GOVERNMENT ARTS COLLEGE FOR WOMEN, SALEM-8

DEPARTMENT OF ECONOMCIS

UNIT I
INTRODUCTION TO ECONOMICS

CLASS: I B.A ECONOMICS

Economicsisthesocialsciencethatisconcernedwiththeproduction,distributionand consumption of goods and services. The term economics comes from the Ancient Greek— oikonomia, –management of household, administrational fromoikos,–house+nomos,– customer –law hence –rules of the house (hold). Current economic models developed out of the broader field of political economy in the late 19th century, owing to a desire to use of an empirical approach more akin to the physical science.

Adam Smith's Definition (Wealth Definition) Adam Smith (1723-90) defined economics as follows:

"Economics is the science of wealth".

Adam Smith is known as the Father of Political Economy because he was the first person who put all the economic ideas in a systematic way. It is only after Adam Smith, we study economics as a systematic science.

The term – Wealth has a special meaning in Economics. In the ordinary language, by – Wealth wemeanmoney,butineconomics,wealthreferstothosegoodswhichsatisfyhuman wants. But we should remember all goods which satisfy human wants are not wealth. For example, air and sunlight are essential for us. We cannot live without them. But they are not regarded as wealth because they are available in abundance and unlimited in supply. We consider only those goods which are relatively scarce and have money value as wealth.

Criticism

There is a lot of criticism against Adam Smith's definition of economics. It has got a bad name for economics. Some social scientists like Ruskin and Carlyle called it –a dismal science|, –adarkscience|.Butthiscriticismisunfair,becauseitisbasedonamisunderstandingaboutthe nature and scope of economics. As this definition emphasized –Wealth they thought it is all about money. They concluded that economics taught men and women how to make money. So they called it a selfish science sin their opinion it emphasized on –the means to get rich|.

Alfred Marshall's Definition (Welfare Definition)

Alfred Marshall (1842-1924) wrote a book *Principles of Economics* in 1890. In it, he defined economics as **"A study of mankind in the ordinary business of life".** An altered form of this definition is: "Economics is a study of man's actions in the ordinary business of life".

Marshall agrees that economics studies about wealth. But he does not accept the view that economics studies about wealth alone. In the words of Marshall,–Economics is on the one side a study of wealth, and on the other and more important side, a part of the study of man. Man is the centre of his study.

CRITICISM

There is no doubt that Marshall‘s definition is a great improvement over the definition of Adam Smith. For its emphasis is on social problems. And economics is a social science.

Moreover, it tells us about the link between wealth and welfare. But the main idea of Marshall that economics is a science that deals with material welfare has been strongly criticized. Lionel Robbins is a great critic of this definition. He says that Marshall‘s definition misrepresents the science of economics.

First, if we go by the definition of Marshall, in economics we should consider only those activities which promote material welfare.

Second, some activities promote welfare but not material welfare.

Third, Marshall‘s definition is classificatory. It is not analytical. It considers the production of material goods (e.g. chairs, tables, cycles and cars, bread) alone as economic activity.

Lionel Robbins‟ definition (Scarcity Definition)

Lionel Robbins has defined economics as follows :

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

Robbinshas given the above definition in his book –An Essay on the Nature and significance of Economic Science‖. The definition of Robbins is based on the following basic assumptions.

1. Ends are various. The term―ends‖ mean wants. Human wants are unlimited.
2. Means are limited. Means like time, money and resources are limited.
3. We can put time and money to alternative uses. For example, though time is limited, we can use it for different purposes. We can use time for earning money or we may enjoy it as leisure, and
4. All wants are not of equal importance.

Criticism

The definition of Marshall classified human behaviour into economic activity and non-economic activity. It considered only those activities which promoted material welfare as economic activity. But Robbins‘ definition covers the whole field. If there is scarcity of a thing in relation to the demand for it, it becomes the subject – matter of economics. That way, even the labour of those who provide services (eg. lawyers, doctors, actors) are taken for study in economics.

Another merit of Robbins‘ definition is it makes economics a scientific study. Ethical aspects of economic problems are not taken into account in discussions.

Samuelson's Definition (Modern Definition of Economics) Samuelson's definition is known as a modern definition of economics. According to Samuelson,

"Economics is a social science concerned chiefly with the way society chooses to employ its resources, which have alternative uses, to produce goods and services for present and future consumption".

The above definition is general in nature. There are many common points in the definitions of Robbins and Samuelson. Samuelson's definition tells us that economics is a social science and it is mainly concerned with the way how society employs its limited resources for alternative uses. All this we find in the definition of Robbins. But Samuelson goes a step further and discusses how a society uses limited resources for producing goods and services for present and future consumption of various people or groups. An interesting point that Samuelson tells is that the society may or may not make use of money.

Net Economic Welfare (NEW)

Samuelson has coined the concept of Net Economic Welfare. According to Samuelson, "Net Economic Welfare (NEW) is an adjusted measure of total national output that

includes only consumption and investment items that contribute directly to economic welfare".

As we become rich, generally, we prefer leisure to income. When we allocate more time for leisure, gross national product (GNP) may come down. But welfare goes up.

Economics is a social science

Three different types of science can be distinguished;

- ✓ Natural science,
- ✓ Life science and
- ✓ Social science.

Natural science studies physical and chemical processes.

Life science studies chemical processes within living bodies and the behaviour of plants and animals.

Social science analyses human behaviour, while taking the results of the other groups of sciences as a description and explanation of the human environment.

Nature of Economics

1. **Economics is a science**: Science is an organized branch of knowledge, that analyses cause and effect relationship between economic agents. Further, economics helps in integrating various sciences such as mathematics, statistics, etc. to identify the relationship between price, demand, supply and other economic factors.

- **Positive Economics**: A positive science is one that studies the relationship between two variables but does not give any value judgment, i.e. it states 'what is'. It deals with **facts about the entire economy**
- **Normative Economics**: As a normative science, economics **passes value judgement**, i.e. 'what ought to be'. It is concerned with economic goals and policies to attain these goals.

