Unit-1(Basic Economics concept)

1 Basic economic concepts- **4**

Meaning, nature and scope of economics, deductive vs inductive methods, static and dynamics, Economic problems: scarcity and choice, circular flow of economic activity, national income-concepts and measurement.

What is Economics----

Economics is the science that deals with production, exchange and consumption of various commodities in economic systems. It shows how scarce resources can be used to increase wealth and human welfare. The central focus of economics is on scarcity of resources and choices among their alternative uses. The resources or inputs available to produce goods are limited or scarce. This scarcity induces people to make choices among alternatives, and the knowledge of economics is used to compare the alternatives for choosing the best among them. For example, a farmer can grow paddy, sugarcane, banana, cotton etc. in his garden land. But he has to choose a crop depending upon the availability of irrigation water. Two major factors are responsible for the emergence of economic problems. They are: i) the existence of unlimited human wants and ii) the scarcity of available resources. The numerous human wants are to be satisfied through the scarce resources available in nature. Economics deals with how the numerous human wants are to be satisfied with limited resources. Thus, the science of economics centres on want - effort - satisfaction. Economics not only covers the decision making behaviour of individuals but also the macro variables of economies like national income, public finance, international trade and so on.

A. DEFINITIONS OF ECONOMICS Several economists have defined economics taking different aspects into account. The word 'Economics' was derived from two Greek words, oikos (a house) and nemein (to manage) which would mean 'managing an household' using the limited funds available, in the most satisfactory manner possible.

1.Wealth Definition Adam smith (1723 - 1790), in his book "An Inquiry into Nature and Causes of Wealth of Nations" (1776) defined economics as the science of wealth. He explained how a nation's wealth is created. He considered that the individual in the society wants to promote only his own gain and in this, he is led by an "invisible hand" to promote the interests of the society

though he has no real intention to promote the society's interests. Criticism: Smith defined economics only in terms of wealth and not in terms of human welfare.

Ruskin and Carlyle condemned economics as a 'dismal science', as it taught selfishness which was against ethics. However, now, wealth is considered only to be a mean to end, the end being the human welfare. Hence, wealth definition was rejected and the emphasis was shifted from 'wealth' to 'welfare'.

ii) Welfare Definition Alfred Marshall (1842 - 1924) wrote a book "Principles of Economics" (1890) in which he defined "Political Economy" or Economics is a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of well being". The important features of Marshall's definition are as follows: a) According to Marshall, economics is a study of mankind in the ordinary business of life, i.e., economic aspect of human life. b) Economics studies both individual and social actions aimed at promoting economic welfare of people. c) Marshall makes a distinction between two types of things, viz. material things and immaterial things. Material things are those that can be seen, felt and touched, (E.g.) book, rice etc. Immaterial things are those that cannot be seen, felt and touched. (E.g.) skill in the operation of a thrasher, a tractor etc., cultivation of hybrid cotton variety and so on. In his definition, Marshall considered only the material things that are capable of promoting welfare of people. Criticism: a) Marshall considered only material things. But immaterial things, such as the services of a doctor, a teacher and so on, also promote welfare of the people. b) Marshall makes a distinction between (i) those things that are capable of promoting welfare of people and (ii) those things that are not capable of promoting welfare of people. But anything, (E.g.) liquor, that is not capable of promoting welfare but commands a price, comes under the purview of economics. c) Marshall's definition is based on the concept of welfare. But there is no clear-cut definition of welfare. The meaning of welfare varies from person to person, country to country and one period to another. However, generally, welfare means happiness or comfortable living conditions of an individual or group of people. The welfare of an individual or nation is dependent not only on the stock of wealth possessed but also on political, social and cultural activities of the nation. iii) Welfare Definition Lionel Robbins published a book "An Essay on the Nature and Significance of Economic Science" in 1932. According to him, "economics is a science which studies human behaviour as a relationship between ends and scarce means which have alternative uses". The major features of Robbins' definition are as follows: a) Ends refer to human wants. Human beings have unlimited number of wants. b) Resources or means, on the other hand, are limited or scarce in supply. There is scarcity of a commodity, if its demand is

greater than its supply. In other words, the scarcity of a commodity is to be considered only in relation to its demand. c) The scarce means are capable of having alternative uses. Hence, anyone will choose the resource that will satisfy his particular want. Thus, economics, according to Robbins, is a science of choice. Criticism: a) Robbins does not make any distinction between goods conducive to human welfare and goods that are not conducive to human welfare. In the production of rice and alcoholic drink, scarce resources are used. But the production of rice promotes human welfare while production of alcoholic drinks is not conducive to human welfare. However, Robbins concludes that economics is neutral between ends. b) In economics, we not only study the micro economic aspects like how resources are allocated and how price is determined, but we also study the macro economic aspect like how national income is generated. But, Robbins has reduced economics merely to theory of resource allocation. c) Robbins definition does not cover the theory of economic growth and development. iv) Growth Definition Prof. Paul Samuelson defined economics as "the study of how men and society choose, with or without the use of money, to employ scarce productive resources which could have alternative uses, to produce various commodities over time, and distribute them for consumption, now and in the future among various people and groups of society". The major implications of this definition are as follows: a) Samuelson has made his definition dynamic by including the element of time in it. Therefore, it covers the theory of economic growth. b) Samuelson stressed the problem of scarcity of means in relation to unlimited ends. Not only the means are scarce, but they could also be put to alternative uses. c) The definition covers various aspects like production, distribution and consumption. Of all the definitions discussed above, the 'growth' definition stated by Samuelson appears to be the most satisfactory. However, in modern economics, the subject matter of economics is divided into main parts, viz., i) Micro Economics and ii) Macro Economics. Economics is, therefore, rightly considered as the study of allocation of scarce resources (in relation to unlimited ends) and of determinants of income, output, employment and economic growth.

---

scope and nature of economics.

Scope of Economics

'Scope' means the sphere of study. We have to consider what economics studies and what lies beyond it. The scope of economics will be brought out by discussing the following.
a. Subject–matter of economics.
b. Economics is a social science
c) Whether Economics is a science or an art?

d) If Economics is science, whether it is positive science or a normative science?

a) Subject – matter of economics: Economics studies man's life and work, not the whole of it, but only one aspect of it. It does not study how a person is born, how he grows up and dies, how human body is made up and functions, all these are concerned with biological sciences, Similarly Economics is also not concerned with how a person thinks and the human organizations being these are a matter of psychology and political science. Economics only tells us how a man utilizes his limited resources for the satisfaction of his unlimited wants, a man has limited amount of money and time, but his wants are unlimited. He must so spend the money and time he has that he derives maximum satisfaction. This is the subject matter of Economics.

