ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮುಕ್ತ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ

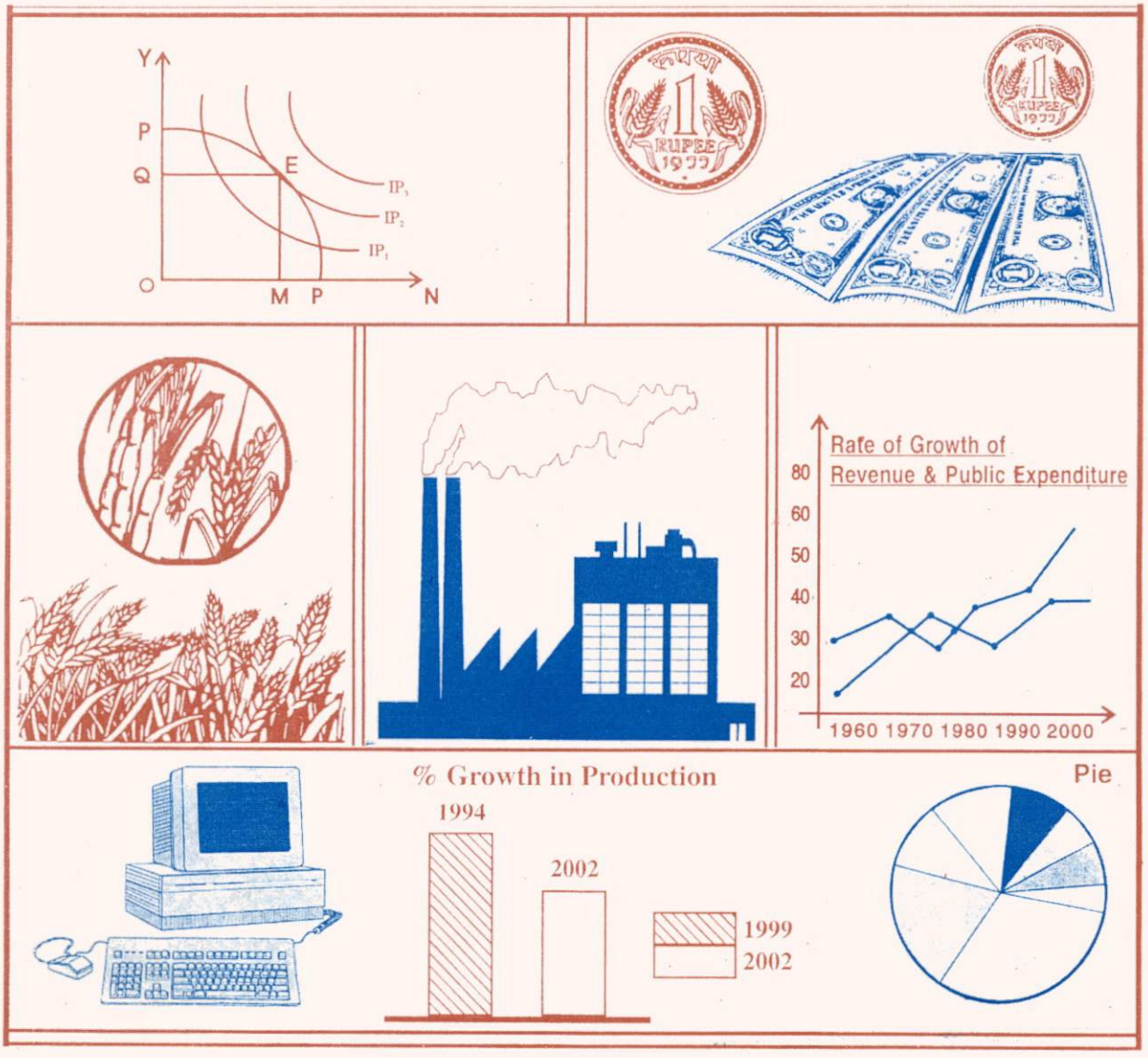
KARNATAKA STATE OPEN UNIVERSITY

ಮಾನಸಗಂಗೋತ್ರಿ, ಮೈಸೂರು-570 006

Manasagangotri, Mysore-570 006

MPP

ECONOMICS



BLOCK - 1

ಉನ್ನತ ಶಿಕ್ಷಣಕ್ಕಾಗಿ ಇರುವ ಅವಕಾಶಗಳನ್ನು ಹೆಚ್ಚಿಸುವುದಕ್ಕೆ ಮತ್ತು ಶಿಕ್ಷಣವನ್ನು ಪ್ರಜಾತಂತ್ರೀಕರಿಸುವುದಕ್ಕೆ ಮುಕ್ತ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ ವ್ಯವಸ್ಥೆಯನ್ನು ಆರಂಭಿಸಲಾಗಿದೆ.

ರಾಷ್ಟ್ರೀಯ ಶಿಕ್ಷಣ ನೀತಿ 1986

The Open University system has been initiated in order to augment opportunities for higher education and as instrument of democrating education.