2. **Economics is an art**

Therefore, economics is considered as science as well as art, i.e.

Scope of Economics

- **Microeconomics**

It studies consumer behaviour, product pricing, firm's behaviour. Factor pricing, etc.

- **Macro Economics**

It covers areas like national income, general price level, the balance of trade and balance of payment, level of employment, level of savings and investment.

The **fundamental difference between micro and macro economics lies in the scale of study**

Nevertheless, microeconomics and macroeconomics are **complementary** to one another, as they both aimed at **maximising the welfare of the economy as a whole**

From the standpoint of microeconomics, the objective can be achieved through the **best possible allocation of scarce resources**. Conversely, if we talk about macroeconomics, this goal can be attained through the **effective use of the resources of the economy**.

Basic for comparison	Micro Economics	Macro Economics
Meaning	The branch of economics that studies the behavior of an individual consumer, firm, family is known as Microeconomics.	The branch of economics that studies the behavior of the whole economy, (both national and international) is known as Macroeconomics.
Scope	Covers various issues like demand, supply, product pricing, factor pricing, production, consumption, economic welfare, etc.	Covers various issues like, national income, general price level, distribution, employment, money etc.
Importance	Helpful in determining the prices of a product along with the prices of factors of production (land, labor, capital, entrepreneur etc.) within the economy.	Maintains stability in the general price level and resolves the major problems of the economy like inflation, deflation, reflation, unemployment and poverty as a whole.

Limitation	It is based on unrealistic assumptions, i.e. In microeconomics it is assumed that there is a full employment in the society which is not at all possible.	It has been analyzed that 'Fallacy of Composition' involves, which sometimes doesn't proves true because it is possible that what is true for aggregate may not betrue for individuals too.

Static analysis and Dynamic analysis.

In the case of static analysis, we examine a problem at any given moment of time. Even in static analysis, sometimes we consider a short period rather than a single point. We assume that some changes take place during the short period. The method of approach where we take note of changes in the short period is known as comparative statics. For example, in comparative statics, we compare the state of economy at one moment to the state of the economy at another moment. Marshall‘s analysis of supply and demand is a good example of comparativestatics.

In dynamic analysis, we examine the path or process by which the economy moves from one state of equilibrium to another. Time element is an important factor is dynamic analysis. Change is the key word in dynamic analysis. For example, investment during a period may depend upon the rate of interest in the previous period. The study of the trade cycle may be given as a good example of dynamic analysis.

Deduction and Induction:

The usual methods of scientific studies — deduction and induction, are available to the economist.

Both methods come from science, viz., Logic. The deductive method involves reasoning from a few fundamental propositions, the truth of which is assumed. The inductive method involves collection of facts, drawing conclusions from them and testing the conclusions by other facts

Deduction:

i. Starts from the general and moves to the particular.

ii. Begins with general assumptions and moves to particular conclusions.

iii. Develops a theory, and then examines the facts to see if they follow the theory.

Induction:

i. Starts from the particular and moves to the general.

ii. Begins with particular observations and moves to general explanations.

iii. Collects observations, then develops a theory to fit the facts

UNIT II : CARDINAL UTILITY ANALYSIS

Definition and Explanation:

Human wants are unlimited and they are of different intensity. The means at the disposal of a man are not only scarce but they have alternative uses. As a result of scarcity of recourses, the consumer cannot satisfy all his wants. He has to choose as to which want is to be satisfied first and which afterward if the recourses permit. The consumer is confronted in making a choice.

For example, a man is thirsty. He goes to the market and satisfy his thirst by purchasing coca cola instead of tea. We are here to examine the economic forces which make him purchase a particular commodity. The answer is simple. The consumer buys a commodity because it gives him satisfaction. In technical term, a consumer purchases a commodity because it has utility for him. We now examine the tools which are used in the analyzes of consumer behavior.

CONSUMPTION

Consumption deals with the satisfaction of human wants. There is economic activity in the world because there are wants. When a want is satisfied, the process is known as consumption.Generally,inplainlanguage,whenweusetheterm‖consumption‖,whatwemean is usage. But in economics, it has a special meaning. We can speak of the consumption of the services of a lawyer, just as we speak of the consumption of food. In the sub-division dealing with consumption, we study about the nature of wants, the classification of wants and some of the laws dealing with consumption such as the law of diminishing marginal utility, Engel‘s law of family expenditure and the law of demand.

Human Wants

Man is a bundle of desires. In common language, there is not much difference between a _desire‘ and a _want.‘ But in economics, there is difference between a _desire‘ and a _want‘. Every desire cannot be a want. If a poor person desires to have a car, his desire cannot be called a want. A desire can become a want only when a consumer has the means (i.e. money) to purchase the thing and he is also ready to spend the means (money). For a desire to become a want, the following four elements must be present.

1. The desire for a thing.
2. Efforts to satisfy the desire.
3. The means (i.e. money) to purchase the thing.
4. Readiness to spend the means (i.e. money) to satisfy the desire.
5. Characteristics and classification of human wants

Characteristics of wants

1. **Wants are unlimited:** Man is a bundle of desires. There is no limit to human wants. If one set of wants are fulfilled, immediately another set of wants would be felt.
2. **Every want is satiable:** Wants in general are unlimited. But a single or a particular want is satiable. We can completely satisfy a single want. A man is hungry and he requires food. By spending some money on food, he can get food and nt.
3. **Wants are competitive:** Wants are unlimited. The resources and time at our disposal are much limited and we cannot satisfy all wants. So the wants will be competing to get satisfied. One set of wants may be competing with other set of wants to get preference of choosing first.
4. **Wants vary in Intensity:** All our wants are not of equal importance. Certain wants have more intensity whereas other wants have less intensity. Food, clothes and shelter are more urgent wants than radio, scooter, etc. The Law of Family Budget is based on the above two features of human wants.
5. **Wants are affected by Income:** Income of the individuals also affects their wants. As income increases, wants also increase. The wants of rich and poor people are not the same.
6. **Wants are affected by Fashion:** Many of our wants are affected by fashion. Wants change with the change in fashion.
7. **Wants are affected by Social Customs:** Man is a social animal. Therefore, wants are also affected by our social customs. For example, the demand for a band at the time of marriage is a want affected by our social customs.
8. **Wants increase due to the Spread of Knowledge and Civilization:** Human wants increase with the spread of knowledge and the progress of civilization.
9. Classification of Wants

In Economics, wants are classified into three categories, viz.,

- Necessaries

- Comforts and
- Luxuries.