Economic Activity: It we look around, we see the farmer tilling his field, a worker is working in factory, a Doctor attending the patients, a teacher teaching his students and so on. They are all engaged in what is called "Economic Activity". They earn money and purchase goods. Neither money nor goods is an end in itself. They are needed for the satisfaction of human wants and to promote human welfare. To fulfill the wants a man is taking efforts. Efforts lead to satisfaction. Thus wants- Efforts-Satisfaction sums up the subject matter of economics.

b) Economics is a social Science: In primitive society, the connection between wants efforts and satisfaction is close and direct. But in a modern Society things are not so simple and straight. Here man produces what he does not consume and consumes what he does not produce. When he produces more, he has to sell the excess quantity. Similarly he has to buy a product which is not produced by him. Thus the process of buying and selling which is called as Exchange comes in between wants efforts and satisfaction. Nowadays, most of the things we need are made in factories. To make them the worker gives his labour, the land lord his land, the capitalist his capital, while the businessman organizes the work of all these. They all get reward in money. The labourer earns wages, the landlord gets rent the capitalist earns interest, while the entrepreneur's (Businessman) reward is profit. Economics studies how these income—wages, rent interest and profits-are determined. This process in called "Distribution: This also comes in between efforts and satisfaction.
Thus we can say that the subject-matter of Economics is

1. Consumption- the satisfaction of wants.
2. Production- i.e. producing things, making an effort to satisfy our wants
3. Exchange- its mechanism, money, credit, banking etc.
4. Distribution – sharing of all that is produced in the country. In addition, Economics also studies "Public Finance"

Macro Economics – When we study how income and employment is generated and how the level of country's income and employment is determined, at aggregated level, it is a matter of macro-economics. Thus national income, output, employment, general price level economic growth etc. are the subject matter of macro Economics.

Micro-Economic – When economics is studied at individual level i.e. consumer's behavior, producer's behavior, and price theory etc it is a matter of micro-economics.

c) Economics, a Science or an Art? Broadly different subjects can be classified as science subjects and Arts subjects, Science subjects groups includes physics, Chemistry, Biology etc while Arts group includes History, civics, sociology Languages etc. Whether Economics is a science or an art? Let us first understand what is terms 'science' and 'arts' really means. A science is a systematized body of knowledge. A branch of knowledge becomes systematized when relevant facts hove been collected and analyzed in a manner that we can trace the effects back to their and project cases forward to their effects. In other words laws have been discovered explaining facts, it becomes a science, In Economics also many laws and principles have been discovered and hence it is treated as a science. An art lays down formulae to guide people who want to achieve a certain aim. In this angle also Economics guides the people to achieve aims, e.g. aim like removal poverty, more production etc. Thus Economics is an art also. In short Economics is both science as well as art also.

d) Economics whether positive or normative science: A positive science explains "why" and "wherefore" of things. i.e. causes and effects and normative science on the other hand rightness or wrongness of the things. In view of this, Economics is both a positive and. normative science. It not only tells us why certain things happen, it also says whether it is right or wrong the thing to happen. For example, in the world few people are very rich while the masses are very poor. Economics should and can explain not only the causes of this unequal distribution of wealth, but it should also say whether this is good or bad. It might well say that wealth ought to be fairly distributed. Further it should suggest the methods of doing it.

Nature and Scope of Economics

Economists differ in their views regarding the scope of economics. The scope of economics' is a broad subject and encompasses not only its subject matter but also various other things, such as its scientific nature, its ability to pass value judgments, and to suggest solutions to practical problems.

For example, price controls on Kerosine oil have the desired effect of reducing cooking expenditures for some consumers, but they also reduce both conservation of Kerosene by those consumers and the incentive of producers to bring more Kerosene to the market.

Other consumers will therefore be forced to rely more heavily on other more expensive sources of energy pushing the prices of these energy sources upward. Thus, the controls also generate an unintended result an increase in the energy costs for some consumers.

Good economic thinking demands that we recognise the secondary effects. This explains why a number of economists, while recognising the scarcity aspect of resources and the problem of choice arising there from described economics as a social science and not as a human science.

Thus according to T. Scitovsky, economics is **"a social science concerned with the administration of scarce resources."** In a like manner, A. C. Cairn-cross defines economics as a "a social science studying how people attempt to accommodate scarcity to their wants and how these attempts interact through exchange". These four aspects of economics may now be discussed.

1. Subject matter:
If we take a broad view of the subject matter of economics we may say that, Economics is the study of all phenomena relating to wealth and value. It is one of the social sciences that deal with economic goods, the creation of wealth through the satisfaction of human wants, the explanation of wealth, value and price, the distribution of income and the mechanism of exchange and markets of an economy.

According to Robbins, economics is the study of the problem of using available factors of production as efficiently as possible so as to attain the maximum fulfilment of society's demands for goods and services. The ultimate purpose of economic endeavour is to satisfy human wants for goods and services.

The problem is that, whereas wants are virtually without limit, the resources—land, labour, capital and organisation—available at any one time to produce goods and services, are limited in supply, i.e., resources are scarce relative to the demands for them.

The fact of scarcity means that we must always be making choices. If, to take a simple example, more resources are devoted to producing motor cars fewer resources are then available for constructing roads or

bridges or setting up schools and hospitals. Thus, economics is a science of scarcity or is a study of the problems of scarcity.

However, economics does not study the behaviour of human beings in the way other subjects like Physiology or Psychology study it. Economics is no doubt a Science, but it is not a pure (exact) science like Physics, Chemistry,

Biology or even Mathematics. Economics is a social science concerned with how we solve society's economic problems. Because of the abundance of economic data and the ample opportunity for scientific research in the real world, Samuelson calls it 'the queen of social sciences'.

But, it is not an exact science. It may also be added that, the study of modern economics is divided into two parts, viz., microeconomics or price theory (concerned with the behaviour of an economic agent or unit such as an individual consumer or business firm) and macroeconomics (concerned with the study of certain broad aggregates, such as national income, output, the level of employment, the price level or even the growth rate of the economy or the study of the economic system in its totality).

2. Science or Art:

For quite a long time there was controversy among economists as to whether it is a science or an art. The members of the English classical school, such as Adam Smith, T. R. Mathus and David Ricardo, held the view that it was a pure science whose task was just to explain the cause of economic phenomena such as unemployment, inflation, slow growth or even trade deficit.

According to classical writers, economics is simply the study of cause and effect relationship.

However, neo-classical and modern economists have pointed out that economics is both a science and an art. Just to treat economics as a science is to rob it of its practical value. As Keynes has commented,

"Practical men……. are usually the slaves of some defunct economist." So, economics has both a theoretical side and a practical or applied side. In other words, economics is no doubt a science, but it is both 'light-bearing and fruit bearing'.

Inflation, unemployment, monopoly, economic growth, pollution, free markets versus central planning, poverty, productivity and other current issues are all covered in the study of economics. Economics is a problem- based social science, and the problems with which it is especially concerned are among the central issues of our times.

Economics is relevant not only to the big problems of society, but also to the personal problems, such as one's job, wages, unemployment, the cost of living, taxes and voting.

The accomplishments of economics have established it as perhaps the most successful social science. No other social science has had equivalent impact in applying reason and science to the shaping of the nation's social destiny. No other social science has a Nobel Prize.

Nineteenth century historian Thomas Carlyle gave economics the nickname 'the dismal science'. Perhaps economics acquired its reputation as a dismal science because economists emphasise costs, or because they focus on the negative aspects of each phase of the business cycle—inflation during expansion and unemployment during recessions. Economics is really a very optimistic subject in many ways.

3. Positive or Normative:

Another controversial aspect of economics is whether it should be neutral or pass value judgments. The members of the English classical school were of the opinion that economists were not supposed to make any normative statement or pass any value judgment on the desirability or otherwise of the economic decisions.

Some later members of the classical school even went to the extent of suggesting that economists should not give any advice on any issue.