National Education Policy 1986

ಮುಕ್ತ ವಿಶ್ವವಿದ್ಯಾನಿಲಯವು ದೂರಶಿಕ್ಷಣ ಪದ್ಧತಿಯಲ್ಲಿ ಬಹುಮಾಧ್ಯಮಗಳನ್ನು ಉಪಯೋಗಿಸುತ್ತದೆ.
.....ವಿದ್ಯಾಕಾಂಕ್ಷಿಗಳನ್ನು ಜ್ಞಾನ ಸಂಪಾದನೆಗಾಗಿ ಕಲಿಕಾ ಕೇಂದ್ರಕ್ಕೆ ಕೊಂಡೊಯ್ಯುವ ಬದಲು, ಜ್ಞಾನ ಸಂಪತ್ತನ್ನು ವಿದ್ಯೆ ಕಲಿಯುವವರ ಬಳಿ ಕೊಂಡೊಯ್ಯುವ ವಾಹಕವಾಗಿದೆ.

ಡಾ. ಕುಳಂದೈಸ್ವಾಮಿ

"The Open University system makes use of Multimedia in distance education system.
..... it is vehicle which transports knowledge to the place of learners rather than transport to the place of learning.

Dr. Kulandai Swamy

ಜ್ಞಾನಪೀಠ ಪ್ರಶಸ್ತಿ ಪುರಸ್ಕೃತ
ರಾಷ್ಟ್ರಕವಿ ಕುವೆಂಪು ಜನ್ಮ ಶತಮಾನೋತ್ಸವ ವರ್ಷ ೨೦೦೪
ವಿಶ್ವಮಾನವ ಸಂದೇಶ

ಪ್ರತಿಯೊಂದು ಮಗುವು ಹುಟ್ಟುತ್ತಲೇ - ವಿಶ್ವಮಾನವ. ಬೆಳೆಯುತ್ತಾ ನಾವು ಅದನ್ನು **'ಅಲ್ಪ ಮಾನವ'**ನನ್ನಾಗಿ ಮಾಡುತ್ತೇವೆ. ಮತ್ತೆ ಅದನ್ನು **'ವಿಶ್ವಮಾನವ'**ನನ್ನಾಗಿ ಮಾಡುವುದೇ ವಿದ್ಯೆಯ ಕರ್ತವ್ಯವಾಗಬೇಕು.

ಮನುಜ ಮತ, ವಿಶ್ವ ಪಥ, ಸರ್ವೋದಯ, ಸಮನ್ವಯ, ಪೂರ್ಣದೃಷ್ಟಿ ಈ ಪಂಚಮಂತ್ರ ಇನ್ನು ಮುಂದಿನ ದೃಷ್ಟಿಯಾಗಬೇಕಾಗಿದೆ. ಅಂದರೆ, ನಮಗೆ ಇನ್ನು ಬೇಕಾದುದು ಆ ಮತ ಈ ಮತ ಅಲ್ಲ; **ಮನುಜ ಮತ.** ಆ ಪಥ ಈ ಪಥ ಅಲ್ಲ; **ವಿಶ್ವ ಪಥ.** ಆ ಒಬ್ಬರ ಉದಯ ಮಾತ್ರವಲ್ಲ; ಸರ್ವರ ಸರ್ವಸ್ತರದ ಉದಯ. ಪರಸ್ಪರ ವಿಮುಖವಾಗಿ ಸಿಡಿದು ಹೋಗುವುದಲ್ಲ; ಸಮನ್ವಯಗೊಳ್ಳುವುದು. ಸಂಕುಚಿತ ಮತದ ಆಂಶಿಕ ದೃಷ್ಟಿ ಅಲ್ಲ; ಭೌತಿಕ ಪಾರಮಾರ್ಥಿಕ ಎಂಬ ಭಿನ್ನದೃಷ್ಟಿ ಅಲ್ಲ; ಎಲ್ಲವನ್ನು ಭಗವದ್ ದೃಷ್ಟಿಯಿಂದ ಕಾಣುವ **ಪೂರ್ಣದೃಷ್ಟಿ.**

ಕುವೆಂಪು

Gnanapeeta Awardee
Kuvempu's Birth Centenary Year - 2004
Gospel of Universal Man

Every Child, at birth, is the universal man. But, as it grows, we turn it into "a petty man". It should be the function of education to turn it again into the enlightened "universal man".

The Religion of Humanity, the Universal Path, the Welfare of All, Reconciliation, the Integral Vision- these ***five mantras*** should become View of the Future. In other words, what we want henceforth is not this religion or that religion, but the Religion of Humanity ; not this path or that path, but the Universal Path ; not the well-being of this individual or that individual, but the Welfare of All ; not turning away and breaking off from one another, but reconciling and uniting in concord and harmony ; and, above all, not the partial view of a narrow creed, not the dual outlook of the material and the spiritual, but the Integral Vision of seeing all things with the eye of the Divine.

Kuvempu

Karnataka State Open University
Manasagangothri
Mysore – 570006

Master's Preparatory Programme
M.A.
Economics Subject

Block

1

Economics

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Registrar (Administration).

M.A: Economics
Block - 1
Introduction

Dear Students,

The Department of Economics is very much pleased to welcome you to Master's Preparatory Programme to pursue your studies.