1) Necessaries

Necessaries are those which are essential for living. Man requires certain basic things to live. He wants food, clothing and shelter. Without these things, life is impossible.

2) Comforts

Comforts refer to those goods and services, which are not essential for living but which are required for a happy living. A TV, a sofa-cum bed, a cushioned revolving chair may be stated under ‗comforts'. Eating superior varieties of food may also add to the happiness of the consumer. Example: eating fruits, drinking milk etc. Comforts promote efficiency also.

(3) Luxuries

Those goods that are used to show off one's higher status in life (e.g. diamond - studded jewels) are luxuries.

Law of diminishing marginal utility

The law of diminishing marginal utility is a law of economics stating that as a person increases consumption of a product while keeping consumption of other products constant, there is a decline in the marginal utility that person derives from consuming each additional unit of that product. Marginal utility is derived as the change in utility as an additional unit is consumed.

Definition

The law of diminishing marginal utility explains an ordinary experience of a consumer. If a consumer takes more and more units of a commodity, the additional utility he derives from an extra unit of the commodity goes on falling. Thus, according to this law, the marginal utility

Marginal Utility is the addition made to the total utility by consuming one more unit of a commodity. For example, if a consumer consumes 10 biscuits, the marginal utility is the utility derived from the 10th unit.

It is nothing but the total utility of 10 biscuits minus the total utility of 9 biscuits. Thus

$MU_n = TU_n – TU_{n-1}$

Where

MU_n	=	Marginal Utility of ‗nth' commodity.
TU_n	=	Total Utility of n units.
TU_{n-1}	=	Total Utility of n-1 units.

	Marginal Utility	Total utility
(i)	Declines	Increases
(ii)	Reacheszero	Reaches maximum
(iii)	Becomes negative	Declines

Assumptions of the Law

1. The units of consumption must be in standard units e.g., a cup of tea, a bottle of cool drink etc.
2. All the units of the commodity must be identical in all aspects like taste, quality, colourand size.
3. The law holds good only when the process of consumption continues without any time gap.

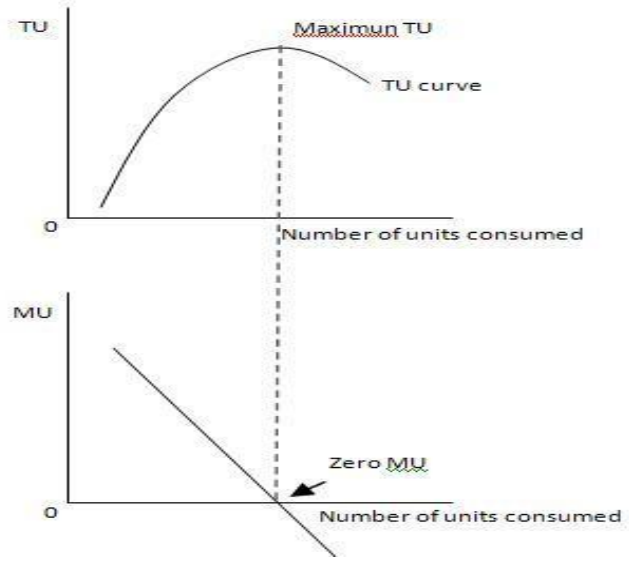
4. The consumer‘s taste, habit or preference must remain the same during the process of consumption.
5. The income of the consumer remains constant.
6. The prices of the commodity consumed and its substitutes are constant.
7. The consumer is assumed to be a rational economic man. As a rational consumer, he wants to maximize the total utility.
8. Utility is measurable

Explanation:

As more and more quantity of a commodity is consumed, the intensity if desire decreases and also the utility derived from the additional unit.

Suppose a person eats Bread. and 1st unit of bread gives him maximum satisfaction. When he will eat 2nd bread his total satisfaction would increase. But the utility added by 2nd bread (MU) is less than the 1st bread. His Total utility and marginal utility can be put in the form of a following schedule.

Slices of Bread	Total utility	Marginal utility
0	0	-
1	70	70
2	110	40
3	130	20
4	140	10
5	145	5
6	140	-5



Plotting the above data on a graph gives

- Here, from the MU curve we can see that MU is declinig as consumer consumes more of the commodity.
- When TU is maximum, MU is Zero.
- After that, TU starts declining and MU becomes negative.

Exceptions:

- Money
- Hobbies and Rare Things
- Liquor and Music
- Things of Display

Importance:

- Basis of Law of Demand
- Basis of Consumption Expenditure
- The basis of Progressive Taxation

i. Criticism

The Law of DMU is criticized on the following grounds.

- Deriving utility is a psychological experience, when we say a unit of X gives ten units of utility; this means that utility can be measured precisely. In reality, utility cannot be measured.
- The Law is based on a single commodity consumption mode. That is, ameasured consumer consumes only one good at a time. This is an unrealistic assumption. In real life, a consumer consumes more than one good at a time.
- According to the Law, a consumer should consume successive units of the same good continuously. In real life it is not so.
- The Law assumes constancy of the marginal utility of money. This means the marginal utility of money remains constant, even when money stock changes.
- As utility itself is capable of varying from person to person, marginal utility derived from the consumption of a good cannot be measured precisely.