This means that economics should stand neutral as regards ends. However, the same view has been reaffirmed by Robbins, who commented that the function of the economist is to explore and explain, not to uphold or to condemn. This simply means that economists should take ends as given. Their task is just to discover ways and means of achieving these ends (i.e., to find out ways of accomplishing objectives).

No doubt, by restricting himself to positive aspect of economic science (with its focus on resource allocation and valuation of commodities and factors) Robbins has narrowed (restricted) the scope of economics. He denied economics the right to study welfare.

As he has commented, **"Whatever economics is concerned with it is not concerned with the causes of material welfare as such."** He has also ignored macroeconomics altogether as also the problems of developing countries like India.
So, Robbins' view of economic science is not only one-sided but misleading, too. The task of economists is not just to explain why certain things happen (i.e., why there is so much of unemployment in India in spite of her planned economic development or why there is so inequality in the distribution of income and wealth notwithstanding the prevalence of the progressive income tax system).

It is equally vital to pass judgment as to whether certain things are good or bad from society's welfare point of view. For example, it is not enough for an economist to explain the present problem of unequal distribution of income and wealth in India.

It is the task of the economists to condemn this phenomenon and to suggest certain measures which should be adopted by the government to solve the inequality problem.

This means that, economics is both a positive and a normative science. While positive economics is the scientific study of 'what is' among economic relationships, normative economics is concerned with judgments about 'what ought to be' in economic matters. (Normative

economic views cannot be proved false, because they are based on value judgments.)

4. Problem-solving Nature:
The classical economists believed that economics could not solve practical problems, because there were non-economic (social, political, ethical, religious and other) aspects of people's lives.

As J.M. Keynes commented in 1923:
"The theory of economics does not furnish a body of settled conclusions immediately applicable to policy. It is a method rather than a doctrine, an apparatus of the mind, a technique of thinking which helps its possessor to draw correct conclusions."

However, this view is not correct. In fact, the primary function of economists is to formulate policies and to suggest solutions to economic problems. Acknowledge of economics is essential for policymaking.

Policy-makers, who do not understand the consequences of their actions are unlikely to reach their goals. The most important point to note here is that, economists can suggest solutions to society's economic problems such as unemployment, inflation, trade deficit and slow growth.

This is why modern governments take the help of economists for formulating monetary fiscal and exchange rate policies. Since the New Deal era in the 1930s, economists have moved in the forefront of government policy analysis.

Economics offers a social science with models for organising facts and for thinking about policy alternatives. In fact, the U.S. Council of Economic Advisors is unique; no such permanent agency exists for any other social science. Indeed, few scientists of any kind enjoy so much prestige as the economists J.K. Galbraith, Paul Samuelson, Lester Thurow, or Milton Friedman.

Differences between Static and Dynamic Economics

In the methodology of economics, techniques of economic statics and dynamics occupy an important place. A greater part of economic theory has been formulated with the aid of the technique of economic statics. However, during the last eighty years (since 1925) dynamic technique has been increasingly applied to the various fields of economic theory.

Prior to 1925, dynamic analysis was mainly confined, with some exceptions, to the explanation of business cycles. After 1925, dynamic analysis has been used extensively not only for the explanation of business fluctuations but also for income determination, growth and price determination.

More recently, economists like Samuelson, Goodwin, Smithies, Domar, Metzler, Haavelmo, Klein, Hicks, Lange, Koopmans and Tinter have further extended and developed dynamic models concerning the stability and fluctuations around any equilibrium point or path which cover the four important fields of economic theory, namely, business cycles, income determination, economic growth and price theory.

We shall explain below the meaning and nature of economic statics, dynamics and comparative statics and shall bring out the distinction between them. There has been a lot of controversy about their true meaning and nature, especially about economic dynamics.

Stationary and Changing Phenomena:

In order to make the difference between the natures of economic statics and dynamics quite clear, it is essential to bring out the distinction between two sorts of phenomena, stationary and changing. An economic variable is said to be stationary, if value of the variable does not change over time, that is, if its value is constant over time.

For instance, if price of a good does not change as time passes, price will be called stationary. Likewise, national income is stationary if its magnitude does not change through time. On the other hand, the variable is said to be changing (non-stationary) if its value does not remain constant through time.

Thus, the whole economy can be said to be stationary (changing), if value of all important variables are constant through time (are subject to changes). It may be noted that the various economic variables whose behaviour over time is studied are prices of goods, quantity supplied, quantity demanded, national income, level of employment, size of the population, level of investment, etc.

It is worth mentioning that it is quite possible that whereas a variable may be changing from the micro point of view, but stationary from the macro point of view. Thus, the prices of individual goods may be

changing, of which some may be rising and some falling, but the general price level may remain constant over time.

Likewise, the national income of a country may be stationary while the incomes generated by various industries may be changing. On the other hand, the particular variables may be stationary, while the economy as a whole may be changing. For example, even if the level of net investment in the economy is stationary, the economy as a whole may not be stationary. When there is a constant amount of net positive investment, the economy will be growing (changing) since addition to its stock of capital will be occurring.

It should be carefully noted that there is no necessary relationship between stationary phenomenon and economic statics, and the changing phenomenon and dynamics. Although economic dynamics is inherently connected with only a changing phenomenon but the static analysis has been extensively applied to explain the changing phenomena.

The distinction between statics and dynamics is the difference between the two different techniques of analysis and not the two sorts of phenomena. Prof. Tinbergen rightly remarks, “The distinction between Statics and Dynamics is not a distinction between two sorts of phenomena but a distinction between two sorts of theories, i.e., between two ways of thinking. The phenomena may be stationary or changing, the theory (the analysis) may be Static or Dynamic”.

Economic Statics:

The task of economic theory is to explain the functional relationships between systems of economic variables. These relationships can be studied in two different ways. If a functional relationship is established between two variables whose values relate to the same point of time or to the same period of time, the analysis is said to be static.

In other words, the static analysis or static theory is the study of static relationship between relevant variables. A functional relationship between variables is said to be static if values of the economic variables relate to the same point of time or to the same period of time.

Numerous examples of static relationships between economic variables and the theories or laws based upon them can be given. Thus, in economics the quantity demanded of a good at a time is generally thought to be related to the price of the good at the same time.

Accordingly, the law of demand has been formulated to establish the functional relationship between the quantity demanded of a good and price of that good at a given moment or period of time. This law states that, other things remaining the same, the quantity demanded varies inversely with price at a given point or period of time.

Similarly, the static relationship has been established between quantity supplied and price of goods, both variables relating to the same

point of time. Therefore, the analysis of this relationship is a static analysis.

Generally, economists are interested in the equilibrium values of the variables which are attained as a result of the adjustment of the given variables to each other. That is why economic theory has sometimes been called equilibrium analysis.

Till recently, the whole price theory in which we explain the determination of equilibrium prices of products and factors in different market categories were mainly static analysis, for the values of the various variables, such as demand, supply, and price were taken to be relating to the same point or period of time.

Thus, according to the price theory, equilibrium at a given moment of time under perfect competition is determined by the intersection of given demand function and the supply functions (which relate the values of variables at the same point of time). Thus in Figure 4.1 given a demand function as demand curve DD and a supply function SS, the equilibrium price OP is determined.

