

D.N.R.COLLEGE (A) BHIMAVARAM

**P.G. DEPARTMENT OF
ECONOMICS**



E-NOTES

M.A ECONOMICS

SEMESTER -I, PAPER – I

MICRO ECONOMIC ANALYSIS-I

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UNIT –I

TOPIC: Basic economic problem- choice and scarcity

Where there is scarcity, choices must be made! Scarcity refers to the finite nature and availability of resources while choice refers to people's decisions about sharing and using those resources. The problem of scarcity and choice lies at the very heart of economics, which is the study of how individuals and society choose to allocate scarce resources.

Some resources are plentiful while others are rare. We tend to think less about the air that we breathe than about how we are going to spend our time on any given day. That is because breathable air is in apparent abundance while the number of hours in a day is clearly limited. Our decision to breathe is not a conscious one and is thus somewhat uninteresting for an economist.

On the other hand, a whole branch of economics exists to understand and explain our choices of time allocation: how many hours we choose to work and how many hours we choose to play are of fundamental importance to the labor market. It is not just people's time but also their skills that are in limited supply. Economists are typically concerned with the efficiency of any allocation: how can the most be made of such scarce resources?

While mainstream economics focuses on the preferences and decisions of individuals in society, evaluating the fair allocation of scarce resources requires aggregation of preferences in order to judge the utility of an allocation to society as a whole (see welfare economics). Thus, not only the efficiency of an allocation but also its equity, or distributive fairness, is relevant to the study of scarcity and choice. Indeed, the issue of equity is central to the debate on free-market versus planned economies.

The scarcity of a resource in a particular context can be quantified and hence judged objectively. Traditionally, economists have also studied people's choices over scarce resources as though they were taken through simple, objective and rational calculation. Of course, people's decision-making is not purely rational; it is affected by emotion too. The fast-developing subfield of behavioral economics applies insights from human psychology to enrich economists' understanding of choice at a more subjective level.

The basics of supply and demand tell us that the price of a rare item will be higher than that of a common one. Marketing teams often apply the concepts of scarcity and choice along with ideas from psychology to make money. If marketers can create the impression that an item is in scarce supply, then some people will be willing to pay more for it, or to bring forward their purchases. Mind games about scarcity are played out through campaign statements such as "Buy it while it lasts!", "Last chance to order!" or "Limited offer!" precisely in order to influence consumer choice.

Topic: Deductive and inductive methods of Analysis

Analysis refers to studying a given topic in detail. Economic analysis refers to the investigation of a particular topic from the perspective of an economist. It includes conducting an in-depth study of various processes such as production, consumption, consumer behaviour, national income, employment and others. It evaluates the given industry in detail with all the aspects associated with that particular industry.

Moreover, the primary aim of economic analysis is to determine the effectiveness of operations within an economy. There are two types of economic study or economic analysis: Deductive Method and Inductive Method. Here, we take a look at these methods and also present an overview of the process of making the hypothesis.

Deductive method

It is a method of economic investigation or economic analysis. It is also known as the analytical abstract priori method or the hypothetical method. In this method, a person is required to assume the factual information and then follow the phase of logical reasoning to arrive at a concrete result or conclusion. By including some assumptions and experiments, a theory is built in this method.

For instance, it is a common fact that businessmen strive for maximum profits. Therefore, assumptions such as businessmen buying materials at a cheaper cost and cutting labour costs are added to build an economic theory that offers solutions to qualitative and labour-related issues. Hence, the common rule to remember in the case of deductive methods is to move from general facts to particular assumptions and, eventually, constructive theories.

Moreover, in the deductive method, simple facts help in creating complex hypotheses. Therefore, three stages or phases are recognised in the deductive method:

1. Observation
2. Logical reasoning
3. Experimentation, instance and testing through observation.

Making the hypothesis is an important component of the deductive method of economic analysis.

Merits of the deductive method

Following are the merits of the deductive method:

1. **Simple and convenient:** This method is observation based and is fairly easy to practice. For example, in the Law of Diminishing Marginal Utility, after the increase in consumption, the consumer reaches the point of satiety, and the utility of the good begins to diminish.
2. **Removes the need for experimentation:** Experiments are vital in subjects like chemistry and physics but not mandatory in the case of economics. Deductive method is an alternative to experiments as far as economics as a subject is concerned.
3. **Accurate results:** Deductive method includes logical reasoning on the part of the economist or the analyst. Hence, logical thinking increases the chances of precision and sets high standards.

Demerits of deductive reasoning

The disadvantages of the deductive method are as follows:

1. **Assumption based:** Assumptions have a higher chance of going wrong and result in invalid solutions. This can lead to a serious economic crisis if done inappropriately.
2. **Imaginative:** There is a greater chance of the deductive method being far from reality since it works on the basis of imagination. Real-life problems cannot be solved by imaginative or utopic solutions.

Inductive method

In the inductive method, analysts or theorists progress from a practical outlook to a scientific problem in order to shorten the gap between theoretical knowledge and practical applications. The induction method is carried out in two forms, via statistics and experimentation. This method is classically associated with statistical forms of investigations. It involves a lot of

numbers, quantities and formal terms.

Merits of inductive method

1. It is a very practical and applicable method, and it is simply descriptive.
2. It is totally verifiable since it deals with quantities.
3. Laws and theories under the inductive method may not be universal but are condition specific.

Demerits of inductive method

1. If in case the analysts or theorists do not possess a balanced and stable judgement, then this method is unhelpful as they will be extracting insufficient data.
2. Inductive method works on the basis of experiments, and experiments require materials and resources. It is often difficult to gather and access the facts required for experiments.
3. The Inductive method is an incomplete method alone. It can be used if combined with deductive methods or deductive reasoning.

Deductive method vs inductive method

Hence, there are some differences between the deductive method and the inductive method of economic analysis.

Making the hypothesis

Before dwelling on the process of making the hypothesis, one must understand the meaning of the hypothesis. Hypothesis refers to any idea or assumption based on proving an argument or answering any question. It consists of several components, such as background research, which includes in-depth knowledge of facts. This is followed by a literature review, which refers to the part where the analyst evaluates the searched facts.

After all these steps are performed, then comes the part where the analyst must think about potential questions that can be asked or should be asked to reach a conclusion.

The following steps must be followed for making the hypothesis:

1. Gathering observational data regarding the topic.
2. The gathered data or information must be evaluated to look for the causes of the problem.
3. Next, analysts should create a list of problems concerning the topic.
4. After making the hypothesis, analysts must begin to confirm or disprove the matters of the hypothesis to reach a conclusion.

Conclusion

Deductive method and inductive method are, hence, complementary methods of economic analysis. The two methods work the best when used together. They are co-relative and help in establishing concrete theories and producing novice solutions to economic and social problems. Great economists such as Alfred Marshall also supported the complementary relationship between the two methods.

Topic: positive and normative economics

What is Positive Economics?

Positive Economics is a part of economics that contemplates the explanation and elucidation of economic occurrence. It concentrates on certainty and cause-and-effect behavioural association, and incorporates the development and trial of economics thesis.

It is the study of economics grounded on the intentional analysis. Today most economists concentrate on the positive economic analysis, which follows what is and what has been materialising in an economy as the rationality for any statement about the upcoming days. Positive economics stands in contradiction to normative economics, which uses value discernment.

What is Normative Economics?

Normative economics is an outlook on economics that contemplates normative or ideologically dictatorial, discernment toward economic enhancement, statements, investment projects and framework. Disparate to positive economics, which depends on intentional data analysis, normative economics decisively solicitude itself with value discernment and statements of 'what has to be' rather than certitude based on cause-and-effect declarations.

Normative economics manifests ideological judgement about what may be the outcome in an economic pursuit if public policy changes are made.

Difference between Positive and Normative Economics

Parameters	Positive Economics	Normative Economics
Meaning	A part of economics grounded on information and certainty is positive economics.	A part of economics grounded on values, perspectives, and discernment is normative economics.
Nature	Illustrative	Dictatorial
Outlook	Objective	Subjective
Deals with	What actually is?	What has to be?
Testing (Trial)	Statements can be tested	Statements cannot be tested
Economic problems	Evidently elucidates the economic concerns and issues	Provides a solution for the economic concerns, based on the value.

Topic: Elasticities of demand

Elasticity of Demand-

It is defined as the responsiveness of the quantity demanded of good to the change in price, income, and price of related good. We can say it is percentage change in quantity demanded divided by percentage changes in price, income and price of related goods.

$$E_D = \frac{\% \text{ change in demand}}{\% \text{ change in determinants of demand}}$$

With the concept in mind, we will now discuss the different type of elasticity of demand-

1. Price Elasticity of Demand
2. Income Elasticity of Demand
3. Cross Elasticity of Demand
4. Advertising or Promotional elasticity of Demand

1. Price Elasticity of Demand-

Price elasticity of demand expresses relationship between change in quantity demanded of a commodity and a proportionate change in its price. While calculating price elasticity of demand the determinants of demand should be kept constant.