Law of Demand

The law of demand states that there is a negative or inverse relationship between the price and quantity demanded of a commodity over a period of time. Definition: Alfred Marshall stated that ― the greater the amount sold, the smaller must be the price at which it is offered, in order that it may find purchasers; or in other words, the amount demanded increases with a fall in price and diminishes with rise in price‖. According to Ferguson, the law of demand is that the quantity demanded varies inversely with price.

The law of demand states that other factors being constant, price and quantity demand of any good and service are inversely related to each other. When the price of a product increases, the demand for the same product will fall.

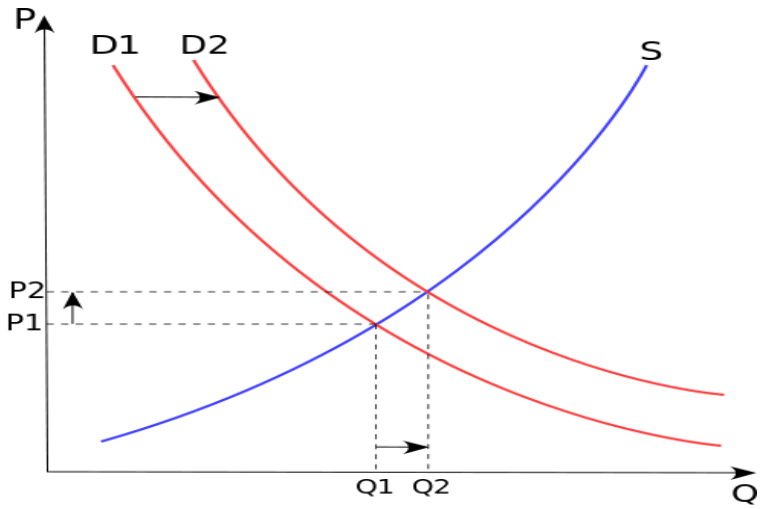
Thus the law of demand states that people will buy more at lower prices and buy less at higher prices, other things remaining the same. By other things remaining the same, we mean the following assumptions.

Mathematically, the inverse relationship may be expressed as a causal relation:

$Qx = f(Px), f' < 0,$

Where Qx is the quantity demanded of good *x*, Px is the price of the good, is the demand function and is its derivative.

Here, Px is the causal factor (independent variable) and Qx Is the dependent variable



A demand curve shown in red and shifting to the right, demonstrating the inverse relationship between price and quantity demanded (the curve slopes downwards from left to right; higher prices reduce the quantity demanded).

Assumptions of the Law

1. No change in the consumer's income
2. No change in consumer's tastes and preferences
3. No changes in the prices of other goods
4. No new substitutes for the goods have been discovered

People do not feel that the present fall in price is a prelude to a further decline in price. Demand Schedule Demand schedule is a tabular statement showing how much of a commodity is demanded at different prices.

Demand Schedule

Price(Rs.)	Quantity Demanded (units)
5	**10**
4	**20**
3	**30**
2	**40**
1	**50**

The demand curves slope downwards because the demand curve slopes downwards mainly due to the law of diminishing marginal utility. The law of diminishing marginal utility states that an additional unit of a commodity gives a lesser satisfaction. Therefore, the consumer will buy more only at a lower price. The demand curve slopes downwards because the marginal utility curve also slopes downwards.

Exceptions to the Law of Demand

The Law of demand is a general statement telling that prices and quantities of a commodity are inversely related. There are certain peculiar cases in which the law of demand will not hold good. In those cases, more will be demanded at a higher price and less will be demanded at a lower price. The demand curves in those cases slope upwards showing a positive relationship between price and quantity demanded

For example, let's assume we have a market that has only three consumers: Sting, Morrissey, and Ice Cube. We create a market demand schedule in Table 3-2 by adding up the quantities demanded at each price by each consumer.

Changes in Demand

Changes in demand include an increase or decrease in demand. Due to the change in the price of related goods, the income of consumers, and the preferences of consumers, etc. the demand for a product or service changes.

So there are two possible changes in demand:

- Increase (shift to the right) in demand
- Decrease (shift to the left) in demand

I) Increase in demand (Shift to the Right)

Suppose, the income of the consumer increases. The price of the product and supply of the product remain the same. Due to an increase in income of the consumer, the purchasing power of consumption increases.

So the demand for the product in the market will also increase. Resultantly demand will change even if the price and supply of the product remain the same. This is called an increase in demand.

Since supplies are short, the price of the product will increase. Now due to the higher price, manufacturers of the product also increase their supply to cover extra demand in the market. Ultimately new equilibrium between demand and supply will be established.

Now we can conclude, due to an increase in demand, there is an increase in the equilibrium price. Resultantly quantity supplied also rises because quantity sold and purchases have increased. The Demand curve will shift rightward. Keep in mind the following points:

- No change in the price of the product
- No change in the supply of product
- Income of Consumer is increasing
- Demand is increasing

II) The Decrease in Demand (Shift to the Left)

Now, let's think of the opposite of the above situation. Suppose the Income of the consumer decreases. But, the price of the product and the supply of the product remains the same. Due to the decrease in income of the consumer, the purchasing power of the consumer will also decrease.

So the demand for the product in the market will also decrease. Resultantly demand will change even if the price and supply of the product remain the same. This is called a decrease in demand.

Since supplies are excess in comparison to demand, the price of the product will decrease to OP_1. Now due to the lower price, manufacturers of the product also decrease their supply to align with

demand in the market. Ultimately new equilibrium between demand and supply will be E_1. At new equilibrium E_1, OP_1 is the price and OQ_1 is the quantity which is demanded and supplied.