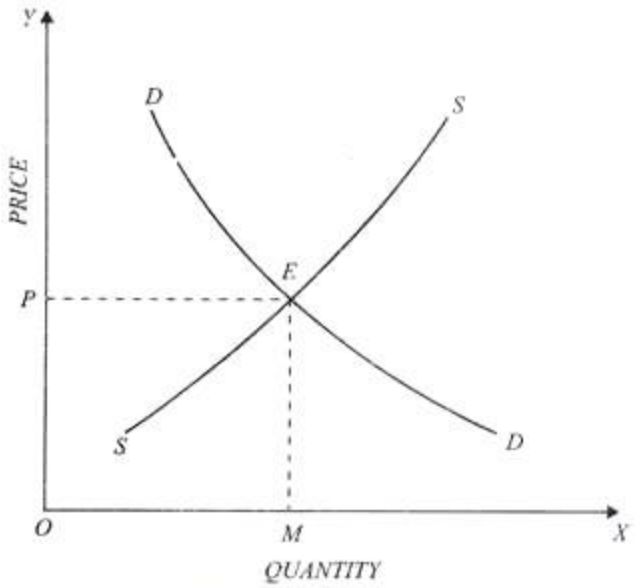


Fig. 4.1. *Static Equilibrium*

The equilibrium amount supplied and demand so determined is OM. This is a static analysis of price determination, for all the variables such as, quantity supplied, quantity demanded and the price refer to the same point or period of time. Moreover, the equilibrium price and quantity determined by their interaction also relate to the same time as the determining variables.

Professor Schumpeter describes the meaning of static analysis as follows: “By static analysis we mean method of dealing with economic phenomena that tries to establish relations between elements of the economic system – prices and quantities of commodities all of which have the same time subscript, that is to say, refer to the same point of time. The ordinary theory of demand and supply in the market of an individual commodity as taught in ever text book will illustrate this case: it relates demand, supply and price as they are supposed to be at any moment of observation.”

A point worth mentioning about static analysis is that in it certain determining conditions and factors are assumed to remain constant at the point of time for which relationship between the relevant economic variables and outcome of their mutual adjustment is being explained.

Thus, in the analysis of price determination under perfect competition described above, the factors such as incomes of the people, their tastes and preferences, prices of the related goods which affect demand for a given commodity are assumed to remain constant.

Similarly, prices of the productive resources and production techniques which affect cost of production and thereby the supply function are assumed to remain constant. These factors or variables do change with time and their changes bring about shift in the demand and supply functions and therefore affect prices.

But because in static analysis we are concerned with establishing the relationship between certain given variables and their adjustment to each other at a given point of time, changes in the other determining factors and conditions are ruled out.

We, in economics, generally use the term data for the determining conditions or the values of the other determining factors. Thus, in static analysis, data are assumed to remain constant and we find out the eventual consequence of the mutual adjustment of the given variables.

It should be noted that assuming the data to be constant is very much the same thing as considering them at a moment of time or, in other words, allowing them a very short period of time within which they cannot change.

Moreover, the crucial point about static analysis is that the given conditions or data are supposed to be independent of the behaviour of variables or units in the given system between which functional relationship is being studied.

Thus, in the above static price analysis it is assumed that variables in the system, that is, price of the good, quantity supplied and quantity demanded do not influence the determining conditions or the data regarding incomes of the people, their tastes and preferences, the prices of the related goods, etc.

Thus, relationship between the data and the behaviour of the economic variables in a given system is assumed to be one-way relationship; the data influence the variables of the given system and not the other way around. On the contrary, as we shall see below, in dynamic analysis the determinant data or determining conditions are not assumed to be constant.

In dynamic analysis, certain elements in the data are not independent of the behaviour of the variables in a given system. In fact, in a fully dynamic system, it is hard to distinguish between data and variables since in a dynamic system over time “today’s determinant data are

yesterday's variables and today's variables become tomorrow's data. The successive situations are interconnected like the links of a chain."

Since in static analysis, we study the behaviour of a system at a particular time, or in other words, in economic statics, we do not study the behaviour of a system over time, therefore how the system has proceeded from a previous position of equilibrium to the one under consideration is not studied in economic statics.

Prof. Stanley Bober rightly remarks, "A static analysis concerns itself with the understanding of what determines an equilibrium position at any moment in time. It focuses attention on the outcome of economic adjustments and is not concerned with the path by which the system, be it the economy in the aggregate or a particular commodity market, has proceeded from a previous condition of equilibrium to the one under consideration."

To sum up, in static analysis we ignore the passage of time and seek to establish the causal relationship between certain variables relating to the same point of time, assuming some determining factors as remaining constant.

Importance of Economic Statics:

The method of economic statics is very important and a large part of economic theory has been developed using the technique of economic statics. Now, the question arises as to why the technique of static analysis is used which appears to be unrealistic in view of the fact that determining conditions or factors are never constant.

Static techniques are used because it makes the otherwise complex phenomena simple and easier to handle. To establish an important causal relationship between certain variables, it becomes easier if we assume other forces and factors constant, not that they are inert but for the time it is helpful to ignore their activity.

According to Prof. Robert Dorfman, "statics is much more important than dynamics, partly because it is the ultimate destination that counts in most human affairs, and partly because the ultimate equilibrium strongly influences the time paths that are taken to reach it, whereas the reverse influence is much weaker".

To sum up, in static analysis we ignore the passage of time and seek to establish the causal relationship between certain variables relating to the same point of time, assuming some determining factors as remaining constant.

Economic Dynamics:

Now, we turn to the method of Economic Dynamics which has become very popular in contemporary economics. Economic dynamics is a more realistic method of analysing the behaviour of the economy or certain economic variables through time. The definition of economic dynamics has been a controversial question and it has been interpreted in various different ways. We shall try to explain the standard definitions of economic dynamics.

Frisch's Time Period Analysis:

The course thorough time of a system of economic variables can be explained in two ways. One is the method of economic statics described above, in which the relations between the relevant variables in a given system refer to the same point or period of time. On the other hand, if the analysis considers the relationship between relevant variables whose values belong to different points of time is known as Dynamic Analysis or Economic Dynamics.

The relations between certain variables, the values of which refer to the different points or different periods of time are known as dynamic relationships. Thus, Professor Schumpeter says, "We call a relation dynamic if it connects economic quantities that refer to different points of time. Thus, if the quantity of a commodity that is offered at a point of time (-+) is considered as dependent upon the price that prevailed at the point of time (t – 1), this is a dynamic relation." In a word, economic dynamics is the analysis of dynamic relationships.

We thus see that in economic dynamics we duly recognise the element of time in the adjustment of the given variables to each other and accordingly analyse the relationships between given variables relating to different points of time.

Professor Ragnar Frisch who is one of the pioneers in the use of the technique of dynamic analysis in economics defines economic dynamics as follows: "A system is dynamical if its behaviour over time is determined by functional equations in which variables at different points of time are involved in an essential way."

In dynamic analysis, he further elaborates, “We consider not only a set of magnitudes in a given point of time and study the interrelations between them, but we consider the magnitudes of certain variables in different points of time, and we introduce certain equations which embrace at the same time several of those magnitudes belonging to different instants. This is the essential characteristic of a dynamic theory. Only by a theory of this type we can explain how one situation grows out of the foregoing.”