If say 'elasticity of demand' only we mean to say price 'elasticity of demand'. It is expressed as

$$E_P = \frac{\% \text{ change in quantity demand}}{\% \text{ change in price}}$$

$$E_P = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Where:

ΔQ = Change in quantity

ΔP = Change in price Q = Original quantity P = Original price

Degree or Types of Price Elasticity-

Price elasticity demand is negative for all goods except for goods (inferior goods) that are exception to the law of demand. Price elasticity between varies 0 & ∞ , which will be the respective condition when the goods is completely inelastic or perfectly elastic.

i) Perfectly Elastic Demand-

$$E = \infty$$

When demand of a commodity increased or decreases to any extent without any change or only upon a small change in its price, is called perfectly elastic demand. In other words when demand of a commodity keeps on changing even if there is no change in its price. (It is an imaginary condition)

Price (₹)	Quantity (Unit)
10	100
10	110
10	120

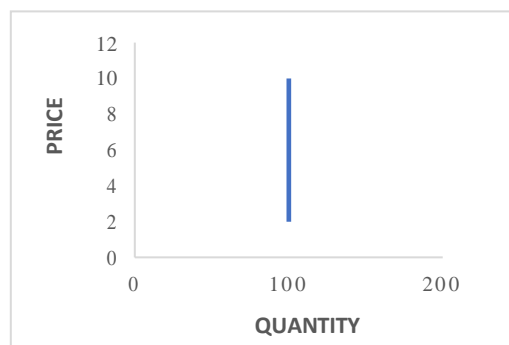


ii] Perfectly Inelastic Demand-

$$E = 0$$

When demand of a commodity does not change at all irrespective of any change in price, it is called perfectly inelastic demand.

Price (₹)	Quantity (Unit)
10	100
8	100
6	100
2	100

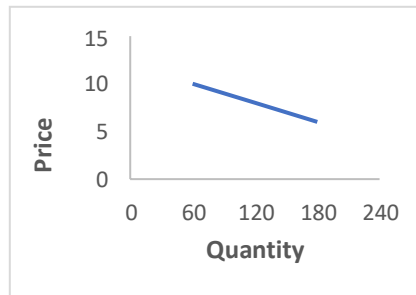


iii. Unitary Elastic Demand-



Price elasticity of Demand is unity when the change in demand is exactly proportionate to the change in price. For eg.- If on 10% increase in the price of a commodity, demand decrease 10%, it will be called unity elastic. Eg. Commodities like cars, fashion items.

Price (₹)	Quantity (Unit)
10	60
8	120
6	180



iv. Highly Elastic or relative Elastic Demand-



When the proportionate change in demand of a quantity is more than the proportionate change in its price.

Price (₹)	Quantity (Unit)
10	100
8	140
6	200

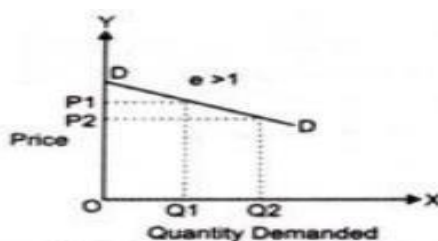


Figure-4: Relatively Elastic Demand

v] Inelastic Demand or Less or Relative Inelastic Demand-

$$e < 1$$

When proportionate change in the demand of a commodity is less than proportionate change in price.

Price (₹)	Quantity (Unit)
10	1
8	2
6	3

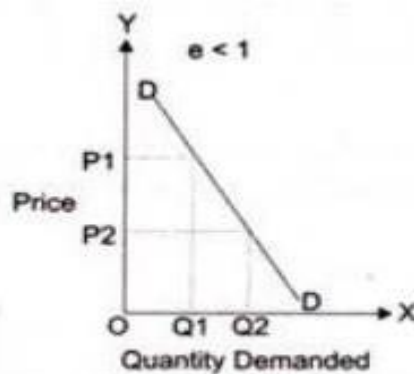


Figure-5: Relatively Inelastic Demand

Determinants of price Elasticity of Demand-

The elasticity of demand varies from commodity to commodity while the demand for some commodity is highly elastic, the demand for others is highly inelastic. Following are the main determinants of the elasticity of demand.

1. Availability and Closeness of substitute-

Fewer close substitutes of the product, less elastic the demand for the product and vice versa.

2. Proportion of income spent on the product-

When the good proportion of income spent is more, more elastic the demand for the product and vice versa

3. Time period-

Demand is more elastic in long run than in short run. Urgency is less elastic demand.

4. Uses of Product-

The price elasticity of demand would be higher for those products which have large number of use.

5. Habit Formation-

The demand for the product which the consumer consume due to habit is relatively inelastic demand.

Application of Price Elasticity Demand-

1. Pricing decision of business organization
2. Pricing regulation by the government
3. Paradox of plenty
4. Use in the international trade
5. Fiscal Policy

Measurement of Price Elasticity of Demand-

There are five methods of measuring elasticity of demand

1. Percentage Method-

In this method price elasticity of demand is measured by the ratio of percentage change in quantity demanded divided by the percentage change in price of a commodity.

$$E_p = \frac{\% \text{ change in quantity demand}}{\% \text{ change in Price}}$$

$$E_p = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Where:

ΔQ = Change in quantity

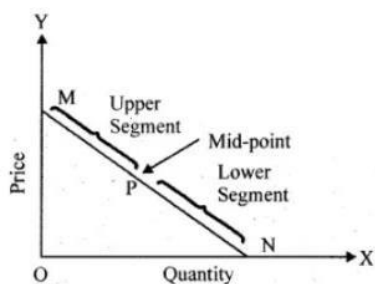
ΔP = Change in price Q = Original quantity P = Original price

2. Point Method-

Under this method the price elasticity of demand is measured geometrically. Price elasticity of demand at any point can be measured by applying the following formula-

$$E_p = \frac{\text{Lower segment of the demand curve}}{\text{Upper segment of the demand curve}}$$

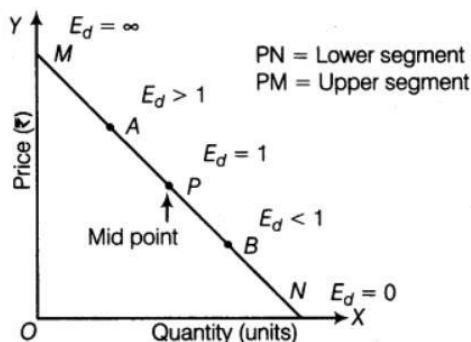
Point elasticity is the elasticity of demand at a finite point on a demand



$$E_p = \frac{PN}{PM}$$

Note-

1. At mid point of linear demand curve, $ep=1$
2. At any point above the mid point, $ep>1$
3. At any point below the mid point, $ep<1$
4. At extreme point, N $ep=1$
5. At extreme point ep is undefined because division by zero is undefined.



3. Revenue Method-

Revenue refers to the sale proceeds of a firm. Elasticity of a demand can be estimated if average revenue and marginal revenue are known. Average revenue is the price per unit of commodity. Margin revenue is the additional to total revenue by sale of an additional unit of the commodity.

$$E_p = \frac{A}{A - M}$$

Where,

A= Average revenue M= Marginal revenue

4. Total outlay or Expenditure Method-

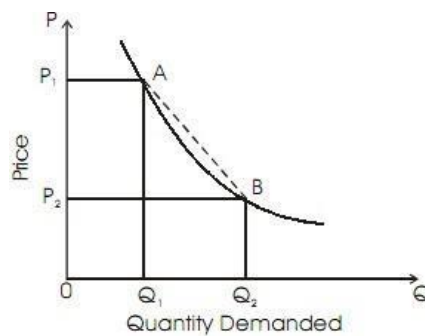
According to this method the elasticity of demand is measured by considering the change in total outlay as a result of change in price of the commodity. In this method we compare the total expenditure before and after the price change and there we find the elasticity of demand.

Total Outlay= Quantity purchased* Price of commodity

Price per Unit	Demand(Unit)	Total Expenditure	Comments
7	6	42	Position before change in price
6	10	60	$E_p > 1$
6	5	30	$E_p < 1$
6	7	42	$E_p = 1$

5. Arc Method-

Segment of curve between two points is called an arc. The measure of elasticity of demand between any two finite point on the demand curve is known as arc elasticity.



Here we have to take average price of OP1 and OP2 and average of original and new demand.

$$E_p = \frac{\Delta Q}{\Delta P} \times \frac{(P_1 + P_2)}{(Q_1 + Q_2)}$$

2.Income Elasticity of Demand

A responsiveness or degree of change in demand for a product as a result of change in income is known as income elasticity. The formula for calculating income elasticity of demand is the percent change in quantity demanded divided by the percent change in income. With income elasticity of demand, you can tell if a particular good represents a necessity or a luxury.

$$E_y = \frac{\% \text{ Change in demand for a product}}{\% \text{ Change in income of consumer}}$$

i Income elasticity more than 1

The positive income elasticity of demand will be more than unitary if the proportionate change in the amount of a product demanded is higher than the change in consumer income in due proportion.

$E > 1$ eg.- Five star hotels[Luxury]

ii Income elasticity less than 1

If the change in the amount of a product demanded in due proportion is less than the change in consumer income in due proportion, positive income elasticity of demand will be less than unitary.

$E < 1$ eg.- Essential goods

iii Income elasticity is 0

It corresponds to the situation when there is no impact of rising household income on commodity production. Such goods are termed essential goods. For example, a high- income consumer and a low-income consumer will need salt in the same quantity.

$E = 0$ eg.- Salt

iv Income elasticity is negative

It refers to a condition in which demand for a commodity decreases with a rise in consumer income and increases with a fall in consumer income. Inferior goods are such commodities. For example, the demand for millet will decrease if the income of consumers increases since they will prefer to purchase wheat instead of millet. Thus, millet is an inferior good to wheat for customers.

$E < 0$ eg.- Coarse grain

v Income elasticity is more than 0

$E > 0$ eg.- Normal goods

vi Income elasticity is equal to 1

The positive income elasticity of demand will be unitary if the proportionate change in the amount of a product demanded equals the change in consumer income in due proportion.