Now we can say that due to the decrease in demand, there is also a decrease in the equilibrium price. Resultantly quantity supplied also decreases because the quantity sold and purchases have decreased. The demand curve will shift leftward. Keep in mind the following points:

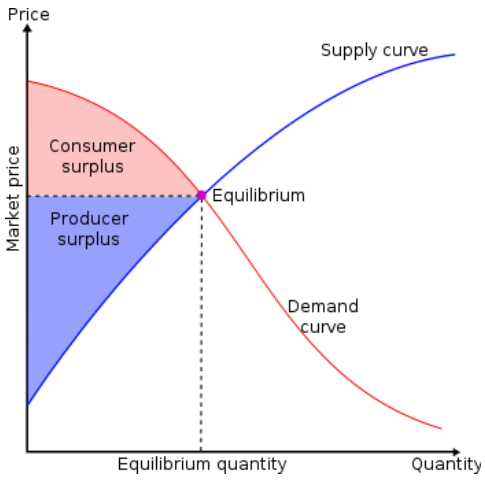
- No change in the price of the product
- No change in the supply of product
- Income of Consumer is decreasing

Consumer's surplus

Consumer surplus is defined as the difference between the consumers' willingness to pay for a commodity and the actual price paid by them, or the equilibrium price.

Description:

Total social surplus is composed of consumer surplus and producer surplus. It is a measure of consumer satisfaction in terms of utility. Graphically, it can be determined as the area below the demand curve (which represents the consumer's willingness to pay for a good at different prices) and above the price line. It reflects the benefit gained from the transaction based on the value the consumer places on the good. It is positive when what the consumer is willing to pay for the commodity is greater than the actual price. Consumer surplus is infinite when the demand curve is inelastic and zero in case of a perfectly elastic demand curve.



UNIT-3 : ORDINAL UTILITY

Definition: The **Ordinal Utility** approach is based on the fact that the utility of a commodity cannot be measured in absolute quantity, but however, it will be possible for a consumer to tell subjectively whether the commodity derives more or less or equal satisfaction when compared to another.

The modern economists have discarded the concept of cardinal utility and instead applied ordinal utility approach to study the behavior of the consumers. While the neo-classical economists believed that the utility can be measured and expressed in cardinal numbers, but the modern economists maintain that the utility being the psychological phenomena cannot be measured theoretically, quantitatively and even cardinally.

The modern economist, Hicks, in particular, have applied the ordinal utility concept to study the consumer behavior. He introduced a tool of analysis called **"Indifference Curve"**to analyze the consumer behavior. An indifference curve refers to the locus of points each showing different combinations of two substitutes which yield the same level of satisfaction and utility to the consumer.

Assumptions of Ordinal Utility Approach

Rationality: It is assumed that the consumer is rational who aims at maximizing his level of satisfaction for given income and prices of goods and services, which he wish to consume. He is expected to take decisions consistent with this objective.

1 **Ordinal Utility:** The indifference curve assumes that the utility can only be expressed ordinally. This means the consumer can only tell his order of preference for the given goods and services.

2 **Transitivity and Consistency of Choice:** The consumer's choice is expected to be either transitive or consistent. The transitivity of choice means, if the consumer prefers commodity X to Y and Y to Z, then he must prefer commodity X to Z. In other words, if X= Y, Y = Z, then he must treat X=Z. The consistency of choice means that if a consumer prefers commodity X to Y at one point of time, he will not prefer commodity Y to X in another period or even will not consider them as equal.

3 **Nonsatiety:** It is assumed that the consumer has not reached the saturation point of any commodity and hence, he prefers larger quantities of all commodities.

4 **Diminishing Marginal Rate of Substitution (MRS):** The marginal rate of substitution refers to the rate at which the consumer is ready to substitute one commodity (A) for another commodity (B) in such a way that his total satisfaction remains unchanged. The MRS is denoted as DB/DA. The ordinal approach assumes that DB/DA goes on diminishing if the consumer continues to substitute A for B.

Indifference curve

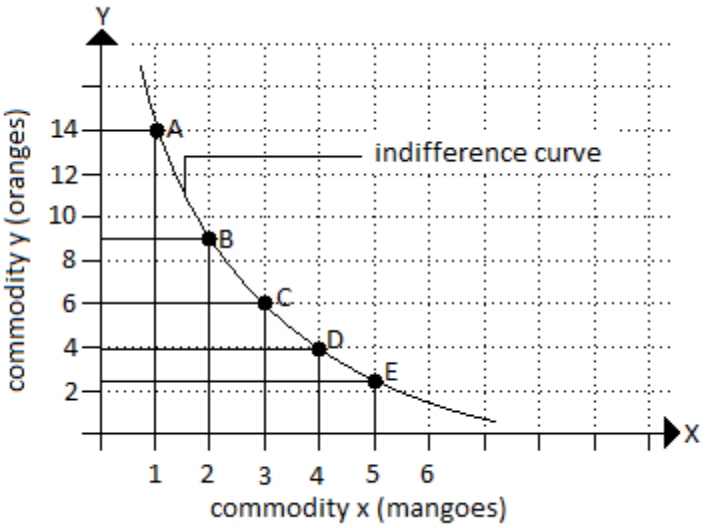
An indifference curve is a locus of all combinations of two goods which yield the same level of satisfaction (utility) to the consumers.

Since any combination of the two goods on an indifference curve gives equal level of satisfaction, the consumer is indifferent to any combination he consumes. Thus, an indifference curve is also known as 'equal satisfaction curve' or 'iso-utility curve'.

On a graph, an indifference curve is a link between the combinations of quantities which the consumer regards to yield equal utility. Simply, an indifference curve is a graphical representation of indifference schedule.

The table given below is an example of indifference schedule and the graph that follows is the illustration of that schedule.

Combination	Mangoes	Oranges
A	1	14
B	2	9
C	3	6
D	4	4
E	5	2.5



Assumptions of indifference curve

The indifference curve theory is based on few assumptions. These assumptions are

Two commodities

It is assumed that the consumer has fixed amount of money, all of which is to be spent only on two goods. It is also assumed that prices of both the commodities are constant.

Non satiety

Satiety means saturation. And, indifference curve theory assumes that the consumer has not reached the point of satiety. It implies that the consumer still has the willingness to consume more of both the goods. The consumer always tends to move to a higher indifference curve seeking for higher satisfaction.