Many examples of dynamic relationships from both micro and macroeconomic fields can be given. If one assumes that, the supply (S) for a good in the market in the given time (t) depends upon the price that prevails in the preceding period (that is, t – 1) the relationship between supply and price is said to be dynamic.

This dynamic functional relation can be written as:

$S_t = f(P_{t-1})$

Where S_t stands for the supply of a good offered in a given period t and P_{t-1} for the price in the preceding period. Likewise, if we grant that the quantity demanded (D) of a good in a period t is a function of the expected price in the succeeding period (t + 1), the relation between demand and price will be said to be dynamic and the analysis of such relation would be called dynamic theory or economic dynamics.

Similarly, examples of dynamic relationship can be given from the macro field. If it is assumed that the consumption of the economy in a given period depends upon the income in the preceding period (t – 1) we shall be conceiving a dynamic relation.

This can be written as:

$C_t = f(Y_{t-1})$

When macroeconomic theory (theory of income, employment and growth) is treated dynamically, that is, when macroeconomic dynamic relationships are analysed, the theory is known as "Macro dynamics". Paul Samuelson, J.R. Kalecki, Post-Keynesians like R.F. Harrod, J.R. Hicks have greatly dynamised the macroeconomic theory of Keynes.

It should be noted that the change or movement in a dynamic system is endogenous, that is, it goes on independently of the external changes in it; one change grows out of the other. There may be some initial external shock or change but in response to that initial external change, the dynamic system goes on moving independently of any fresh external changes, successive changes growing out of the previous situations.

In other words, the development of a dynamic process is self-generating. Thus, according to Paul Samuelson, "It is important to note that each dynamic system generates its own behaviour over time either as an autonomous response to a set of "initial conditions" or as a response to some changing external conditions.

This feature of self-generating development over time is the crux of every dynamic process.' Likewise, Professor J. K. Mehta remarks, 'In simple words, we can say that an economy can be said to be in a dynamical system when the various variables in it such as output, demand, prices have values at any time dependent on their values at some other time. If you know their values at one moment of time, you

should be able to know their values at subsequent points of time. Prices of goods in a causal dynamic system do not depend on any outside, exogenous forces. A dynamic system is self-contained and self-sustained."

The concept or technique of economic dynamics which we have presented above was first of all put forward by Ragnar Frisch in 1929. According to his view, like static analysis, economic dynamics is a particular method of explanation of economic phenomenon; economic phenomena themselves may be stationary or changing. Although technique of dynamic analysis has great scope in a changing and a growing system but it may also be applied even to stationary phenomena.

A system or phenomenon may be stationary in the sense that, the values of relevant economic variables in it may remain constant through time, but if the values of the variables at a time are dependent upon the values at another time, then dynamic analysis can be applied. But, as stated above, the greater scope of economic dynamics lies in the field of changing and growing phenomena.

Harrod's Concept of Economic Dynamics: Rates of Change Analysis:

We have explained above the concept of economic dynamics which has been associated with the name of Ragnar Frisch, though it has been propounded by others also. Prof. R. F. Harrod, an eminent Cambridge economist in his famous book "Towards a Dynamic Economics", has given a different concept of economic dynamics.

According to Harrod, economic dynamics deals with rates of change. An analysis or a theory is dynamic if the rates of change of certain variables are considered to depend on the rates of change of other variables. In his view dynamics studies an "economy in which rates of output are changing." He defines economic dynamics as the study of "the necessary relations between the rates of growth of the different elements in a growing economy".

Harrod's concept of dynamics covers both the technique (method) as well as the scope of economic dynamics. According to him, economic dynamics as a technique has to consider rates of change of certain variables and how they are related to the rate of change of some other variables. Since only in a growing and changing economy, magnitudes of variables undergo a change, it is the growing and changing economy with which, according to Harrod, dynamics deals with.

In modern economic theory both Frischian and Harrodian concepts of economic dynamics have been adopted. Thus, in modern economics, dynamic analysis concerns itself with cither establishing functional relationships between economic variables relating to different points of time, or considering rates of change of variables in a growing economy and how they are related to each other. While the former involves period analysis, the latter rates of change analysis.

Expectations and Dynamics:

We have described above that economic dynamics is concerned with explaining dynamic relationships, that is, the relationships among variables relating to different points of time. The variables at the

present moment may depend upon the variables at other times, past and future.

Thus, when the relationship between the economic variables belonging to different points of time is considered, or when rates of change of certain variables in a growing economy are under discussion, the question of future creeps into the theoretical picture.

The economic units (such as consumers, producers and entrepreneurs) have to take decisions about their behaviour at the present moment. The consumers have to decide what goods they should buy and what quantities of them.

Similarly, producers have to decide what goods they should produce, what factors they should use and what techniques they should adopt. These economic units decide about their present course of action on the basis of their expected values of the economic variables in the future. When their expectations are realised, they continue behaving in the same way and the dynamic system is in equilibrium.

In other words, when the expectations of the economic units are fulfilled, they repeat the present pattern of behaviour and there exists what has been called dynamic equilibrium, unless some external shock or disturbing force disturbs the dynamic system.

The expectations or anticipations of the future held by the economic units play a v.ml role in economic dynamics. In a purely static theory expectations about the future have practically no part to play since static theory mainly concerned with explaining the conditions of

equilibrium positions at a point of time as well as under the assumptions of constant tastes, techniques and resources.

Thus, in static analysis expectation, about the future play a little part since under it no processes over time are considered. On the other hand, since dynamic analysis is concerned with dynamic processes over time, that is, changing variables over time and their action and interaction upon each other through time, expectations or anticipations held by the economic units about the future have an important place.

Need and Significance of Economic Dynamics:

The use of dynamic analysis is essential if we want to make our theory realistic. In the real world, various key variables such as prices of goods, output of goods, income of the people, investment and consumption, etc. are changing over time. Both Frischian and Harrodian dynamic analyses are required to explain these changing variables and to show how they act and react upon each other and what results flow from their action and interaction.

Many economic variables take time to make adjustment to the changes in other variables. In other words, there is a lag in the response of some variables to the changes in the other variables, which make it necessary that dynamic treatment be given to them. We have seen that changes in income in one period produce influence on consumption in a later period. Many other similar examples can be given from micro and macro fields.

Besides, it is known from the real world that the values of certain variables depend upon the rate of growth of other variables. For example, we have seen in Harrod's dynamic model of a growing economy that investment depends upon expected rate of growth in output.

Similarly, the demand for a good may depend upon the rate of change of prices. Similar other examples can be given. In such cases where certain variables depend upon the rate of change in other variables, application of both the period analysis and the rate of change analysis of dynamic economics become essential, if we want to understand their true behaviour.

Till recently, dynamic analysis was mainly concerned with explaining business cycles, or economic fluctuations. But, after Harrod's and Domar's path-breaking contributions, the interest in the problems of growth has been revived among economists.

It is in the study of growth that dynamic analysis becomes more necessary. These days economists are engaged in building dynamic models of optimum growth both for developed and developing countries of the world. Thus, in recent years, the stress on dynamic analysis is more on explaining growth rather than cycles or oscillations. Prof. Hansen is right when he says, "In my own view mere oscillation represents a relatively unimportant part of economic dynamics. Growth, not oscillation, is the primary subject- matter for study in economic dynamics.