$E = 1$ eg.- Semi Luxury

2. Cross Elasticity of Demand

The quantity demanded of a particular commodity varies according to the price of other commodities. Cross elasticity measures the responsiveness of the quantity demanded of a commodity due to changes in the price of another commodity. For example, the demand for tea increases when the price of coffee goes up. Here the cross elasticity of demand for tea is high. If two goods are substitutes then they will have a positive cross elasticity of demand. In other words, if two goods are complementary to each other than negative income elasticity may arise.

$$E_c = \frac{\text{Proportionate change in purchase of commodity}}{\text{Proportionate change in price of commodity}}$$

1. When cross elasticity is more than 0 (Substitute goods)

$E_c > 0$

eg. Gur and Sugar

2. When cross elasticity is less than 0 (Complimentary goods)

$E_c < 0$

eg. car and petrol

3. When cross elasticity is equal to 0 (Unrelated goods)

$E_c = 0$

eg. cycle & cake

UNIT –II

TOPIC: INDIFFERENCE CURVE THEORY

INTRODUCTION OF INDIFFERENCE CURVE

IC analysis is a modern method to analyse consumer's behaviour. It is based on ordinal utility. There are two concepts of utility cardinal and ordinal. Cardinal is used to count or indicate how many while ordinal are words that represent rank and order in a set, scale of preference and the marginal rate of substitution. Ordinal utility refers to the level of satisfaction. The ordinal utility function means the utilities obtained from goods can be compared as being greater or less or equal through the level of satisfaction.

The scale of preference is the quantitative expression of consumer's desire for goods. It shows the way in which an individual consumer decides to spend his money income on various commodities.

Meaning of Indifference Curve

- An IC is the locus of points – particular combinations which yield the same utility or level of satisfaction to the consumer, so that he is indifferent as to particular combination he consumes. In other words, IC analysis refers to the locus of points representing the various combinations of two goods which yield the same level of satisfaction to the consumer.
- According to Hicks: “It is the locus of the points representing parts of quantities between which the individual is indifferent and so it is termed as an indifferent curve.”
- According to Leftwich : “A single indifference curve shows the indifferent combination of X and Y that yield equal satisfaction to the consumer.”

ASSUMPTIONS OF INDIFFERENCE CURVE ANALYSIS

- Rationality.
- Ordinal Utility.
- Diminishing marginal rate of substitution.
- Based on comparison.
- Consistency.

We can explain the concept of IC approach with the help of table and Map

COMBINATION	GOOD-X	GOOD-Y	MRS _{xy}
A	1	15	----
B	2	11	4:1
C	3	8	3:1
D	4	6	2:1
E	5	5	1:1

Here we are explaining MRS with the help of IC approach. The marginal rate of substitution of Y for X (MRS_{xy}) is defined as the amount of Y the consumer is just willing to give up to get one additional units of X and maintain the same level of satisfaction. From the above table it is seen when the consumer moves from combination A to B, the consumer forgoes 4 units of Ygood for one unit gain of good X. Thus, marginal rate of substitution comes 4. In this way, when the

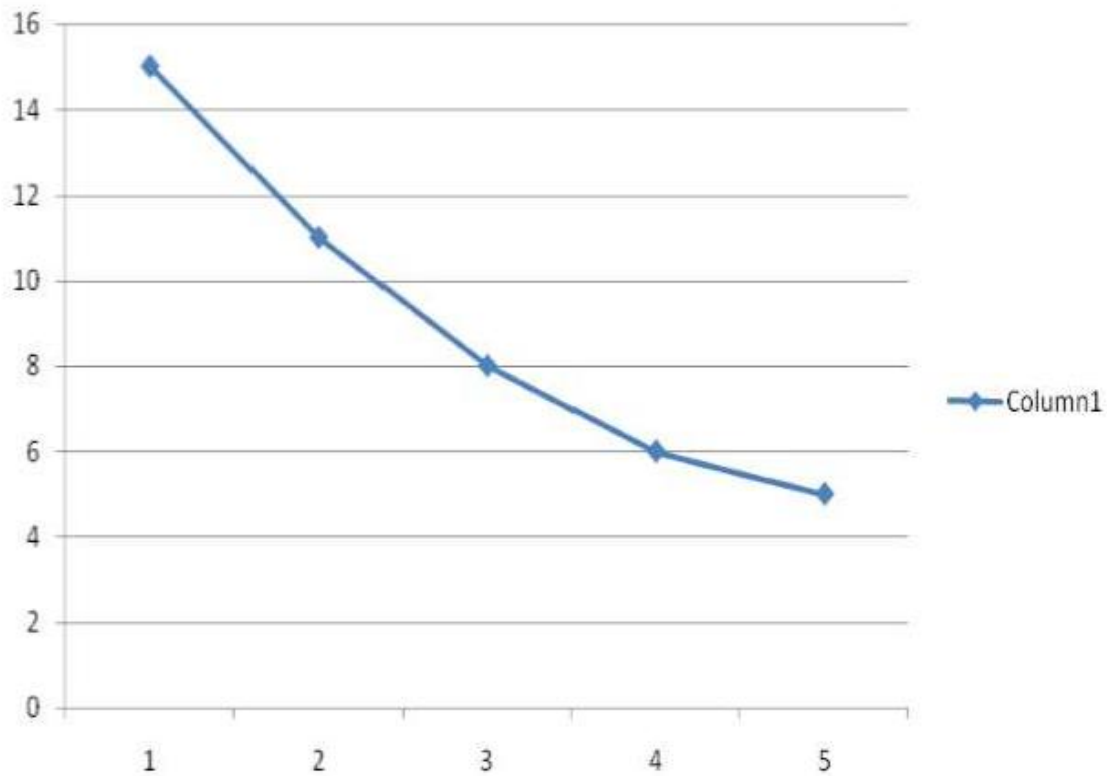
consumer moves from B to C, the consumer forgoes 3 units of Y good for another unit of X good.

Thus the consumer has more and more unit of X good, the consumer is willing to forgoes less units of Y good as of 2 and 1. In E combination, satisfaction of the consumer is 1:1. Thus utility gained = utility lost. It can also be expressed as $MRS_{xy} = y/x$ In short, as the stock of X increases the amount of Y in exchange will decrease. In this way, the marginal rate of substitution diminishes and the slope of indifference curve indicates the same.

Diagrammatic Representation

- In fig. given below at point A, consumer has 1 unit of X commodity and 15 units of Y commodity. At point B, he has 2 units of X commodity and 4 units of Y commodity. According to the law of diminishing marginal utility, MU of additional units of X commodity is diminishing and marginal utility of Y starts increasing. Therefore, consumer will be willing to give up less and less of Y commodity for every additional units of X commodity. In other words, marginal rate of substitution of X commodity for Y commodity diminishes.

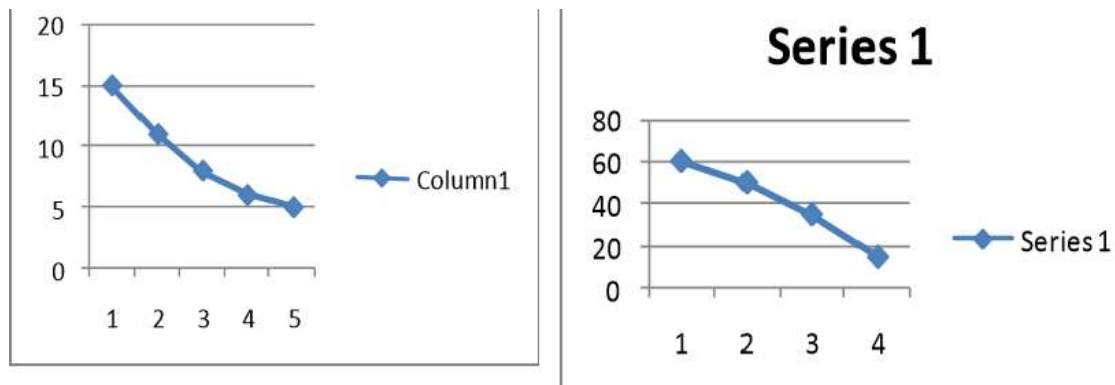
Diagram of indifference curve



PROPERTIES OF INDIFFERENCE CURVES:

1. Indifference Curve Slope from Left Downward to Right. IC slope from left downward to right means when the amount of one commodity in the combination increases the amount of other commodity reduces. In the fig given below at point A, the consumer buys OX of commodity X and OY of commodity Y As he moves from A to B and further for attaining more of X commodity, he is ready to forgo lesser and lesser of commodity Y . It is only in this case that he can be indifferent between A and B because increase in commodity X leads to decrease in commodity Y .

Convex and concave shape of indifference curve



3. Indifference Curve will not Touch either X-axis or Y-axis. The IC will not touch either X-axis or Y-axis, as we have assumed that the individual is interested in different combinations of two commodities as seen in fig. below, If it touches either of the axis, it will mean that the consumer is interested in one commodity only. In the fig. IC touches X-axis at point A, he will be satisfied with OA units of X commodity and has no preference for Y commodity. Similarly, at point B, he will have OB units of Y commodity and none of X. This normally does not happen.

Indifference curve will not touch either x-axis and y-axis.

TOPIC: REVEALED PREFERENCE THEORY

The Concept of Revealed Preference:

Prof. Samuelson has invented an alternative approach to the theory of consumer behaviour which, in principle, does not require the consumer to supply any information about himself.

