speculative purposes. So far 'transaction demand' for money is concerned, it is a function of income. The higher the income, the higher is the transaction demand for money and vice versa. The speculative demand for money is a function of rate of interest. The higher the interest rate, the lower is the money balances which the nation holds for speculative purposes and vice versa.

**(6) Short and Long Run Analysis:**

The classicists believed that a market economy, through flexible interest rates, wages, and prices, return to a state of full employment in the long run.

J. M. Keynes played a major role in suggesting as to how the government can reduce cyclical fluctuations through stabilization policies. Keynes analysis of economic problems is confined to short run. Keynes says, 'Let us forget the long run and focus on the short run. In the long run, we are all dead'.

**(7) Role of State in Achieving High Level of Income and Employment:**

The classical economists are of the view that in commodity and labor market, the price mechanism works with reasonable promptness. The supply adjusts to demand through the flexible interest rates, wages and prices and

the economic system returns to a state of full employment in the long run without government intervention.

J. M. Keynes puts less faith in market forces. He stressed and argued for more direct intervention by the state to increase/decrease aggregate demand to achieve certain national economic goals. J. M. Keynes considered fiscal policy as a steering wheel for moving the economy to a state of higher level of employment and price stability more quickly. If aggregate income is low and below the target national income, then appropriate expansionary fiscal policy should be adopted. Expansionary fiscal policy involves decreasing taxes and increasing government spending. In case the aggregate income is higher or above the potential level, then contractionary fiscal policy i.e. increasing taxes and decreasing government spending should by taken up by the state.

**(8) General Versus Special Theory:**

The classical theory is based on four unrealistic assumptions (i) role of the government in the economy should be minimum (ii) all prices and wages and markets are flexible (iii) any problem in the macro economic is temporary (v) the market force come to the rescue and correct itself. The market mechanism eliminates over production and unemployment and establishes full employment in the long run. The classical theory relates only to the special case of full employment.

J. M. Keynesian theory is a general theory. It has a wider application on all such situations of unemployment, partial employment and near full employment.