It might not be possible for you to join a college for one reason or the other, yet you have determined to pursue your studies through our open university, which is a clear indication of your interest in higher education. In this educational system, both the Teacher and the taught remain invisible for the most part; though participate jointly in the intellectual venture. As a student of this University you remind me of the renowned 'Ekalavya' of Mahabharatha, who as you know, had no direct contact with his teacher, yet became the master in archery by learning indirectly. And you are a modern 'Ekalavya' trying to learn through our open university. So, I am really proud to teach you.

Master's Preparatory Programme literature is utmost useful to students to prepare for the Master degree, since the students under this scheme (i.e., regulation-I) do not have formal education link. The MPP will bridge the gap between formal and informal education. Further to add, this kind of programme also helps the students in acquiring primary knowledge with regard to the course.

The department will try its level best to send lessons, which provide you, in a very simple way, the material that you need. If you do not follow anything in the lessons that you receive, it becomes your duty to write to us to seek clarification and thus remove your doubts. Your teacher feels content only when he is sure that you have followed everything given in the lesson. To this end in view, there will be one or more questions at the end of every unit for self-study. Moreover, you know that this exercise will ultimately prove useful to you in your examination.

Please feel free to write to us for any clarification regarding your study.

Yours Sincerely
Teachers Dept. of Economics
KSOU
MGM

Block-I
Economic Theory

Unit-I
Nature and Scope of Economics

1.0 Objectives.

After reading this unit,

- You will be able to define
- To understand the nature of Economics.
- To know about the features of Economic laws.
- To understand the fundamental problems of Economics.

1.1 Introduction.

Economics is the study of how people make their living, how they acquire food, cloth, shelter and other necessities of life. It is the study of problems they encounter and ways in which these problems can be solved.

1.2 Definitions of Economics.

Adam Smith, the father of Economics and the founder of English classical Economics defined Economics as "the study of nature and causes of national wealth". He published his famous book "wealth of nations" in 1776,in which he described his ideas and contributions to Economics. According to him wealth is the subject matter of Economics – how to increase production and how to distribute it. Definition given by Smith is called "Wealth definition".

Alfred Marshall, defined Economics is a "study of mankind in the ordinary business of life." He placed emphasis on study of mankind and study of wealth. 'Wealth' refers to material things, which provides means for existence. He considered wealth is not an end but also a means to welfare. According to subject matter of Economics is not only wealth but also welfare. Marshall's definition of Economics is known as "Welfare definition".

Lionel Robbins defined "Economics is the science which studies human behaviour in relation to ends and scarce means

which have alternative uses". This definition lays three fundamental propositions:

1) Ends refer to wants, which are unlimited.

2) Scarce means refers to resources, which are limited.

3) Alternative uses means that scarce means or resources are capable of alternative uses.

Robbins considered Economics is the science which studies Economic problems arising out of unlimited wants and limited resources. Economics is the study of scarcity. Economics deals with the problem of choice – choice between ends and choice while using limited resources. Robbins definition is known as "scarcity definition".

Prof. Samuelson, well-known American Economist defines " Economics is the study of how societies use scarce resources to produce commodities and distribute them for consumption, now or in future among different groups". According to this definition study of Economics deals with the efficient allocation of limited resource to produce goods and also deals with equitable distribution of these goods among different groups of people not only at present but also in future. Samuelson's definition is not only equity oriented but also growth oriented. This definition is called Modern Definition of Economics.

Check Your Progress:

1.Explain the concept of Economics as defined by Adam Smith.

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2. Mention three fundamental propositions explained in Robbin's definition.

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3. What is the subject matter of Economics according to Marshall?

4.Explain modern definition of Economics.

Nature of Economics.

Economics is a science:

Economics is a science, which studies Economic activities in a systematic manner. Therefore it is a science. But Economics is not a perfect science when compared to natural sciences like physics, chemistry etc.

Because the subject matter of Economics is man's Economic activities, which vary from time to time, place to place, from individual to individual. When compared to other social sciences, Economics is a social science which deals with human behaviour like political science, history etc. Economics is a perfect science because in Economics man's Economic activities can be measured with the help of measuring rod called Money. As a science, Economics deals with theoretical aspect of Economic activities. As a science, its main function is to establish laws on which human conduct is based.

Economic is an art.

Economics is not only a science but also an art. Because study of Economics helps to solve practical problems. Economics can be considered as a means to better the conditions of human life. Law of Economics can be applicable practically in solving the Economic problems. Therefore Economics is an art.

Economics – a positive science or Normative science.

Positive science is the science, which explains the things as "they are". Some Economists – Smith, Robbins, Senior argued that Economics should be a positive science. According to them, function of Economist is only to explore and not to advice or guide. It is none of the functions of an Economist to comment on the rightness or the wrongness of the Economic position. According to these Economists, Economics should be a positive science.

Normative science.

Another school of thought argues that Economics should be a normative Economics. Normative science refers to "what ought to be". Barbara–wootton, Marshall and others argue that Economics should be normative science. According to them, it is duty of the Economist to comment and advice. Economist is the right person to pronounce value judgement. Therefore Economics should be a normative science.

We can conclude that positive science of Economics cannot be separated from normative science of Economics. Therefore, Economics is both positive as well as a normative science.

Economic Laws.

Every science tries to discover laws. In Economics also, there are many laws.