Growth involves changes in technique and increases in population. Indeed that part of cycle literature (and cycle theories are a highly significant branch of dynamic economics) which is concerned merely with oscillation is rather sterile."

The upcoming discussion will update you about the four points of difference between static and dynamic economics.

Difference # 1. Time Element:

In static economic analysis time element has nothing to do. In static economics, all economic variables refer to the same point of time.

Static economy is also called a timeless economy. Static economy, according to Hicks, is one where we do not trouble about dating.

On the contrary, in dynamic economics, time clement occupies an important role. Here all quantities must be dated. Economic variables refer to the different points of time.

Difference # 2. Process of Change:

Another difference between static economics and dynamic economics is that static analysis does not show the path of change. It only tells about the conditions of equilibrium. On the contrary, dynamic economic analysis also shows the path of change. Static economics is called a 'still picture' whereas the dynamic economics is called a 'movie' of the market.

Difference # 3. Equilibrium:

Static economics studies only a particular point of equilibrium. But dynamic economics also studies the process by which equilibrium is achieved. As a result, there may be equilibrium or may be

disequilibrium. Therefore, static analysis is a study of equilibrium only whereas dynamic analysis studies both equilibrium and disequilibrium.

Difference # 4. Study of Reality:

Static analysis is far from reality while dynamic analysis is nearer to reality. Static analysis is based on the unrealistic assumptions of perfect competition, perfect knowledge, etc. Here all the important economic variables like fashions, population, models of production, etc. are assumed to be constant. On the contrary, dynamic analysis takes these economic variables as changeable

Now we can sum up by saying that static and dynamic approaches of economic analysis are not competitive but complementary of each other. Statics is simpler and easier while dynamics is nearer to reality. It is useful to study some economic problems through the static analysis while others may be studied through the dynamic approach.

THE CIRCULAR FLOW OF ECONOMIC ACTIVITY

Circular Flow Concepts

Product Market – where goods and services are exchanged

Households – suppliers of the factors of production & demanders of goods and services

Government – providers of public goods and services & demanders of both private goods and services and the factors of production

Businesses / Firms – suppliers of goods and services & demanders of the factors of production

Factor Market – where the factors of production are exchanged

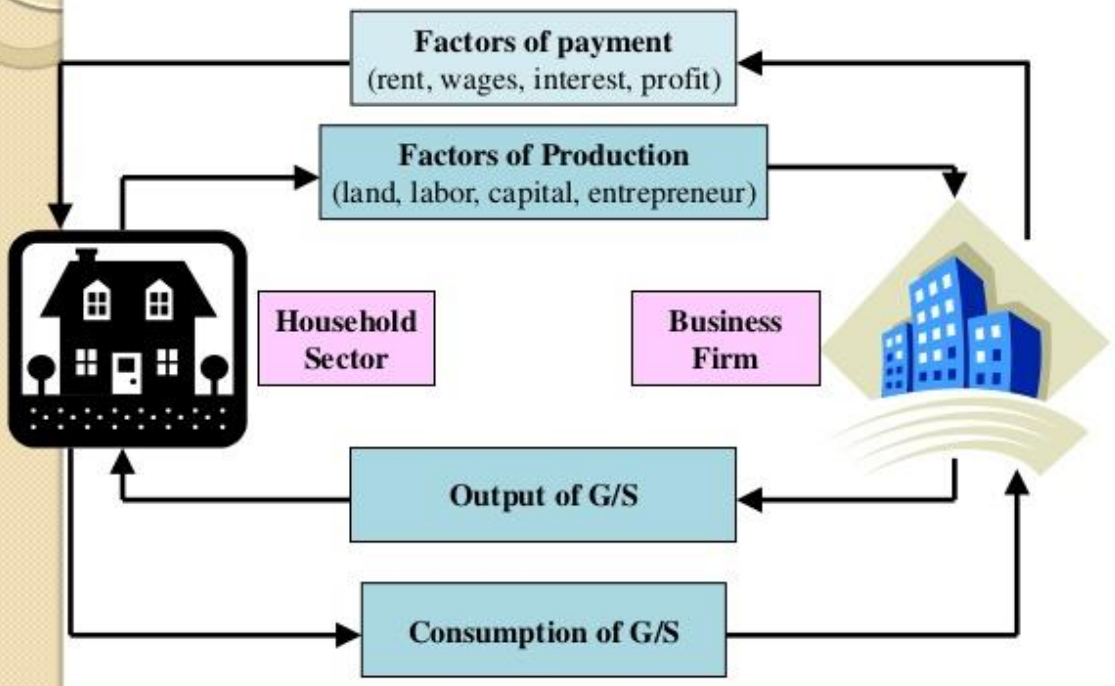
- The **circular-flow diagram** is a model that represents the transactions in an economy by flows around a circle.

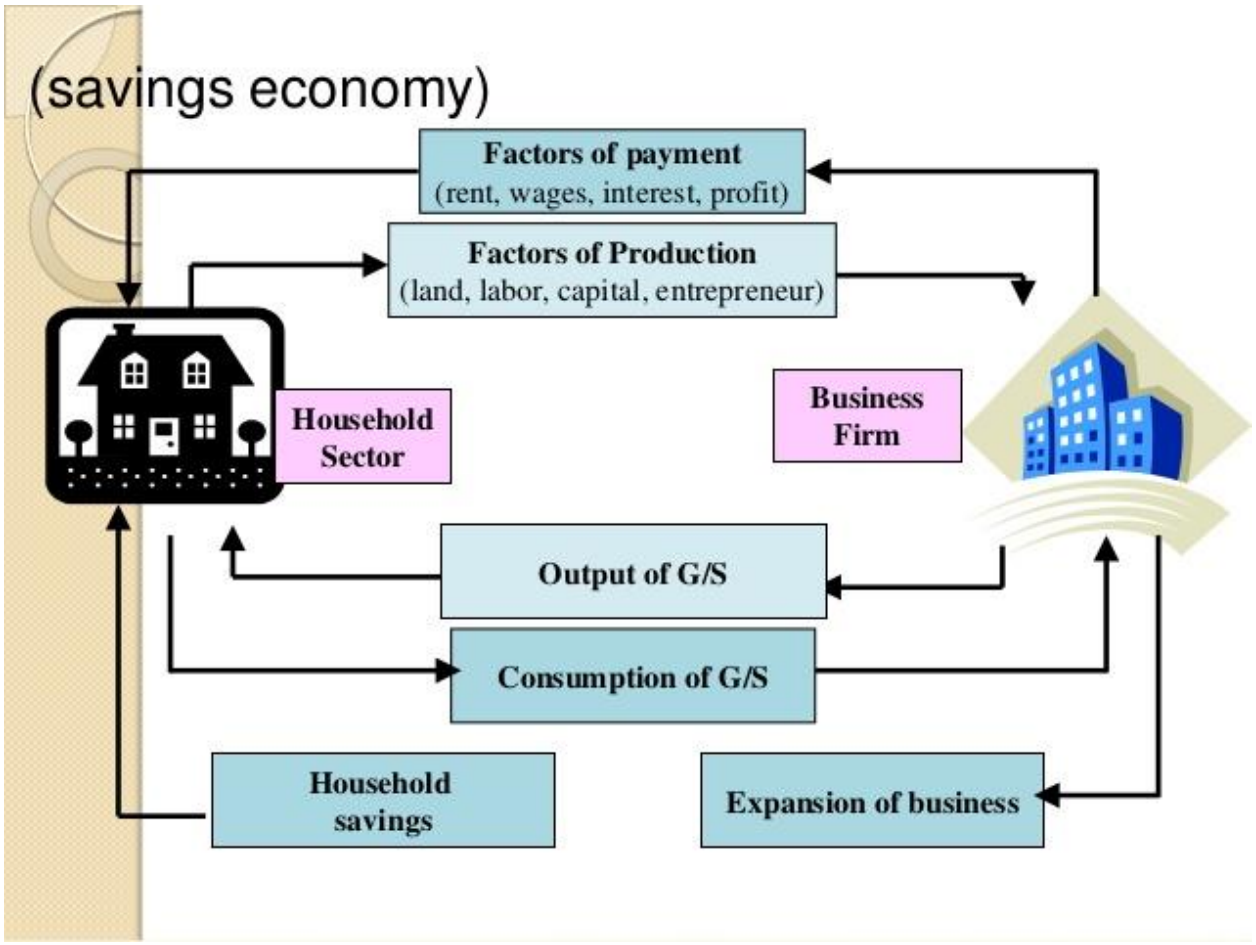
- Two sectors models
  a.) savings economy
  b.) non-savings economy