If his tastes do not change, this theory, known as the Revealed Preference Theory (RPT), permits us to find out all we need to know just by observing his market behaviour, by seeing what he buys at different prices, assuming that his acquisitions and buying experiences do not change his preference patterns or his purchase desires.

Given enough such information, it is even theoretically possible to reconstruct the consumer's indifference map.

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Samuelson's RPT is based on a rather simple idea. A consumer will decide to buy some particular combination of items either because he likes it more than the other combinations that are available to him or because it happens to be cheap. Let us suppose, we observe that of two collections of goods offered for sale, the consumer chooses to buy A, but not B.

We are then not in a position to conclude that he prefers A to B, for it is also possible that he buys A, because A is the cheaper collection, and he actually would have been happier if he got B. But price information may be able to remove this uncertainty.

If their price tags tell us that A is not cheaper than B (or, B is no-more expensive than A), then there is only one plausible explanation of the consumer's choice—he bought A because he liked it better.

More generally, if a consumer buys some collection of goods, A, rather than any of the alternative collections B, C and D and if it turns out that none of the latter collections is more expensive than A, then we say that A has been revealed preferred to the combinations B, C and D or that B, C and D have been revealed inferior to A.

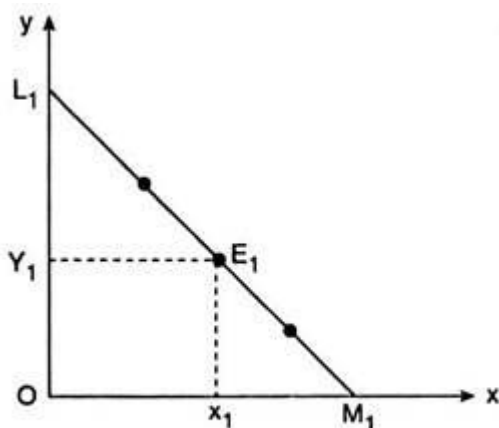


Fig. 6.104 Revealed preference

Therefore, if the consumer buys the combination $E_1(x_1, y_1)$ of the goods X and Y and does not buy the combination $E_2(x_2, y_2)$ at the prices (p_x^1, p_y^1) of the goods, then we would be able to say that he prefers combination E_1 to combination E_2 , if we obtain

$$p_x^1 x_1 + p_y^1 y_1 \geq p_x^1 x_2 + p_y^1 y_2 \quad (6.137)$$

The complete set of combinations of the goods X and Y to which a particular combination is revealed preferred can be found with the aid of the consumer's price line. Let us suppose that the consumer's budget line is L_1M_1 in Fig. 6.104

and he is observed to purchase the combination $E_1 (x_1, y_1)$ that lies on this line.

Now, since the costs of all the combinations that lie on the budget line are the same as that of E_1 and since the costs of all the combinations that lie below and to the left of the budget line are lower than that of E_1 we may say that E_1 is revealed preferred to all the combinations lying on or below the consumer's budget line.

:

Again, since the costs of the combinations that lie above and to the right of the budget line are higher than that of E_1 we cannot say that the consumer prefers E_1 to these combinations when he is observed to buy E_1 , because here E_1 is the cheaper combination.

We have to note here the difference between “preference” and “revealed preference”. Combination A is “**preferred**” to B implies that the consumer ranks A ahead of B.

But A is “revealed preferred to B” means A is chosen when B is affordable (no-more-expensive). In our model of consumer behaviour, we generally assume that people are choosing the best combination they can afford that the choices they make are preferred to the choices that they could have made. That is, if (x_1, y_1) is directly revealed preferred to (x_2, y_2) , then (x_1, y_1) is, in fact, preferred to (x_2, y_2) .

Let us now state the RP principle more formally:

Let us suppose, the consumer is buying the combination (x_1, y_1) at the price set (p'_x, P'_y) let us also suppose that another combination is (x_2, y_2) , such that $p'_x x_1 + p'_y y_1 \geq p'_x x_2 + p'_y y_2$. Now, if the consumer buys the most preferred combination subject to his budget constraint, then we will say the combination (x_1, y_1) is strictly preferred to combination (x_2, y_2) .

The Assumptions:

With the help of the simple principle of RP, we may build up a powerful theory of consumer demand. The assumptions that we shall make here are:

- (i) The consumer buys and uses only two goods (X and Y). The quantities x and y of these goods are continuous variables.
- (ii) Both these goods are of MIB (more-is-better) type. This assumption is also known as the assumption of monotonicity. This assumption implies that the ICs of the consumer are negatively sloped.
- (iii) The consumer's preferences are strictly convex. This assumption implies that the ICs of the consumer would be convex to the origin, which again implies that

there would be obtained only one point (the point of tangency) on the budget line of the consumer that would be chosen by him over all other affordable combinations.

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This assumption is very important. On the basis of this assumption, we shall obtain a one- to-one relation between the consumer's price-income situation or budget line and his equilibrium choice—for any particular budget line of the consumer, there would be obtained one and only one equilibrium combination of goods and for any combination to be an equilibrium one, there would be obtained one and only one budget line.

(iv) The fourth assumption of the RP theory is known as the weak axiom of RP (WARP). Here we assume that if the consumer chooses the combination $E_1(x_1, y_1)$ over another affordable combination $E_2(x_2, y_2)$ in a particular price-income situation, then under no circumstances would he choose E_2 over E_1 if E_1 is affordable.

In other words, if a combination E_1 is revealed preferred to E_2 , then, under no circumstances, E_2 can be revealed preferred to E_1 .

(v) The fifth assumption of the RP theory is known as the strong axiom of RP (SARP). According to this assumption, if the consumer, under different price-income situations, reveals the combination E_1 as preferred to E_2 , E_2 to E_3, \dots, E_{k-1} to E_k , then E_1 would be revealed preferred to E_k and E_k would never (under no price-income situation) be revealed preferred to E_1 .

Revealed Preference—Direct and Indirect::

If RP is confined to only two combinations of goods, E_1 and E_2 , and if, in a particular price- income situation, $E_1 (x_1, y_1)$ is revealed preferred to combination $E_2 (x_2, y_2)$, then it is said that E_1 is directly revealed preferred to E_2 .

But if preferences are considered for more than two combinations and if preferences are established by way of transitivity of RP, then it is a case of indirectly revealed preference. For example, if E_1 is revealed preferred to E_2, \dots, E_{k-1} to E_k , then by SARP, we say E_1 is indirectly revealed preferred to E_k .

Violation of the WARP:

Let us consider Fig. 6.105. Here let us suppose that, under the price income situation represented by the budget line L_1M_1 , the consumer purchases the combination $E_1 (x_1, y_1)$ and he reveals combination $E_1 (x_1, y_1)$ as preferred to $E_2 (x_2, y_2)$.

For here he chooses E_1 over the affordable combination E_2 . Again, let us suppose that when the budget line of the consumer changes from L_1M_1 to L_2M_2 , the consumer buys the combination E_2 (x_2, y_2), although he could have obtained the affordable combination E_1 (x_1, y_1), i.e., under L_2M_2 , E_2 is revealed preferred to E_1 .

What we have seen here is that under the budget line, L_1M_1 , the combination E_1 is revealed preferred to E_2 and under a different budget line L_2M_2 , E_2 is revealed preferred to E_1 . Obviously, the consumer here violates the WARP.

The reason for this violation may be that the consumer here does not attempt to obtain the most preferred combination subject to his budget constraint; or, it may be that his taste or some other element in his economic environment has changed which should have remained unchanged by our assumptions.

Now, whatever may be the reason for the violation of WARP, this violation is not consistent with the model of consumer behaviour that we are discussing.

The model assumes that the consumer wants to maximise his level of satisfaction and, that is why, when he chooses a particular combination, say, E_1 subject to his budget, that must be the most 'preferred' to all other affordable combinations, and none of these 'other' combinations can be 'preferred' to E_1 under a different budget. WARP puts emphasis on this simple but important point. We may give the formal statement of WARP in the following way.

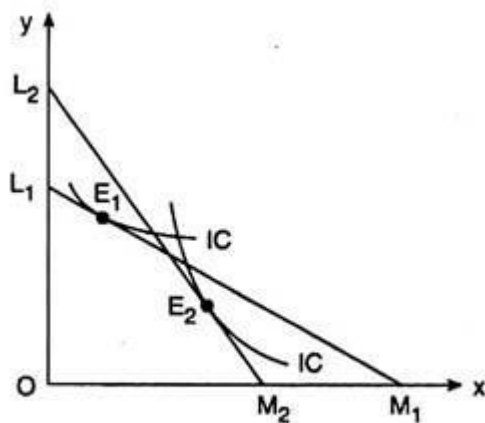


Fig. 6.105 WARP violated

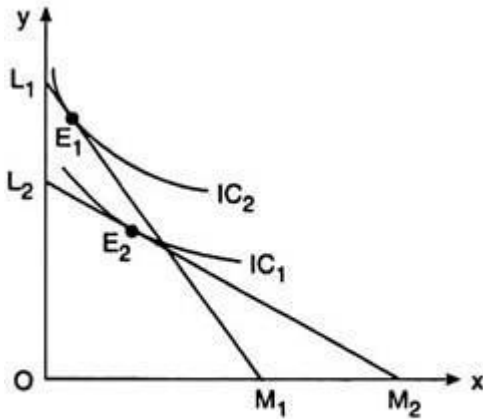


Fig. 6.106 WARP not violated

:

If a particular combination $E_1 (x_1, y_1)$ is directly revealed by the consumer as preferred to a different combination $E_2 (x_2, y_2)$, then E_2 would never be revealed by the consumer as preferred to E_1 .