Economic law is the relationship between causes and effects of the Economic phenomenon. According to Marshall, Economic laws refer to human tendencies observed in the market as purchasers and sellers.

Nature of Economic laws:

Economic laws are not statement of certainties but statement of tendencies, which show certain things, may happen only if certain factors do not change. For example, kishor purchases fewer units of goods when prices are high assuming his income remains constant.

Economic laws are relative and cannot be applicable at all times. Marshall compares Economic laws with the laws of tides instead of comparing with law of gravitation – which holds good at any time at any place. This is not so in the case of law of tides-because tides rise only during particular day i.e., full moon day or new moon day.

In formulating Economic laws, it is not possible for our Economist to observe and experiment with the variables in Economics under controlled condition as in the case of natural sciences.

Economic laws are hypothetical in nature and in exact. Economic laws are based on certain assumptions.

In natural sciences like physics, botany etc., perfect measures are used to measure the actions and reactions. In Economics measuring rod, money is not a perfect measure, to measure Economic activities of an individual.

Economic laws are applicable to groups of persons and not applicable to individuals.

Fundamental problems of Economics:

Since human wants are unlimited and resources are limited and scarce, choices become necessary. In order to satisfy our unlimited wants with limited resources, we have to choose among types of goods and services, and between present and future consumption. This gives rise to the problem of allocating scarce resources in such a way our maximum wants are satisfied. Before allocating the resources, we have to consider five fundamental problems.

They are:

a) What to produce: -

To satisfy the wants of the people, every Economy has to decide what goods and services to be produced and how much of each to produce at a given time. Economy should also decide how the resources would be allocated among various uses.

b) How to produce: -

After deciding what and how much to be produced, the Economy should decide about the method of production, and technique of production. It should take decision about the choice has to be made among alternative techniques.

c) How to distribute the goods: -

The next problem is how the produced goods are to be distributed among different groups of people. This problem also deals with the method of

distribution, i.e. whether it should be inequitable or equitable distribution.

d) Problem of resource utilisation and efficiency.

This problem refers to a question whether the scarce resources are being utilised to a maximum extent without waste or some of them are lying unutilised. If resources are utilised to a maximum extent it increases efficiency.

e) Problem of attaining growth.

The Economy should take care and observe whether its production capacity is growing or not. The Economy has to maintain the level of Economic progress achieved and ensure further Economic progress.

Check your progress.

1. Explain whether Economics is a positive or normative science.

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2. What are the features of Economic law?

Summary:

Economics is the study of how people make their living and how they acquire food, cloth and necessaries of life.

According to modern definition, study of Economics deals with efficient allocation of limited resources to produce goods and also deals with the equitable distribution of these goods among different groups of people not only at present but also in future.

Economics is a social science. It is also an art. It is a perfect science when compared to other social sciences like Political science, History etc.

Economics is both positive and normative science.

Economic laws are the statement of tendencies, which explain certain things, may happen only if certain factors do not change.

Reference books.

1) M. L. Jhingni. - Advanced Economic Theory

2) Ahuja.H.L - Advanced Economic Theory

Notes

Block-I
Economic Theory

Unit- 2
Basic concepts of Economics.

2.0 Objectives.

After studying this unit, you will be able to:

a) Know the meaning of the different concepts of Economics.

b) Distinguish between different concepts like macro-micro, different markets.

2.1 Introduction.

This unit deals with the study of basic concepts of Economics – which help you to understand and to appreciate the various theories of Economics and day-to-day problems of Economics.

2.2 Different concepts of Economics.

Utility:

In Economics, want-satisfying power is known as 'utility'. Anything, which satisfies a human want, directly or indirectly, is said to possess 'utility'.

Utility is subjective and relative. For a smoker cigarette possesses utility but to a non-smoker it is of no use. Therefore it is relative. Since utility is subjective in nature it differs from place to place, from individual to individual and from time to time.

There is a relation between quantity consumed of a commodity and the utility derived from it. We may express the derived utility in terms of Total utility, or in terms of Marginal utility.

Total utility is the total satisfaction, which a person derives by consuming all the units of commodity.

Marginal utility refers to the addition made to the total utility by the addition of one more unit of a good. That means marginal utility is the additional utility derived from consuming the last unit or additional unit of good.

Cardinal and Ordinal approach.

There are two approaches to measure utility. They are:

1) Cardinal approach.
2) Ordinal approach.

Both these terms are mathematical terms.

Cardinal approach.

The number 1,2,3,4 etc are cardinal numbers. These numbers are specific. Marshall followed this approach to measure utility. According to this approach, utility can be measured definitely, e.g.- first cup of coffee yield 40 units of satisfaction than the second cup, which yield 20 units of satisfaction (40 is twice the number 20). According to this method, utility can be measured exactly and compared with others.

Ordinal approach:

Since utility is subjective and cannot be measured exactly, Hickes-Allen used the ordinal method to measure utility. According to this utility cannot be compared with others. But we can say consumer gets more utility from cigarettes than from a cup of tea, but we cannot say how much. The numbers first, second, third, fifth are ordinal numbers. These numbers are ranked and numbered. But the ranking itself does not reveal the size of the number. The third number might be twice the first or may be more or less.