- Three sectors models
- Four sectors models

Two sectors model

(no savings economy)



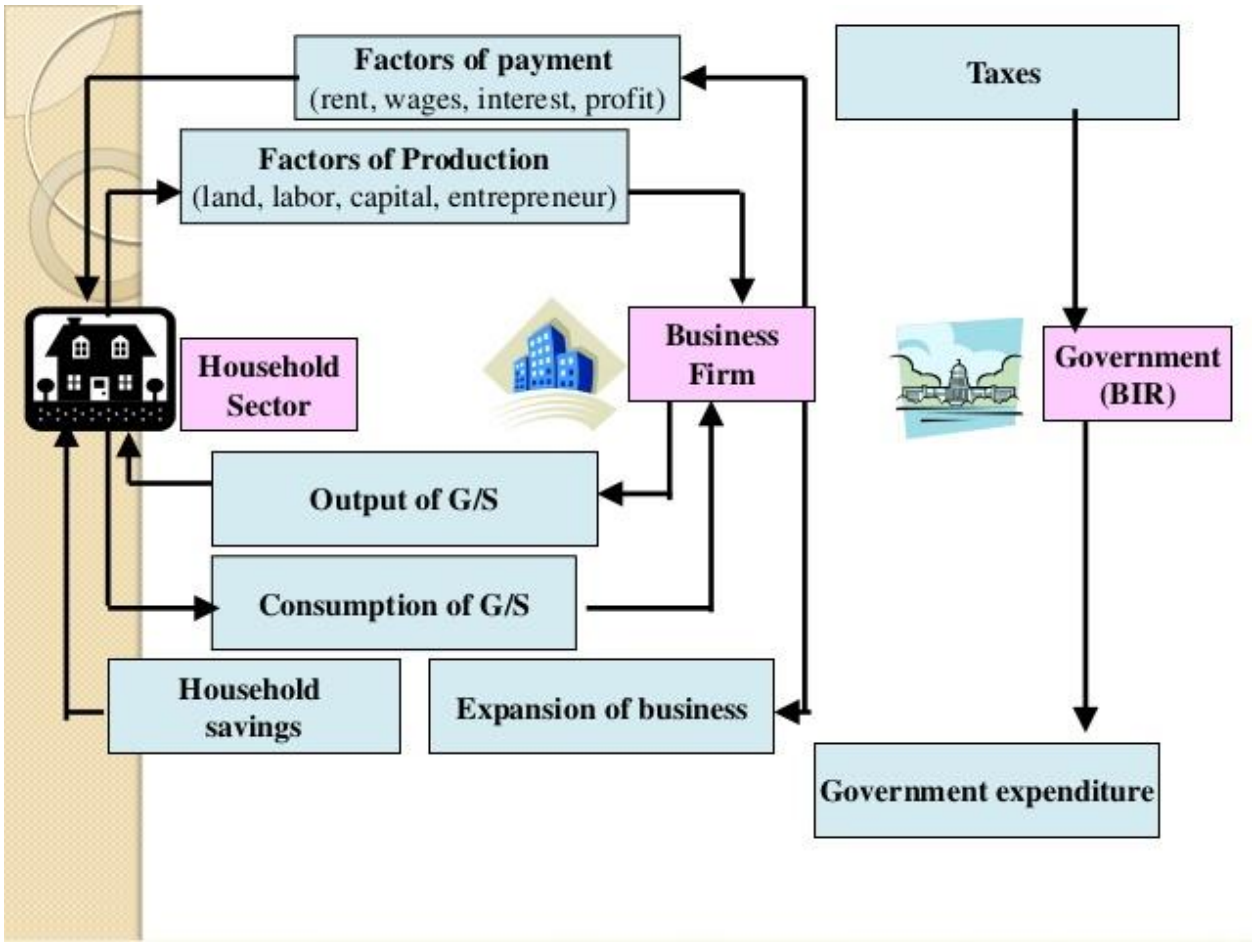

(savings economy)
Factors of payment
(rent, wages, interest, profit)
Factors of Production
(land, labor, capital, entrepreneur)
Household
Sector
Business
Firm
Output of G/S
Consumption of G/S
Household
savings
Expansion of business

➢Three sectors models

It includes household sector, producing sector and government sector. It will study a circular flow income in these sectors excluding rest of the world i.e. closed economy income. Here flows from household sector and producing sector to government sector are in the form of taxes. The income received from the government sector flows to producing and household sector in the form of payments for government purchases of goods and services as well as payment of subsides and transfer payments. Every payment has a receipt in response of it by which aggregate expenditure of an economy becomes identical to aggregate income and makes this circular flow unending.

Four sectors models

- A modern monetary economy comprises a network of four sector economy these are- 1.Household sector 2. Firms or Producing sector 3. Government sector 4. Rest of the world sector. Each of the above sectors receives some payments from the other in lieu of goods and services which makes a regular flow of goods and physical services. Money facilitates such an exchange smoothly. A residual of each market comes in capital market as saving which in turn is invested in firms and government sector. Technically speaking, so long as lending is equal to the borrowing i.e. leakage is equal to injections, the circular flow will continue indefinitely. However this job is done by financial institutions in the economy.


Factors of payment
(rent, wages, interest, profit)
Taxes
Factors of Production
(land, labor, capital, entrepreneur)
Household
Sector
Business
Firm
Government
(BIR)
Output of G/S
Consumption of G/S
Household
savings
Expansion of business
Government expenditure

3 Classification of countries

- LDCS- Low Developed Countries
- IMCS- Intermediate Developed Countries
- HDCS- Highly Developed Countries

LCDS- Low developed countries

Country whose state of economic development is characterized by a low national income, a high rate of population growth and unemployment, and dependence on commodity exports. The majority of nations in Asia, Africa, and Latin America, fit this model, which is why they are known collectively as developing countries or third world countries. LDCs generally pay more for the goods they import from more economically advanced nations than they receive in payments.