In other words, if the consumer is observed to purchase $E_1 (x_1, y_1)$ at the price set $(p_x^{(1)}, p_y^{(1)})$ and $E_2 (x_2, y_2)$ at the price set $(p_x^{(2)}, p_y^{(2)})$, then if (6.138) below holds, then (6.139) must never hold:

$$p_x^{(1)}x_1 + p_y^{(1)}y_1 \geq p_x^{(1)}x_2 + p_y^{(1)}y_2 \quad (6.138)$$

$$p_x^{(2)}x_2 + p_y^{(2)}y_2 \geq p_x^{(2)}x_1 + p_y^{(2)}y_1 \quad (6.139)$$

As we have seen, WARP has been violated in Fig. 6.105, when the consumer buys combination E_1 on L_1M_1 and E_2 on L_2M_2 . Here the preference ordering of the consumer breaks down. It may be verified in Fig. 6.105 that the IC tangent to L_1M_1 at E_1 and the IC tangent to L_2M_2 at E_2 cannot be non-intersecting in this case.

In Fig. 6.106, on the other hand, let us suppose, the consumer buys the combination E_1 on L_1M_1 and the combination E_2 on L_2M_2 . Here when he buys E_1 he chooses E_1 over the affordable combination E_2 , i.e., E_1 is revealed preferred to E_2 . But when he buys E_2 , he chooses E_2 over an unaffordable E_1 , i.e., E_2 is not revealed preferred to E_1 .

Therefore, here, WARP is not violated, and so, here the preference ordering of the consumer does not break down. It may be seen in Fig. 6.106 that the IC tangent to L_1M_1 at E_1 and the IC tangent to L_2M_2 at E_2 would be non-intersecting.

Significance of the SARP:

:

Let us now discuss the significance of the strong axiom of revealed preference (SARP). According to this axiom, if the consumer reveals a combination $E_1 (x_1, y_1)$ as preferred to another combination $E_2 (x_2, y_2)$ and if $E_2 (x_2, y_2)$ is revealed preferred to $E_3 (x_3, y_3)$ then E_1 would always be revealed preferred to E_3 .

This may be called the transitivity of revealed preferences. Now, if the consumer is a utility-maximising one, then the transitivity of revealed preferences would lead to transitivity of preferences—if E_1 is preferred to E_2 and E_2 to E_3 , then E_1 would be preferred to E_3 .

But this is necessary to ensure that the ICs are non-intersecting and the non-intersecting ICs are necessary for arriving at the utility-maximising solution. It is evident that if any of the WARP and SARP is violated, then utility-maximisation cannot be achieved by the consumer.

Revealed Preference Theory and the Slutsky Theorem:

Let us now see how the RPT can be used to prove the Slutsky Theorem which states that if the income effect (IE) for a commodity is ignored, then its demand curve must have a negative slope. To explain this, we shall take the help of Fig. 6.107.

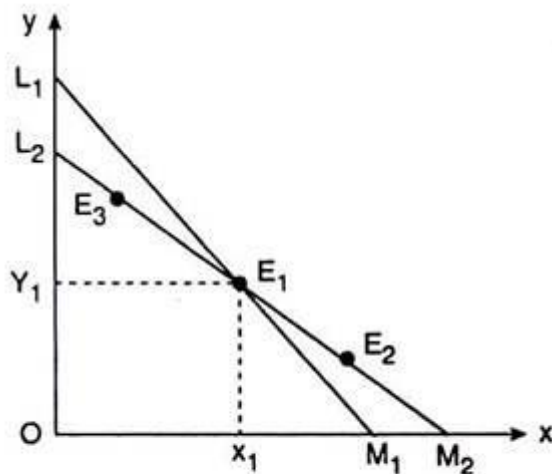


Fig. 6.107 Deduction of Slutsky theorem from RPT

In this figure, let $E_1 (x_1, y_1)$ represent the combination of goods that the consumer initially purchases when his budget line is L_1M_1 . We want to show here that a ceteris paribus fall in the price of good X from L_1M_1 will increase the purchase of the good if we ignore the income effect, i.e., if we consider only the substitution effect (SE).

Let us suppose that the imaginary budget line for Slutsky-SE is L_2M_2 . This line will be flatter than L_1M_1 , since the price of X has fallen, *ceteris paribus*, and this line (L_2M_2) will pass through the combination E, so that, as per the Slutsky condition, the consumer might be able to buy the initial combination, if he liked, under the changed circumstances.

Let us now see, because of the SE, the point the consumer may select on the imaginary budget line L_2M_2 (if it is to be different from E), would be a point like E_2 to the right of the point E_1 . To prove that this must be so, we have to note that selection of any point on L_2M_2 such as E_3 which lies to the left of E_1 , is ruled out by WARP.

This is because, initially, E_1 has been revealed preferred to E_3 , since E_3 lies below L_1M_1 . But if E_3 were chosen when the price line was L_2M_2 , it (E_3) is revealed preferred to E_1 since E_1 is no-more-expensive than E_3 (for they both lie on the same budget line L_2M_2). In that case, we obtain that E_1 is revealed preferred to E_3 , and vice versa, which violates WARP.

Thus no point on L_2M_2 which, like E_3 , lies to the left of E_1 , can be chosen. On the other hand, if the consumer chooses a point like E_2 on L_2M_2 to the right of E_1 , then there is no harm to the weak axiom, because when he purchases E_2 , E_2 is revealed preferred to the no-more-expensive combination E_1 but, initially, when he purchased E_1 (on L_1M_1) and not a point like E_2 , he did this, because E_1 was cheaper than these points.

From the analysis, it is clear that the SE of a fall in the price of X will generally increase the demand for the relatively cheaper commodity X at a point like E_2 to the right of E_1 . Thus, the Slutsky theorem is deduced from the revealed preference approach.

We have seen that if the price of X falls, *ceteris paribus*, and if the income effect of this price fall is ignored, then the SE would increase the demand for X, i.e., the demand curve for X would be negatively sloped, and the law of demand is obtained.

UNIT –III

TOPIC:Production Function

Production Function is the relationship between physical inputs (land, labour, capital, etc.) and physical outputs (quantity produced). It is a technical relationship (not an economic relationship) that studies material inputs on one hand and material outputs on the other hand. Material inputs include variable and fixed factors of production. In a standard equation, the Production function is represented by Q, Labour (Variable element) is represented by L, and Capital (Fixed element) is represented by K.

$$Q = f(L,K)$$

In the words of Watson, “Production Function is the relationship between a firm’s production (output) and the material factors of production (input).”

Assumptions of Production Function

- Both inputs and outputs are divisible.
- There are only two factors of production, i.e., land (Variable element) and capital (Fixed element).
- Factors of production are imperfect substitutes.
- Technology is constant..

***Variable Factors** are the factors that can be changed during the course of the short run. Variable factors vary with the level of output. An increase in variable factors leads to more production and vice-versa. Employment of variable factors is not required when there is no production. Variable factors include labour, power, fuel, etc.*

***Fixed Factors** are the factors that can not be changed in the short run. The number of fixed factors always remains constant even when is zero production. Fixed factors include land, capital, building, etc.*

***Note:** Production in the short run can only be increased by increasing the variable factor.*

Features of Production Function

1. Complementary: A producer will have to combine the inputs to produce outputs. Outputs can not get generated without the use of inputs.

2. Specificity: For any given output, the combination of inputs that may be used is clearly defined. What type of factors are needed for the production of a particular product is clearly mentioned before the actual production gets started.

3. Production Period: The period of the production process is clearly explained to the production unit. Each stage of production is given some specific time. Production generally gets completed over a long period of time.

Types of Production Function

Production function on the basis of the time period can be divided into two categories: **Short Run Production Function** and **Long Run Production Function**. In these production functions, the combination and behaviour of variable factors and fixed factors are different.

1. Short Run Production Function: Short Run is a period of time where output can only be changed by changing the level of variable inputs. In the short run, some factors are variable and some are fixed. Fixed factors remain constant in the short run like land, capital, plant, machinery, etc. Production can be raised by only increasing the level of variable inputs like labour. Therefore, the situation where the output is increased by only increasing the variable factors of input and keeping the fixed factors constant is termed as **Short Run Production Function**. This relationship is explained by the 'Law of Variable Proportions.'

2. Long Run Production Function: Long Run is a span of time where the output can be increased by increasing all the factors of production whether it is fixed (land, capital, plant, machinery, etc.) or variable (labour). Long run is enough time to alter all the factors of production. All factors are said to be variable in the long run. Therefore, the situation where the output is increased by increasing all the inputs simultaneously and in the same proportion is termed **Long Run Production Function**. This relationship is explained by the 'Law of Returns to Scale.'

Concept of Product

Product or output refers to the volume of the goods that the company produces using inputs during a specified period of time. The concept of product can be looked at from three different angles: Total Product, Marginal Product, and Average Product.

1. Total Product: Total Product (TP) refers to the total quantity of goods that the firm produced during a given course of time with the given number of inputs. Total Product is also known as **Total Physical Product (TPP)** or **Total Output** or **Total Return**. **For example**, if 6 labours produce 10 kg of wheat, then the total product is 60 kg. A company can increase TP in the short term by focusing primarily on the variable components. But over time, both fixed and

variable elements can be increased to raise TP.