Ordinal utility

According to this theory, utility is a psychological phenomenon and thus it is unquantifiable. However, the theory assumes that a consumer can express utility in terms of rank. Consumer can rank his/her preferences on the basis of satisfaction yielded from each combination of goods.

Diminishing marginal rate of substitution

Marginal rate of substitution may be defined as the amount of a commodity that a consumer is willing to trade off for another commodity, as long as the second commodity provides same level of utility as the first one.

And, diminishing marginal rate of substitution states that the rate by which a person substitutes X for Y diminishes more and more with each successive substitution of X for Y.

As indifference curve theory is based on the concept of diminishing marginal rate of substitution, an indifference curve is convex to the origin.

Rational consumers

According to this theory, a consumer always behaves in a rational manner, i.e. a consumer always aims to maximize his total satisfaction or total utility.

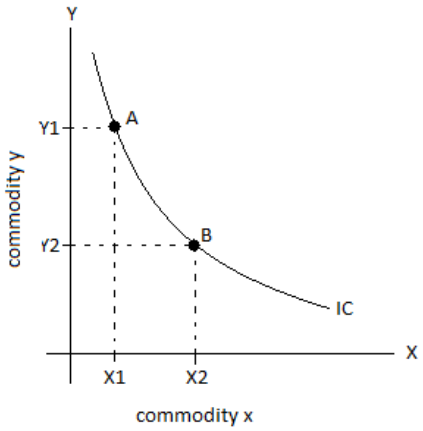
Properties of indifference curve

There are four basic properties of an indifference curve. These properties are

Indifference curve slope downwards to right

An indifference curve can neither be horizontal line nor an upward sloping curve. This is an important feature of an indifference curve.

When a consumer wants to have more of a commodity, he/she will have to give up some of the other commodity, given that the consumer remains on the same level of utility at constant income. As a result, the indifference curve slopes downward from left to right.



In the above diagram, IC is an indifference curve, and A and B are two points which represent combination of goods yielding same level of satisfaction.

We can see that when X1 amount of commodity X was consumed, Y1 amount of commodity Y was also consumed. When the consumer increased the consumption of commodity X to X2, the amount of commodity Y fell to Y2. And, thus the curve is sloping downward from left to right.

Indifference curve is convex to the origin

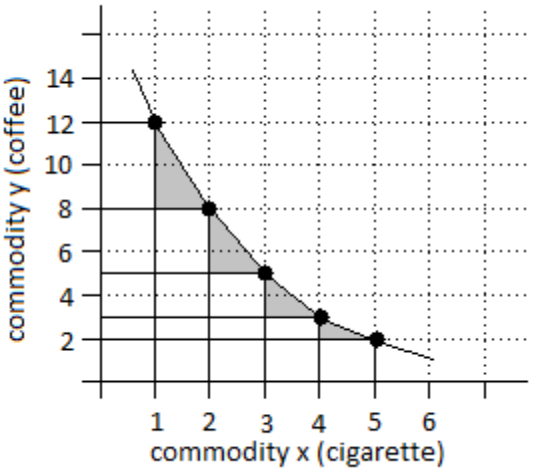
As mentioned previously, the concept of indifference curve is based on the properties of diminishing marginal rate of substitution.

According to diminishing marginal rate of substitution, the rate of substitution of commodity X for Y decreases more and more with each successive substitution of X for Y.

Also, two goods can never perfectly substitute each other. Therefore, the rate of decrease in a commodity cannot be equal to the rate of increase in another commodity.

Combination	Cigarette	Coffee
A	1	12
B	2	8
C	3	5
D	4	3
E	5	2

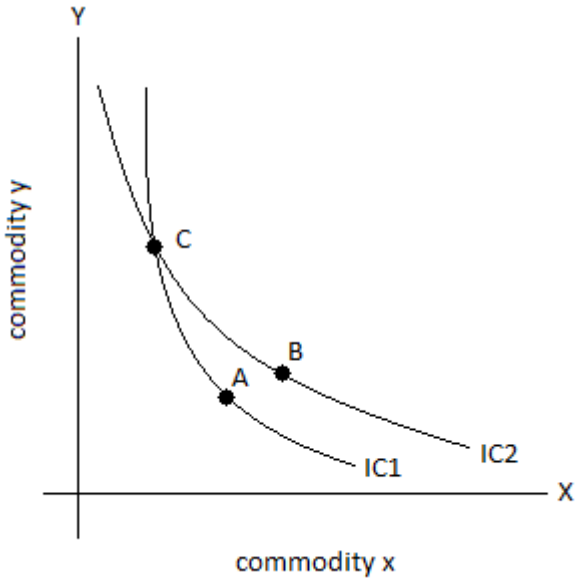
The above table represents various combination of coffee and cigarette that gives a man same level of utility. When the man drinks 12 cup of coffee, he consumes 1 cigarette every day. When he started consuming two cigarettes a day, his coffee consumption dropped to 8 cups a day. In the same way, we can see other combinations as 3 cigarettes + 5 cup coffee, 4 cigarettes + 3 cup coffee and 5 cigarettes + 2 cup coffee.



We can clearly see that the rate of decrease in consumption of coffee is not the same as rate of increase in consumption of cigarette. Similarly, rate of decrease in consumption of coffee has gradually decreased even with constant increase in consumption of cigarette.
Thus, indifference curve is always convex (neither concave nor straight).

Indifference curve cannot intersect each other

Each indifference curve is a representation of particular level of satisfaction.
The level of satisfaction of consumer for any given combination of two commodities is same for a consumer throughout the curve. Thus, indifference curves cannot intersect each other.
The following diagram will help you understand this property clearer.