Micro and Macro Economics.

Economic analysis can be divided into two branches:

1) Micro-Economic analysis.
2) Macro-Economic analysis.

Micro Economic analysis.

Micro Economic analysis refers to partial analysis of Economic problems. It deals with the problems pertaining to households, business units and individual markets. It explains how prices of a commodity, its production, its consumption etc. are determined.

Macro Economic analysis.

Macro Economic analysis refers to aggregative analysis of Economic problems. It studies Economic problems as a whole. It deals with problems pertaining to industries as a whole, population, aggregate volume of output, and national income of an Economy.

Both micro and macro are interdependent. Every micro Economic problem involves macro Economic analysis. Similarly, every macro Economic analysis requires microanalysis. Therefore, both approaches are needed to study and to understand the Economic problems.

Static and Dynamic analysis.

Static analysis.

The concept static has been borrowed from physical sciences where it means a position of rest. But in Economics 'static' means smooth movement of Economic variables without any disturbances. Static state gives relationship between values of variables like price, demand, and supply etc.-relate to the same point of time or period of time. Static analysis can be used in micro or macro Economics.

Dynamic Analysis:

Dynamic analysis studies the behaviour of Economic variables through time. It studies the problems through a process of evolution with the help of analysis of forces of disturbances. In dynamic analysis, we consider a set of magnitudes in a given point of time and study the inter relations between them. We also consider the magnitude of certain variables in different points of time. Dynamic analysis can also be used in micro and macro Economics.

Equilibrium:

Equilibrium refers to a situation, in which Economic forces as they exist at the time, have no tendency to change. Equilibrium is the position towards which different variables like price, income, quantity, demand, savings, investment etc., tend to move and once they reach the point of equilibrium, the movement stops.

Equilibrium may be stable, unstable and neutral.

Stable Equilibrium refers to a position in which, if a small disturbance takes place, forces come in to play to re-establish the initial position.

In case if unstable equilibrium, if the small disturbance occur, it gives scope for further disturbing forces which drive the system away from its initial position.

It is in neutral equilibrium, when a disturbance takes place, there will be no chances of evoking either for re-establishing forces or for further disturbing forces. Therefore, the system remains at rest in the position to which it has been moved.

Market Situations:

The term market does not refer to any particular market place but it refers to whole of any region in which buyers and sellers of a commodity are in direct competition with one another. Market situation is determined by number of buyers and sellers, nature of commodities, price etc., on the basis of these factors we can classify market situation in to four types-namely, a) perfect competition, b) Monopoly, c) Monopolistic competition and d) Oligopoly.

a) Perfect competition:

Perfect competition refers to a market situation where there are large numbers of buyers and sellers engaged in buying and selling homogeneous commodities. Main features of perfect competition are,

1) The number of buyers and sellers should be very large. So that no one buyer or seller can offset the market price by offering to buy or not to buy or sell or not to sell.

2) Sellers are selling homogeneous commodity. That man's different units of particular commodity should be of the same shape, colour, quality etc.

3) Every buyer and seller has complete knowledge about the price, place etc.

4) There should be uniform price throughout the market.

5) Market is free from Government control; producers or sellers can enter or leave the market freely.

Factors of production can move freely from one occupation to another in search of the highest reward. Since we do not find these features in real world, perfect competition is only a myth.

(b) Monopoly:

Monopoly refers to a situation where single producer produces heterogeneous product i.e., entirely different product. That means no other producer produces a similar product. Main features of monopoly are as follows,

1. There will be a single producer in the product.
2. Producer produces entirely different products, which has no substitutes at all.
3. There will be no free entry and exit.
4. Factors of production cannot move freely from one industry to another industry.

Pure Monopoly is relatively limited in real world.

(c) Monopolistic Competition:

Monopolistic competition refers to imperfect competition. Monopolistic competition stands between two extremes of perfect competition and pure monopoly. Main features of monopolistic competition are,

1. There are a large number of sellers; each seller sells a small share of the total output. They act independently.
2. Product differentiation is the major feature of monopolistic competition. There may be real or implied differences in products to create differences in the minds of consumers. Fixing of price depends upon degree of product differentiation.
3. Entry into industry is unrestricted

4. Existence of monopolistic competition depends upon imperfections in the knowledge of the buyers.

(d) Oligopoly:

Oligopoly is that form of imperfect competition in which there are only a few producers. The following are some of the important features of oligopoly,

1. A few producers produce either homogeneous products (i.e. similar goods) or products, which are, close but not perfect substitutes.

2. A few large firms dominate market.

3. Another important feature is inter dependency between various firms in their decision making (regarding output & fixing price)

2.3 Summary:

Utility refers to want satisfying power. It is subjective in nature and differs from place to place and individual to individual. Marshall and others followed cardinal approach to measure utility according to which utility can be measured definitely. But Hick-Allen followed ordinal approach according which utility cannot be measured definitely and cannot be compared. But we can say consumer may get more utility from consuming coffee than cigarettes.

To study Economic problem we can use both micro and macro analysis. Sometimes Economic variables like demand, supply, price, savings etc., move smoothly. This is called static situation. Sometimes these variables move due to some disturbances through time. This refers to dynamic situation.