2. Average Product: Average Product refers to output per unit of a variable input. AP is calculated by dividing TP by units of the variable factor. **For example**, if the total product is 60 kg of wheat produced by 6 labours (variable inputs), then the average product will be 60/6, i.e., 10 kg.

$$\text{Average Product} = \frac{\text{Total Product}}{\text{Units of Variable Factor}}$$

3. Marginal Product: Marginal Product refers to the addition to the total product when one more unit of a variable factor is employed. It calculates the extra output per additional unit of input while keeping all other inputs constant. Other names of Marginal Product are **Marginal Physical Product (MPP)** or **Marginal Return**.

$$MP_n = TP_n - TP_{n-1}$$

Here,

MP_n = Marginal product of nth unit of the variable factor,

TP_n = Total product of n units of the variable factor, and

TP_{n-1} = Total product of (n-1) units of the variable factor

TOPIC: THE Law of Variable Proportion

Law of Variable Proportion is regarded as an important theory in Economics. It is referred to as the law which states that when the quantity of one factor of production is increased, while keeping all other factors constant, it will result in the decline of the marginal product of that factor.

Law of variable proportion is also known as the Law of Proportionality. When the variable factor becomes more, it can lead to negative value of the marginal product.

The law of variable proportion can be understood in the following way.

When variable factor is increased while keeping all other factors constant, the total product will increase initially at an increasing rate, next it will be increasing at a diminishing rate and eventually there will be decline in the rate of production.

Assumptions of Law of Variable Proportion

Law of variable proportion holds good under certain circumstances, which will be discussed in the following lines.

1. **Constant state of Technology:** It is assumed that the state of technology will be constant and with improvements in the technology, the production will improve.
2. **Variable Factor Proportions:** This assumes that factors of production are variable. The law is not valid, if factors of production are fixed.
3. **Homogeneous factor units:** This assumes that all the units produced are identical in quality, quantity and price. In other words, the units are homogeneous in nature.
4. **Short Run:** This assumes that this law is applicable for those systems that are operating for a short term, where it is not possible to alter all factor inputs.

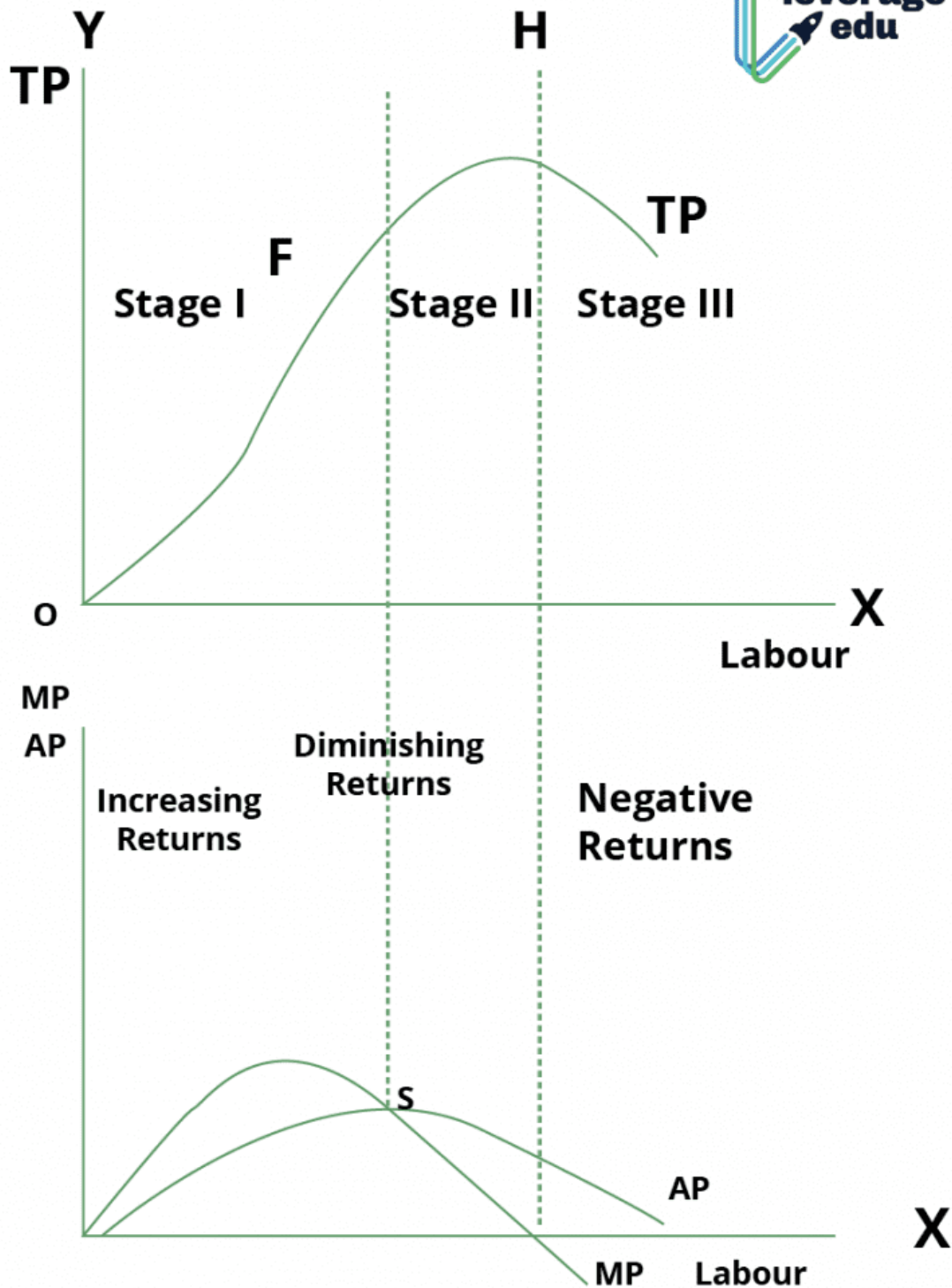
Stages of Law of Variable Proportion

The Law of Variable proportions has three stages, which are discussed below.

1. **First Stage or Stage of Increasing returns:** In this stage, the total product increases at an increasing rate. This happens because the efficiency of the fixed factors increases with addition of variable inputs to the product.
2. **Second Stage or Stage of Diminishing Returns:** In this stage, the total product increases at a diminishing rate until it reaches the maximum point. The marginal and average product are positive but diminishing gradually.
3. **Third Stage or Stage of Negative Returns:** In this stage, the total product declines and the marginal product becomes negative.

What are the Stages of the Law of Variable Proportion?

In order to understand this in detail, let us take an example. Imagine you own a land wherein you produce rice by employing more and more labour (*variable factors*). The table given below explains the situation further:



3 Stages of Law of Variable Proportion

In the above table and graph of the Law of Variable Proportions, you will notice that:

- With up to 3 units of labour employed, the TP is rising at an increasing rate (2,6,12). This constitutes Stage 1 of the law, which is the **Stage of**

Increasing Returns. Therefore, during the first stage, the TP curve increases significantly.

- Beyond the 3rd unit of labour, the TP starts rising at a diminishing rate (12,16,18), which means the TP curve rises at a slower rate. This eventually makes the marginal product (MP) start to fall. Constituting the second stage of the Law of Variable Proportion which is called the **Stage of Diminishing Returns**.
- After the employment of 6 units of labour, the TP starts to fall, indicating the 3rd stage which is the **Stage of Negative Returns**. Even after employing 6 units of labour, it fails to yield the marginal product, that is when the MP comes to zero. Eventually, the TP curve starts sloping down and the marginal product goes negative on the x-axis

Relation Between TP, MP and AP

Now that we know how all the 3 aspects behave in all three stages of the Law of Variable Proportion, let us provide you with an insight into how these three factors are related to each other.

1. When TP increases at an increasing rate, the MP and AP also increase. However, at this stage, $MP > AP$
2. When TP increases at a decreasing rate, the MP and AP start to fall. When MP starts falling significantly and AP falls at a low rate, it means that now $MP < AP$.
3. When TP falls, MP goes negative and AP falls consistently remaining above the x-axis.
4. MP intersects AP when the latter is at the maximum, this is where $MP = AP$.

UNIT-IV

TOPIC: THEORY OF COST

Cost and types of Cost

- Cost is best described as a sacrifice made in order to get something. In business, cost is usually a monetary valuation of all efforts, materials, resources, time and utilities consumed, risk incurred and opportunities forgone in production and delivery of goods and services.

Various types of Cost:

- Accounting cost is the total monetary expenses incurred by a firm in producing a commodity and this is what an entrepreneur takes into consideration in making payments for various items including factors of production (wages and salaries of labour), purchase of raw materials, expenditures on machine, including on capital goods, rents on buildings, interest on capital borrowed, expenditure on power, light, fuel, advertisement, etc.
- The "economic cost" is made up of both the explicit and the implicit cost. Explicit cost refers to the money expended to buy or hire resources from outside the organization for the process of production. Implicit cost refers to the cost of use of the self owned resources of organization that are used in production.
- Opportunity cost: This is the cost of the resources foregone, in order to get or obtain another. The opportunity cost of anything is the next best alternative that could be produced instead by the same factors or by an equivalent group of factors, costing the same amount of money.
- Production cost: In the production process, many fixed and variable factors (inputs) usually capital equipment are used. They are being employed at various prices. The expenditures incurred on them are the total costs of production of a firm. Such costs are divided into two: total variable cost and total fixed costs.
- Private costs are the costs incurred by a firm in producing a commodity or service. The society suffers some inconveniences as a result of the production exercise embarked upon by the firm which are social costs.