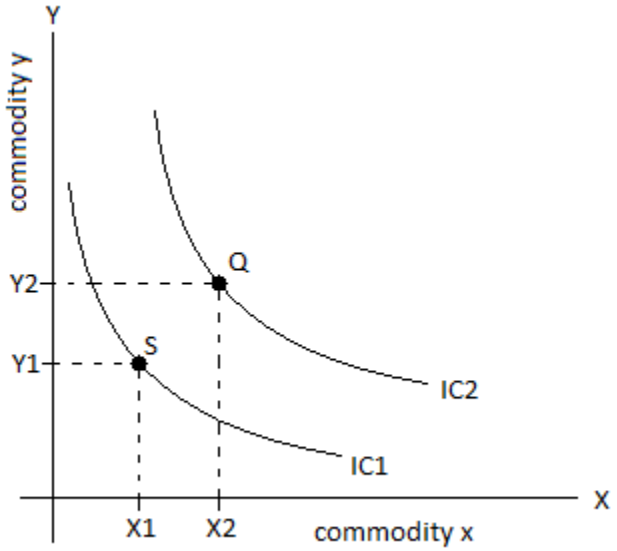
In the above image, IC1 and IC2 are two indifference curves and C is the point where both the curves intersect.

According to indifference curve theory, satisfaction at point C = satisfaction at point A
Also, satisfaction at point C = satisfaction at point B
But, satisfaction at point B ≠ satisfaction at point A.

Therefore, two indifference curves cannot intersect. Yet, two indifference curves need not be parallel to each other.

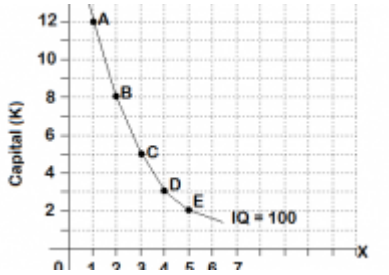
Higher indifference curve represents higher level of satisfaction

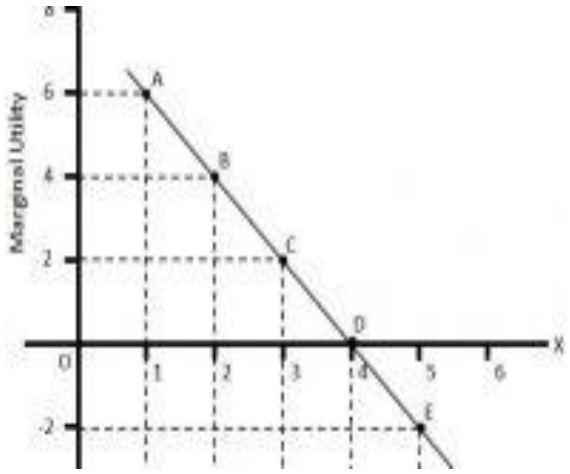
Higher the indifference curves, higher will be the level of satisfaction. This means, any combination of two goods on the higher curve give higher level of satisfaction to the consumer than the combination of goods on the lower curve.

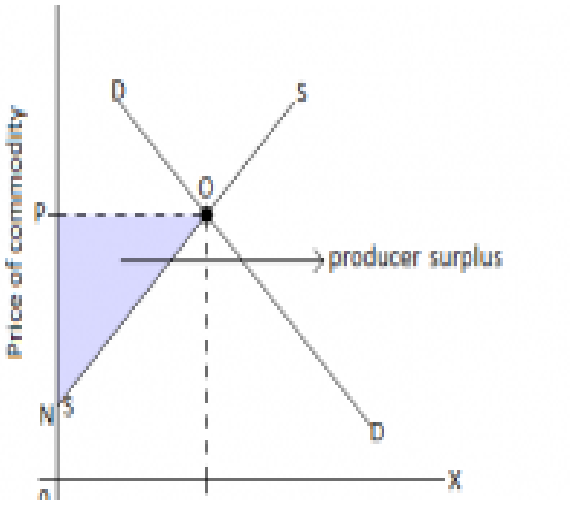


In the above figure, IC1 and IC2 are two indifference curves, and IC2 is higher than IC1. We can also see that Q is a point on IC2 and S is a point on IC2.

Combination at point Q contains more of both the goods (X and Y) than that of the combination at point S. We know that total utility of commodity tends to increase with increase in stock of the commodity. Thus, utility at point Q is greater than utility at point S, i.e. satisfaction yielded from higher curve is greater than satisfaction yielded



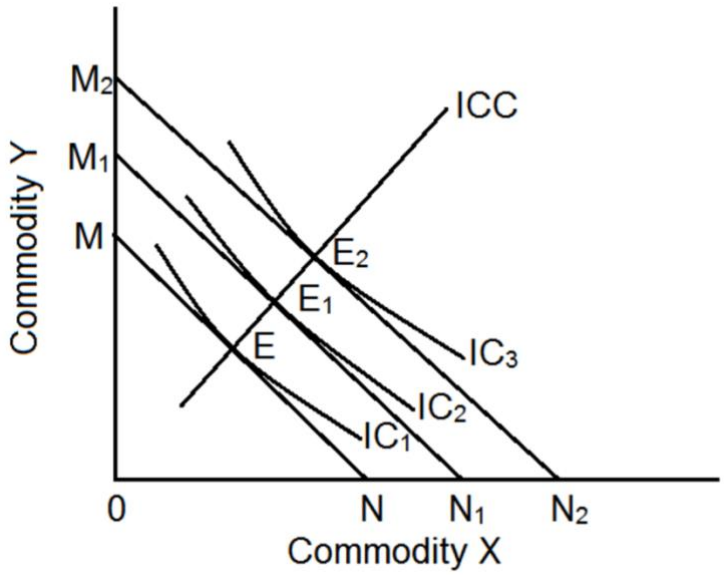




Income Effect on Consumer's Equilibrium

Income effect attributes how a change in the consumer’s income influences his total satisfaction. Assume that the prices of commodities that the consumer purchases remain constant. Now, he is able to experience more or less satisfaction depending upon the change in his income. Thus, we can define income effect as the effect caused by changes in consumer’s income on his purchases while prices of commodities remaining the same.

Figure 1



In figure Point E is the initial equilibrium position of the consumer. At point E, the indifference curve IC_1 is tangent to the price line MN. Suppose the consumer's income increases. This causes the budget line shifts from MN to M_1N_1 and then to M_2N_2. Consequently, the equilibrium point shifts from E to $E_1$and then to E_2.