Equilibrium refers to a situation where Economic forces as they exist at the time and have no tendency to change. Equilibrium may be stable or unstable or sometimes may be neutral.

Monopoly and perfect competitions are two extremities, which we do not find in real world. In real world we may have imperfect competition.

2.4 Reference Books:

(1) M.L.Jhingani – Advanced Economic Theory

(2) Ahuja.H.L - Advanced Economic Theory

Check your Progress – II

(1) Define Utility. Distinguish between total utility and marginal utility.

(2) Explain Cardinal and ordinal approaches to solve Economic problems.

(3) What do you mean by micro and macro Economics?

(4) Explain the concepts Static and Dynamics.

(5) What are the differences between stable, unstable and neutral equilibrium?

(6) Explain the differences between perfect competition and pure monopoly.

Block-I
Economic Theory

Unit-3
Demand and Supply

3.0 Objective.

After reading this unit, you will be able:

- ❖ To know the meaning of demand and supply.
- ❖ To distinguish between individual schedule and market schedule – regarding demand and supply.
- ❖ To know the meaning of elasticity of demand and supply.

3.1 Introduction.

This unit deals with demand and supply. It explains not only the meaning of demand and supply but also explains how to measure the changes in demand and supply.

3.2 Demand – meaning

Demand means how much an individual will be willing to buy commodities at a certain price. Demand is the amount of a commodity for which the consumer has not only willingness to buy but also ability to buy.

The amount demanded refers to some period of time.

Demand gives relationship between the amount demanded and the price. At lower prices, individuals purchase more quantity of goods. At higher prices, the quantity demand decreases. Thus when price changes; demand also changes when other things like income, population, taste etc. remain constant.

3.3 Demand schedule.

Demand schedule refers a schedule which gives full account of the demand, i.e., quantity demanded at different prices. There are two types of demand schedule,

1) Individual demand schedule and

2) Market demand schedule

Individual demand schedule

Individual demand schedule refers to different quantities purchased by an individual buyer at different prices. Ex. When price of one onion is Rs.10, individual purchases only 1 kg, when price of onion falls to Rs.6 individual purchases 4 kgs of onion, when price further falls to Rs.2, he purchases 6 kgs and so on.

Market Demand Schedule:

Market Demand schedule refers to different quantities of onion purchased by different individuals say x, y, z at different prices. Ex. If price of onion is Rs.10, ten x purchases 4 kgs, y purchases 3 kgs and z purchases 5 kgs. When price of onion falls to Rs.8, x purchases 5 kgs, y purchases 4 kgs and z purchases 6 kgs and so on. Market demand schedule explains these changes in price and quantity demanded by different consumers.

3.4 Elasticity of Demand:

Elasticity of demand is one, which measures the percentage change in quantity demanded due to percentage change in the price or due to percentage change in the income.

3.5 Supply:

Supply means amount offered for sale at various prices during any period of time.

Supply gives relation between the price and the amount supplied for sale. When price rises supply also increases when price falls supply also falls.

3.6 Supply Schedule:

Supply schedule refers to different quantities offered for sale at different prices.

Individual Supply Schedule:

Individual supply schedule refers to different quantities offered for sale at different prices by individual firm or producer.

Market Supply schedule:

Market supply schedule refers to different quantities offers for sale at different prices by different producers or firms.

3.7 Elasticity of Supply:

Elasticity of supply is one, which measures percentage changes in quantity supplied due to percentage change in price.

3.8 Summary

The term 'demand' not only refers to willingness to buy but also ability to buy a good or service. The relation between price and demand is inverse. The changes in demand can be measured by elasticity of demand.

Supply refers to amount offered for sale at different price levels. The relationship between supply and price is direct. When price increases supply also increases and vice versa.

3.9 Reference books

1. M.L.Jhingani – Advanced Economic Theory.

2. Ahuja H.L. – Advanced Economic theory.

Check your progress

(1) Define Demand. Explain the relation between price and demand.

(2) Distinguish between Individual demand schedule and market demand schedule.

(3) What is Supply?

(4) How do you measure changes in supply?

Prof. Sathya Prema

Block-I
Economic Theory

Unit 4
Basic Mathematical terms in Economics.

Dear Student,

In this lesson we will expose you to the importance of mathematics in Economics and also introduce some basic concepts of mathematics, which are widely used in Economic analysis. After reading this lesson you should be in a position to understand why mathematics is used in Economic analysis and also learn some basic concepts of mathematics, which are used in Economics.

Importance of mathematics in Economics:

There is no branch of Economics today where mathematics is not used. Be it micro Economic theory, macro Economics, international trade you find that mathematics is used to discuss the theories. Why is this so? What is the importance of mathematics in Economic analysis?

Use of mathematics in Economic analysis has 3 distinct advantages. They are,

1) The language of mathematics is concise and precise and hence when used in the place of descriptive analysis saves lot of time.
2) Since, mathematics is already a well-developed branch of science, the vast wealth of mathematics can be made use of to analyse Economic problems.
3) We can handle 'n' variable case easily with the help of mathematics.

Let me take up an example to illustrate the above 3 uses of mathematics.

In your B.A. class you have studied the "law of demand". This law states that, " Ceteris Parilus, the quantity demanded of a commodity, is inversely related with its price".