- Incremental cost: This is the change in cost owing to a new decision.
- Sunk costs: This refers to all the costs that have been incurred and definitely not recoverable or changeable whether the particular project or business goes on or not.
- Cost functions are derived functions. They are derived from the production function which describes the available efficient methods of production at any given period of time. Symbolically, we may write the long-run cost function as:

$C = f(Q, T, P_f)$ and short-run cost function as; $C = f(Q, T, P_f, K)$

Where C is total cost, Q is output, T is technology, P_f is prices of factor inputs, and K is fixed factors of production.

TRADITIONAL THEORY OF COSTS

The traditional theory of costs analyses the behavior of cost curves in the short-run and long-run and arrives at the conclusion that both the short-run and long-run cost curves are U-shaped but the long-run cost curves are flatter than short-run cost curves.

(a) Short run Cost: $TC = TFC + TVC$

$AFC = TFC/Q$; $AVC = TVC/Q$; $ATC = AFC + AVC$

$MC = \Delta TC / \Delta Q$

(b) Long run cost: In the Long-run, there are no fixed factors of production, hence all factors are assumed to be variable.

MODERN THEORY OF COST

The modern theory of cost differs from the traditional theory of costs with regards to the shapes of the cost curves.

- (a) Short run cost curves: In the modern theory, the SAVC and SMC curves have a saucer-type shape or bowl shape rather than a U-shape. As the AFC curve is a rectangular hyperbola, the SAC curve has a U-shape even in the modern theory.
- (b) Long run cost curves: It is L shaped due to production and managerial cost; technical progress; learning etc.

CONCLUSION

The majority of empirical cost studies suggest that the U-shaped cost curves postulated by the traditional theory are not observed in the real world.

TOPIC: PERFECT COMPETITION

Perfect competition can be defined as a unique form of marketplace that allows multiple companies to sell the same products or services to people.

Perfect competition can be defined as a marketplace in which buyers and sellers are capable of working freely and can sell at a constant price. In other words, it can be said that perfect competition is the type of market structure that has a large number of buyers along with a large number of sellers.

Definition of perfect competition

A market in which there are many buyers and sellers, the products are homogeneous and can easily enter and exit from the market.

Features of perfect competition

The main features of perfect competition are as below:

1. Many buyers and sellers

There is a huge number of buyers and sellers in the perfect competition. The advantage of having a large number of small-scale producers is that they do not combine in order to influence the market price. If the quantity sold by an individual seller is less in comparison to the total market produce, one seller cannot influence the price of the market independently.

Similarly, if there are several buyers in the marketplace, then the individual will not have the power to change conditions of the market or create a new price by enhancing the demand of the product. However, individual demand will not be large enough to change individual prices.

2. Homogeneity

The product or services produced by sellers in the competitive market is homogeneous in all ways. There should be no differentiation between homogeneous products on the basis of all the aspects.

There should be no difference between the products on the basis of quantity, size and taste. This is to ensure that the product is perfect – this means that if the producer has a high price for the commodity, then he/she will end up losing customers.

3. Free entry and exit

One of the most essential conditions of the perfect competitive market is that there should be no restrictions on entries of new firms. The decision to stay or leave the market depends upon economic factors only. In other words, it can be said that there are no artificial restrictions on the company to enter or leave the market.

4. Perfect knowledge

Buyers and sellers should have perfect knowledge regarding the market conditions. Buyers must be aware of the products being sold to them at particular prices. At the same time, sellers must know about their target market in order to increase potential sales at several price points.

As consumers already know about the product, it does not involve any type of advertising or sales promotion. Therefore, the firm need not invest in these types of activities. It allows sellers to save money that can be spent on marketing activities. This somehow leads to reduction in prices of the products.

5. Mobility of the factors of production

Several factors of production like labour, raw material and capital must have total mobility under the perfect competitive market. The labour has freedom to move from one industry or one market to the other on the basis of higher remuneration.

Even the raw materials and capital do not present any restrictions on the movement.

6. Cost of transportation

We know that the cost of transportation is classified into inward transportation cost and outward transportation costs, materials /goods received at a factory or place of use or sale/removal, goods from one place to another place, further transportation for delivery to customer or storage.

It is assumed that transportation costs are similar for all of them. At the end, it can be said that the overall cause of production is similar for all producers across the board.

7. Absence of artificial instruction

There is no interference from the government or a regulatory body to affect the functioning of perfect competition. Usually, there are no controls or restrictions regarding the supply of goods and their pricing. That means prices can change depending upon the demand and supply conditions.

8. Uniform price

All products and services in the perfect competitive market have uniform prices. This price is determined by the forces of demand and supply.

Conclusion

A perfect competitive market functions very smoothly. Several buyers and sellers work together in total harmony. Producers and sellers in the perfect competitive market must try to attain the fair price for the products provided by them

Monopoly is a market structure in which one single firm controls the market and dominates the supply of certain quotes in services in the market. The firm that has a **Monopoly** in the market gets the benefit of setting the prices of goods and services without facing competition in the market. Generally, a **Monopoly** in the market arises when there are zero or no close substitutes for goods and services that are not available in the market. The reason could be high start-up costs, government rules and regulations, Economies of scale and certain kinds of patents or copyrights that prevent others from producing the same kind of goods and services in the market. It is mainly characterized by a single seller who gives a unique product to the market and faces no competition to sell its goods and services from other competitors.

Definition of The Term Monopoly

Monopoly is a situation in the market where a single seller sells its goods and services at a higher price due to the non-availability of close substitutes in the market, which leads to earning higher profits for the firm. In the case of

a **monopoly** market structure, the rise is the producer's surplus due to the difference between what the producers are willing to accept and what the clients actually pay. A **monopoly** structure in the market can be both beneficial and harmful to the economy.

In most cases, it leads to innovation and investments, which are generally helpful to the clients in the longer run. On the other hand, the **Monopoly** may lead to low-quality goods, reduced innovation and higher prices of goods and services, which generally affects the economy in the long run.

Types of Monopoly

There are various **types of monopoly** structures in the market. A few of the most important types of monopoly structures are discussed below.

- **Simple Monopoly** -Simple **Monopoly** is a type of market structure in which one single firm dominates the supply and supply of particular goods and services.
- **Pure Monopoly** -Pure **Monopoly** is a situation where there is only one supplier of goods and services in the market. Here the supplier has control over the price and quantity of goods and services produced. This type of situation arises due to the non-availability of close substitutes in the market.
- **Natural Monopoly** -A natural **monopoly** is a structure in the market, and the single seller is able to supply the entire market demand for particular goods and services at a lower cost than any potential competitors.
- **Legal Monopoly** - Legal **Monopoly** refers to when a firm operates under a government mandate. Under this type of **Monopoly**, the firm offers specific products and services at a regulated or pre-determined price by the government.
- **Geographic Monopoly** - Geographic **Monopoly** arises when a firm has exclusive control of a particular region due to the uniqueness of the product or due to the high cost of transportation of the goods.
- **Technological Monopoly** - When a particular firm has a patent or copyright on exclusive control of a particular technology or innovation, it is said to be a technological **monopoly**.
- **Government monopoly** - Government **monopoly** is the rules and regulations that are created by the government to provide essential goods

and services to the general public. These goods and services can be water supply, electricity supply, defence equipment and Postal Services that are provided and controlled by the government.

Features of Monopoly

Monopoly is a structure in the market in which a single seller enjoys the privilege of dominating and controlling the market. Some of the important features that exist in a **Monopoly** market are discussed briefly.

- **Single seller** -In the **Monopoly** structure, there is only one single seller who dominates the market, sets the price of goods in services and controls the supply of a particular kind of goods.
- **Unique product** -Another feature of **monopoly** structure in the market is that it involves unique products. The product that has no close substitutes in the market provides monopolistic power to the seller of those goods and services.
- **Barriers to entry** -There are various kinds of barriers that prevent the entry of other competitors in the market. This barrier could be economies of scale, legal regulations, different kinds of patents and trademarks and high start-up costs.
- **Price maker** -The firm that has a **Monopoly** in the market is the price maker in that particular sector of goods and services. Here the firm sets the price of goods and services without facing any kind of competition in the market.
- **High profits** -As there are no other kinds of competition in the market in the **Monopoly** structure, the firm generally charges higher costs which ultimately results in higher profits for that firm.
- **Reduce consumer surplus** -The consumer surplus is the difference between what the consumer is willing to pay and what the consumer is actually paying. But in the case of a **Monopoly**, generally, the consumers pay a higher price than what they are actually willing to pay. Due to this, **Monopoly** reduces consumer surplus and increases producer's surplus.
- **Limited output** -**Monopoly** in the market involves Limited output. It maximizes profit, which ultimately leads to inefficiency and less innovation in the production process.
- **Lack of innovation** - As there is only one seller in the market and that seller does not face any kind of competition in the market, so there is no area of growth or innovation.

Examples of Monopoly

A few examples of Monopoly have been stated below.

Microsoft - Microsoft is a technology firm that has dominated the personal computer sector since the 1990s. This computer firm has more than 75% of the market share in the personal computer sector. This firm has a kind of **Monopoly** in the market which gives the firm the advantage of market power and control over the computer software industry.

Google - Another example of a **monopoly** in the market is the technology firm Google. This is a search engine firm that has more than 90% of the market share in the search engine sector globally. This firm has a **monopoly** in the search engine sector, which controls and dominates other firms in that area.

Advantages of Monopoly

The advantages have been state below.