Income Consumption Curve

You can obtain income consumption curve (ICC) by joining all equilibrium points E, E_1 and E_2 as shown in figure 1. Normal goods generally have positively sloped income consumption curves, which implies that consumer's purchases of the two commodities increases as his income increases. At the same time, this may not be applicable in all cases.

Substitution Effect on Consumer's Equilibrium

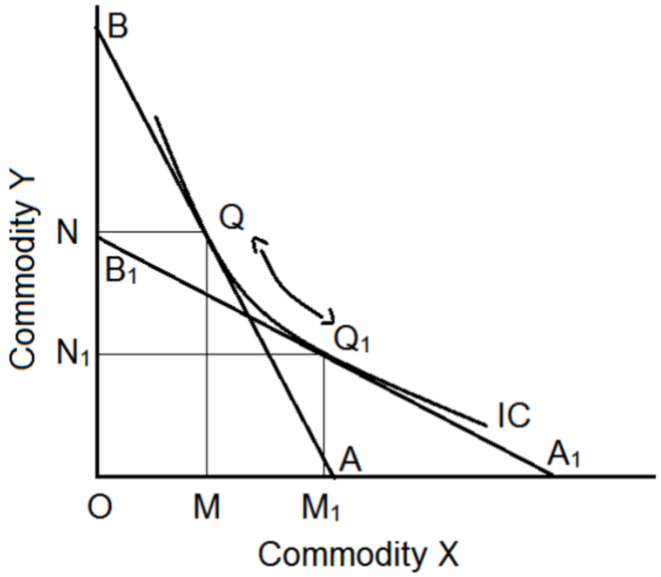
Suppose there are two commodities, namely apple and orange. Your money income is $100, which does not change. You need to purchase apple and orange using the entire money income, i.e. $100. Assume that the price of apple increases and the price of orange decreases. What do you do in this case? You tend to buy more oranges and less apples since oranges are cheaper than apples. What exactly you are doing is that you are substituting oranges for apples. This is known as substitution effect.

The substitution effect occurs because of the following two reasons:

(a) The relative prices of commodities change. This makes one commodity cheaper and the other commodity costlier.

(b) Money income of the consumer does not change.

Figure 2



In figure AB represents the original budget line. The point Q represents the original equilibrium point, where the budget line is tangent to the indifference curve. At point Q, the consumer buys OM quantity of commodity X and ON quantity of commodity Y. Assume that the price of commodity Y increases and the price of commodity X decreases. As a result, the new budget line would be B_1A_1. The new budget line is tangent to the indifference curve at point Q_1. This is the new equilibrium position of the consumer after the relative prices change.

At the new equilibrium point, the consumer has decreased the purchase of commodity Y from ON to ON_1 and increased the purchase of commodity X from OM to OM_1. However, the consumer stays on the same indifference curve. This movement along the indifference curve from Q to Q_1 is known as the substitution effect. In simple terms, the consumer substitutes one commodity (its price is less) for the other (its price is more); it is known as the 'substitution effect.'

Price Effect on Consumer's Equilibrium

For simplicity, let us consider two-commodity model. In substitution effect, prices of both the commodities change (price of commodity Y increases and price of commodity X decreases). However, in price effect, price of any one of the commodities changes. Thus, price effect is the change in the quantity of commodities or services purchased due to a change in the price of any one of the commodities.

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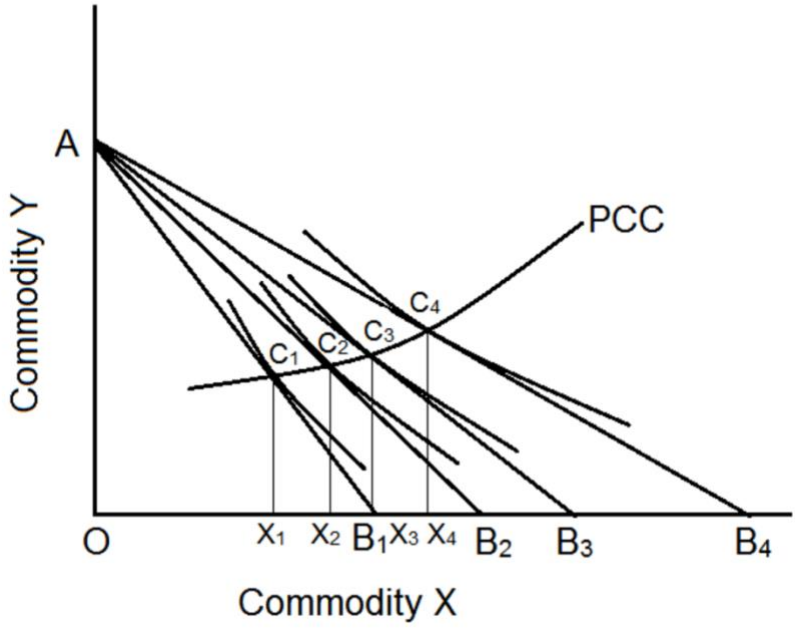
Let us consider two commodities, namely commodity X and commodity Y. Price of commodity X changes. Price of commodity Y and consumer's income are constant.

Figure 3



Suppose price of commodity X decreases. In figure 3, the decline in the price of commodity X is represented by the corresponding shifts of budget line from AB_1 to AB_2, AB_2 to AB_3 and AB_3 to AB_4. The points C_1, C_2, C_3 and C_4 denote respective equilibrium combinations. According to figure 3, consumer's real income increases as the price of commodity X reduces. Due to an increase in the consumer's real income, he is able to purchase more of both commodities X and Y.

Price Consumption Curve

You can derive the Price Consumption Curve (PCC) by joining all equilibrium points (in the above example, C_1, C_2, $C_3$and C_4). In the above figure, the PCC has a positive slope. This means that as price of commodity X falls, the consumer's real income increases.