As you can see clearly, it takes four sentences to state this law. Let me now use a mathematical equation to represent this law. Consider the following equation,

$Q_d=30-5P$

Where,

Q_d = Quantity demanded

P = Price.

The above equation states that, when the price is zero, 30 units of a particular commodity is demanded. When the price is Rs.2, 20 units are demanded and so on. You can very clearly see that we have started a demand law with the help of just one equation! As we proceed further, you will understand that stating Economic laws with the help of such simple mathematical equation has several benefits. This is the first advantage of using mathematics in Economics.

Let us try to understand the second use of mathematics in Economics. As you know very well mathematics is a well-developed science. There are many branches of mathematics also. In Economics we state many laws, which are quantitative in nature. For example, the relationship between price and quantity demanded can be quantified easily. In our example, we said when price is zero, 30 units are demanded. Hence, the relationship between price and quantity can be quantified in exact terms. Therefore all relationships of Economic variables, which can be exactly quantified, can be treated easily with the help of mathematics.

The third advantage of using mathematics in Economics is that any number of variables can be handled with greater ease. Referring back to our example, we said that quantity demanded and price of a commodity are inversely related with each other, provided other things remain the same. This assumption becomes superfluous once we use mathematics. For example, consider the following equation:

$$Q_{d_1} = f(P_1, Y, T, P_2, W)$$

Where,

Q_{d_1} = quantity demanded of commodity 1.

P_1 = price of commodity 1.

Y = income of the consumer

T = tastes and preferences of the consumer

P_2 = price of the substitute good

W = wealth of the individual.

Hence the above demand equation treats number of variables simultaneously. This advantage will not be there if we do not use mathematics.

Summarily, we may say that number of benefits can be reaped if we use mathematics for Economic analysis. Apart from the above three advantages there are other minor advantages also. Say for example, we may use analytical geometry and provide graphical representation to Economic theory. As such, mathematics has become indispensable tool of Economic analysis in modern times

Let me now introduce some elementary mathematical concepts, which are often used in Economics.

Function and functional relationship:

With the help of a function we establish the relationship between various Economic variables. Examples for Economic variables are price, demand, income, supply of money, savings, investment, etc. These are called Economic variables because they undergo change from time to time. In order to establish the relationship between these variables, we use functions. Consider the following examples:

$Q_d = f(P)$ --- ---- (1)

$C = f(Y)$ --------(2)

Equation (1) is a demand function. It states quantity demanded is a function of price. Similarly equation (2) is a consumption function. It states that consumption is a function of income. Hence the relationship between various Economic variables can be written in the form of functions.

Dependent and independent variables:

Variables fall into two categories, namely dependent and independent variables. Let us go back to our demand function;

$Q_d = f(P)$

Here we have two variables namely, quantity demanded and price. In the functional form above, Qd is considered as dependent variable and price, independent variable. In the functional form we examine what happens to quantity demanded when price changes. It is customary in mathematics to write dependent variable on the left hand side of the equation and independent variable on the right hand side of the equation. To go back to our consumption function,

$C = f(y)$

The dependent variable is consumption and independent variable is income.

Linear and non-linear functions:

Broadly functions fall into two categories, viz., linear and non-linear.

If an equation is of the form $Ax + By + C = 0$, where x and y are two variables, and A, B, C are constants, the function is said to be linear. A linear functions in two variables, takes the shape of a straight line on the graph. So all the straight lines you see in your Economics text books, have in their functional form, the equation $Ax+By+C=0$; Another important equational form of a strait line is $y=mx+c$. here y and x are two variables, y is the dependent variable, x independent variable and c a constant. The speciality of this form of the straight line is that, m represents the slope of the straight line and c, the y intercept.

If a function is not of the form $Ax+By+C=0$, where powers of x and y are 1, the function is said to be non-linear. For example, the functions of the form, $Y=ax^2+bx+c$, $x^2+y^2=r^2$ are non-linear functions. On the graph, non-linear functions do not take the form of a straight line. They will be curvy-linear. The indifference curve, the average cost curve, the marginal cost curve, you have studied in your B.A. class have in their background non-linear functions.
You will learn more about these later

Stock and Flows:

In Economic activity, we come across, some activities which have time dimension and some which have no time dimension. The Economic variable, which has no time dimension,

is termed stock and which has time dimension a flow. For example, the number of units of goods a consumer purchases over a period of time is a flow. The inventory of some good a producer holds at a particular point of time is stock. The concepts of stock and flow are important in Economic analysis.

Hypothesis:

Another important concept in Economics is hypothesis. We have stated earlier that quantity demanded of a commodity, is a function of its price. In other words, the quantity demanded depends upon price. But how do we know this. Really speaking we do not know much about this. In fact, to know about the relationship between quantity demanded and price, we have to collect lot of data on these two variables and verify the relationship between these two Economic activities. So, every statement relating to the relationship between Economic variables needs to be tested. Such a testing is called as empirical verification. But the testable statement itself is called a hypothesis. Hence, hypothesis is a tentative statement, of relationship between two or more Economic variables, we may give are more example for hypothesis. Let me make the statement that "boys and girls differ in their professional careers in Economics after they pass their masters degree in Economics". This is a hypothesis, which requires empirical verification.