- Economies of Scale: Monopolies can achieve economies of scale, leading to lower average costs of production. With a single dominant player in the market, there may be opportunities for efficiency gains.
- Innovation and Research: Monopolies may have more resources and financial capacity to invest in research and development. This can lead to innovation and the creation of new and improved products or services.
- Price Stability: Monopolies have significant control over pricing. This can lead to price stability, as there is less competition driving rapid price changes.
- Infrastructure Development: Monopolies may invest in building and maintaining infrastructure, as they have the ability to generate long-term revenues without immediate threats from competitors.
- Standardization of Products: Monopolies often standardize products or services, ensuring consistency and reliability. This can contribute to consumer confidence and satisfaction.
- Avoidance of Duplication Costs: In some cases, having a single provider can avoid the duplication of infrastructure and services, reducing overall costs in the long run.

Disadvantages of Monopoly

- Higher Prices for Consumers: Monopolies can lead to higher prices for consumers since there is no competition to drive prices down. Consumers may have limited choices and less bargaining power.
- Reduced Quality and Innovation: Without competition, there may be less incentive for monopolies to improve product quality or innovate. The lack of market pressure can stifle creativity and advancement.
- Limited Consumer Choice: Monopolies limit consumer choice, as there is typically only one provider in the market. This lack of variety can lead to dissatisfaction among consumers.
- Potential for Exploitative Behavior: Monopolies may exploit their dominant position by engaging in anti-competitive practices, price discrimination, or limiting supply to maximize profits at the expense of consumers.
- Barriers to Entry: Monopolies often erect barriers to entry, making it difficult for new competitors to enter the market. This lack of competition can result in a stagnant industry with limited opportunities for new businesses.
- Lack of Innovation and Adaptability: Monopolies may become complacent and resistant to change since they face little external pressure to innovate. This lack of adaptability can hinder overall economic progress.
- Potential for Inefficiency: Monopolies may become inefficient over time, as there is less pressure to streamline operations and cut costs. In the absence of competition, there may be a lack of incentive to operate efficiently.
- Social Inequality: Monopolies can contribute to social inequality, as the concentration of economic power in a few entities may lead to wealth disparities within society.

Conclusion

Monopoly is a market structure where the Single seller has control over the market. The **features of a monopoly** market include providing a unique product, a high entry barrier, less competition in the market and no close substitutes of the goods and services in a particular sector. Though **Monopoly** leads to innovation and increasing producer surplus, it still has certain limitations. To reduce one firm's **Monopoly** in the market, the government, at certain times, brings up rules and regulations to protect consumer welfare. Understanding the impact

of **Monopoly** is very much important in the case of policymakers as well as consumers to look forward to a fair and competitive market in the economy

Chamberlin's Group Equilibrium: Concept and Theory

In this article we will discuss about Chamberlin's Group Equilibrium. After reading this article you will learn about: 1. Concept of Industry and Group 2. Theory of Group Equilibrium 3. Assumptions 4. Explanation.

Concept of Industry and Group:

Group equilibrium relates to the equilibrium of the "industry" under a monopolistic competitive market. The word "industry" refers to all the firms producing a homogeneous product. But under monopolistic competition the product is differentiated.

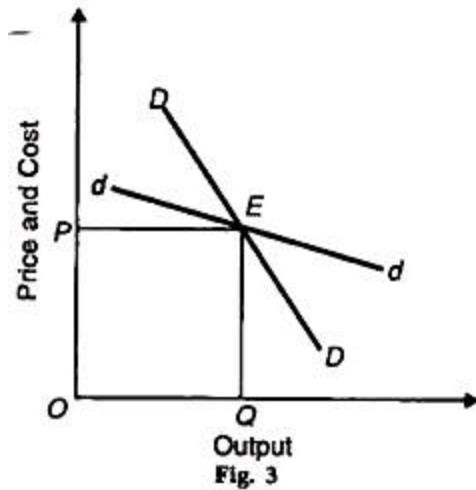
Therefore, there is no "**industry**" but only a "group" of firms producing a similar product. Each firm produces a distinct product and is itself an industry. Chamberlin lumps together firms producing very closely related products and calls them product groups.

So in defining an industry, Chamberlin lumps together firms in such product groups as cars, cigarettes, breweries, etc. According to Chamberlin, "Each producer within the group is a monopolist, yet his market is interwoven with those of his competitors, and he is no longer to be isolated from them."

Theory of Group Equilibrium:

Chamberlin develops his theory of long-run group equilibrium by means of two demand curves DD and dd, as shown in Figure 3. The demand curve facing the group is DD. It is drawn on the assumption that all firms charge the same price and are of equal size, dd represents an individual firm's demand curve.

The two demand curves reflect the alternatives that face the firm when it changes its price. In the figure, the firm is selling OQ output at OP price. As a member of the group with product differentiation, the firm can increase its sales by reducing its price for two reasons.



First, because it feels that the other firms will not reduce their prices; and second, it will attract some of their customers. On the other hand, if it increases its price above OP , its sales will be reduced because the other firms in the group will not follow it in increasing their prices and it will also lose some of its customers to the others.

Thus the firm faces the more elastic demand curve dd . But if all firms in the product group reduce (or increase) their prices simultaneously, the firm will face the less elastic demand curve DD .

Assumptions of Chamberlin's Group Equilibrium:

Prof. Chamberlin's group equilibrium analysis is based on the following assumptions:

- (1) The number of firms is large.
- 2) Each firm produces a differentiated product which is a close substitute for the other's product.
- (3) There are a large number of buyers.
- (4) Each firm has an independent price policy and faces a fairly elastic demand curve, at the same time expecting its rivals not to take any notice of its actions.
- (5) Each firm knows its demand and cost curves.
- (6) Factor prices remain constant.
- (7) Technology is constant.
- (8) Each firm aims at profit maximisation both in the short-run and the long- run.

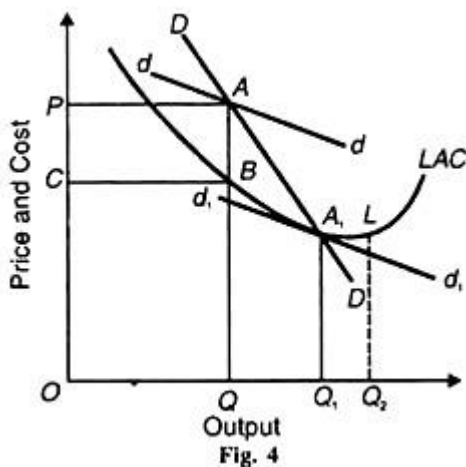
(9) Any adjustment of price by a single firm produces its effect on the entire group so that the impact felt by any one firm is negligible. This is the symmetry assumption.

(10) As put forth by Chamberlin, there is the “heroic assumption” that both demand and cost curves for all the ‘products’ are uniform throughout the group. This is the uniformity assumption.

Explanation of Chamberlin’s Group Equilibrium:

Given these assumptions and the two types of demand curves DD and dd, Chamberlin explains the group equilibrium of firms. He does not draw the MR curves corresponding to these demand curves and the LMC curve to the LAC curve to simplify the analysis.

Figure 4 represents the long-run equilibrium of the group under monopolistic competition. Adjustment of long-run equilibrium starts from point A where dd and DD curves intersect each other so that QA is the short-run equilibrium price level at which each firm sells OQ quantities of the product. At this price- output level, each firm earns PABC super-normal profits.



Regarding dd as its own demand curve each firm applies a price cut for the purpose of increasing its sales and profits on the assumption that other firms will not react to its action. But instead of increasing its quantity demanded on the dd curve, each firm moves along the DD curve.

In fact, every producer thinks and acts alike so that the dd curve “slides downward” along the DD curve. This downward movement continues until it takes the shape of the d_1d_1 curve and is tangent to the LAC curve at A_1 .

This is the long- run group equilibrium position where each firm would be earning only normal profits by selling OQ_1 quantities at Q_1A_1 price. If the d_1d_1 curve slides below the LAC curve, each firm would be incurring losses (not shown in the figure to keep the analysis simple).

Product Differentiation

Product differentiation covers all aspects which help in distinguishing the product of one firm from that of the other. This differentiation can be real (technical) or imaginary (non-technical).

The real differentiation refers to the technical features like the product's technical life and performance, durability, cost of operation and maintenance, etc.

On the other hand, the non-technical differentiation may take the form of brand names, trademark, packing, shape, size, etc. The non-technical differentiation adds a subjective appeal to a product inducing buyers to increase its demand or pay more for it.

In reality, however, the two forms of differentiation are intertwined to the extent that it is impossible to separate them. No matter which differentiation a firm adopts, it expects to increase the demand of the product in doing so.

Firms use the differentiation to tell buyers why their product's quality and price combination is better than their competitors.

In Monopolistic Competition, a firm is not a price-taker and its demand curve has an inverse relationship with the price of the product.

Therefore, it can raise the price of its product and lose some customers or drop the price to sell more. The demand curve is downward sloping and not parallel to the X-axis.

Since in Monopolistic Competition, products are close substitutes of each other, they have high positive cross-elasticities.

The market for the product of one firm is not separate from the markets of its rival firms. A firm can lose the market share of its products due to its price decisions or the price decisions of its rivals.

Further, selling expenses also play a major role in determining the demand conditions for the product of a firm.

Selling Expenses

Selling expenses are all the costs that a firm incurs to create and/or increase the demand for its products. The firm tries to shift the demand curve of the advertised product to the right so that buyers are willing to pay more for the same quantity or buy more quantity at the same price.

They include advertisement through media, showrooms, selling campaigns, discounts, and incentives to buyers, etc.

They also include informative and educative campaigns where the buyer is informed about the benefits of using their product over something else.