Check your progress

1) Consider this statement, " Air is a free good" can we consider this as a hypothesis.

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2) Find which of the following is dependent and which independent in the following function,

A= f (R)
Where A is agricultural output
and R is rainfall.

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3) Distinguish between stocks and flow concepts from among the following.

i) Stock of coconuts in a shop on the night of December 30th
ii) Price fluctuation of a share on a particular day.
iii) Demand for coffee in a hotel on Monday from 6 a.m. to 9 p.m.

Key terms

Stocks and Flows

Independent and dependent variables

Empirical testing

Variables and constant, functional relationship

Linear and non-linear functions

Hypothesis.

Summary

In this lesson you have learnt some basic concepts, which are widely used in Economic analysis. You have understood the importance of mathematics in Economic analysis. Also you have understood the concepts of functions and functional relations, linear and non-linear functions, hypothesis, stocks and flows. These concepts are very important and should be kept in mind firmly, as they help understanding Economic analysis clearly.

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ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮುಕ್ತ ವಿಶ್ವವಿದ್ಯಾನಿಲಯದ ಪ್ರಾದೇಶಿಕ ಹಾಗೂ ಅಧ್ಯಯನ ಕೇಂದ್ರಗಳು

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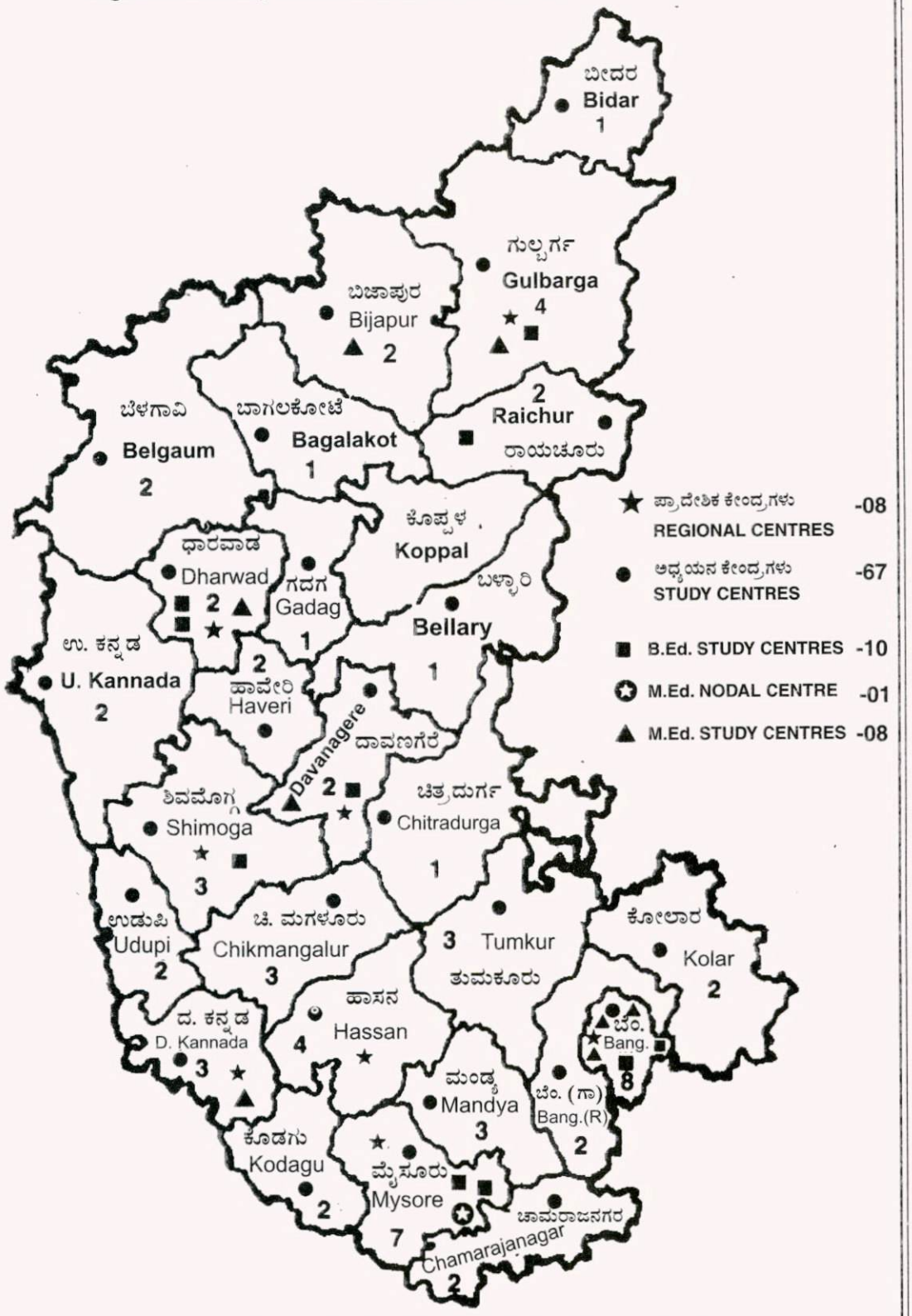

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