Economic problem

The **economic problem** – sometimes called the **basic** or **central economic problem** – asserts that an economy's finite resources are insufficient to satisfy all human wants and needs. It assumes that human wants are unlimited, but the means to satisfy human wants are limited. The economic problem is the problem of rational management of resources or the problem of optimum utilization of resources. It arises because resources are scarce and resources have alternative uses

Three questions arise from this:

• What to produce?

• How to produce? &

• For whom to produce?

- What to produce?

'What and how much will you produce?' This question lies with selecting the type of supply and the quantity of the supply, focusing on efficiency.

e.g. "What should I produce more; laptops or tablets?"

- How to produce? Capital goods or consumer goods

'How do you produce this?' This question deals with the assets and procedures used while making the product, also focusing on efficiency.

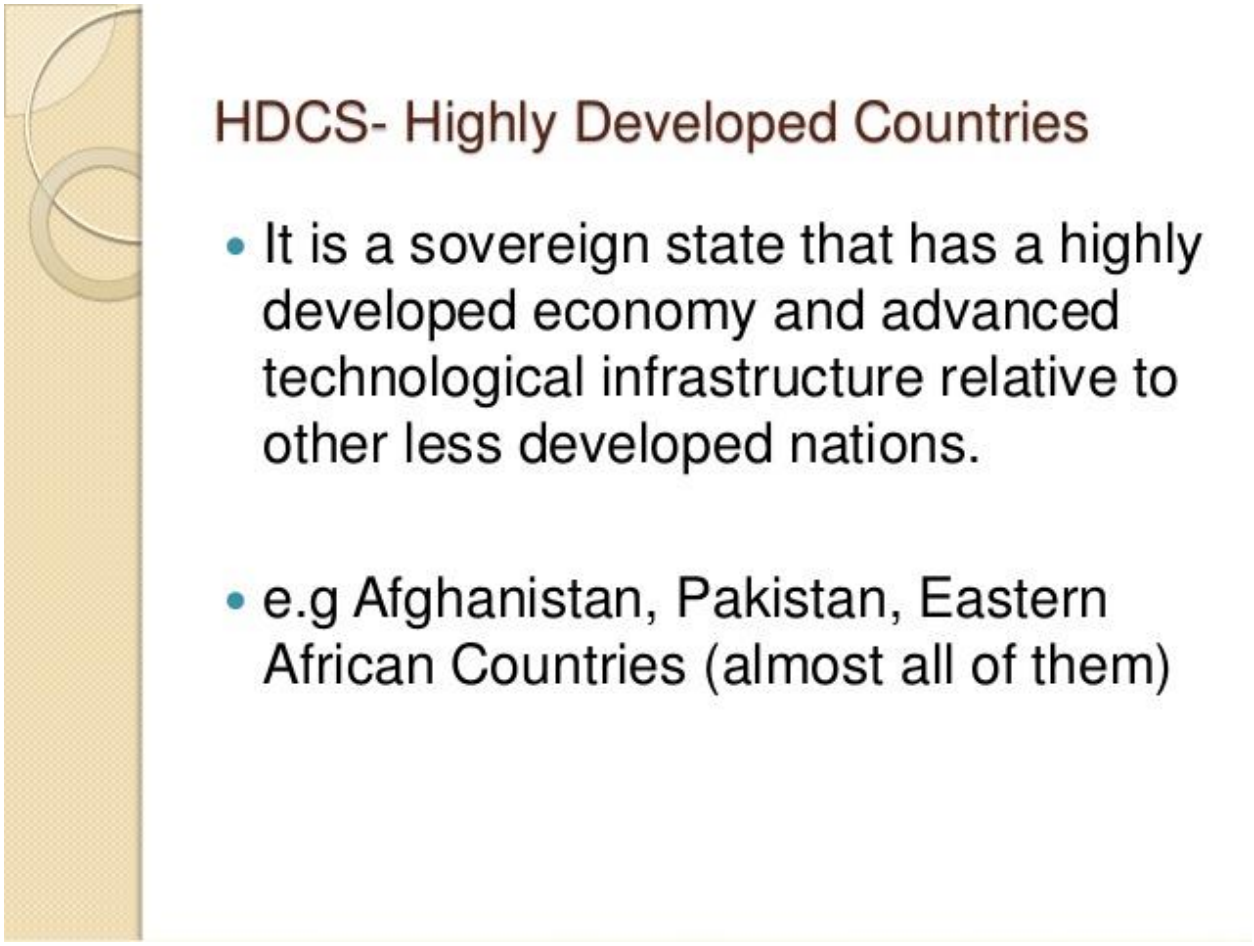
e.g. "Should I hire more workers, or do I invest in more machinery?"

- For whom to produce?

'To whom and how will you distribute the goods?' and 'For whom will you produce this for?' arises from this question. This question deals with distributing goods that have been produced, focusing on efficiency and equity.

e.g. "Do I give more dividends to stock holders, or do I increase worker wages?"

Economics revolve around these fundamental economic problems.



3INDUCTIVE vs DEDUCTIVE

Bases of Difference	Difference Between Inductive and Deductive Approach to Research
Meaning	
Hypothesis	Inductive approach to research does not have any place for **hypothesis**. So, researcher is free to alter direction of the study.
Structure	
Size of Sample	
Scrutiny	
Time Factor	
Theory	Deductive approach to research starts with the **hypothesis** itself. Researcher is bound not to alter direction of the study.
Approach	

Bases of Difference	Difference Between Inductive and Deductive Approach to Research
Meaning	
Hypothesis	
Structure	Inductive approach is **less structured** as there is no guiding factor.
Size of Sample	
Scrutiny	
Time Factor	Deductive approach is **highly structured** because there is some specific aim to be accomplished.
Theory	
Approach	

Bases of Difference	Difference Between Inductive and Deductive Approach to Research
Meaning	
Hypothesis	
Structure	
Size of Sample	Inductive approach is appropriate for small sample project because **small numbers of sample** are analyzed with greater gravity.
Scrutiny	
Time Factor	
Theory	
Approach	Deductive approach is appropriate for large sample project because **large numbers of samples** are analyzed with less depth.

Bases of Difference	Difference Between Inductive and Deductive Approach to Research
Meaning	
Hypothesis	
Structure	
Size of Sample	
Scrutiny	
Time Factor	Inductive approach assumes that there is **abundance of time**; so depth analysis is possible.
Theory	
Approach	Deductive approach assumes that there is **shortage of time**; so depth analysis of large number of sample is unattainable.

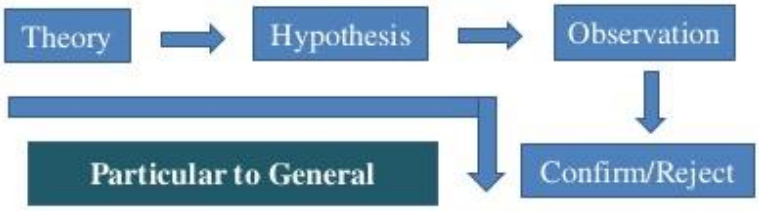
Bases of Difference	Difference Between Inductive and Deductive Approach to Research
Meaning	Inductive approach is concerned with **building a new theory**.
Hypothesis	
Structure	
Size of Sample	Deductive approach is concerned with **testing an existing theory**.
Scrutiny	
Time Factor	
Theory	
Approach	

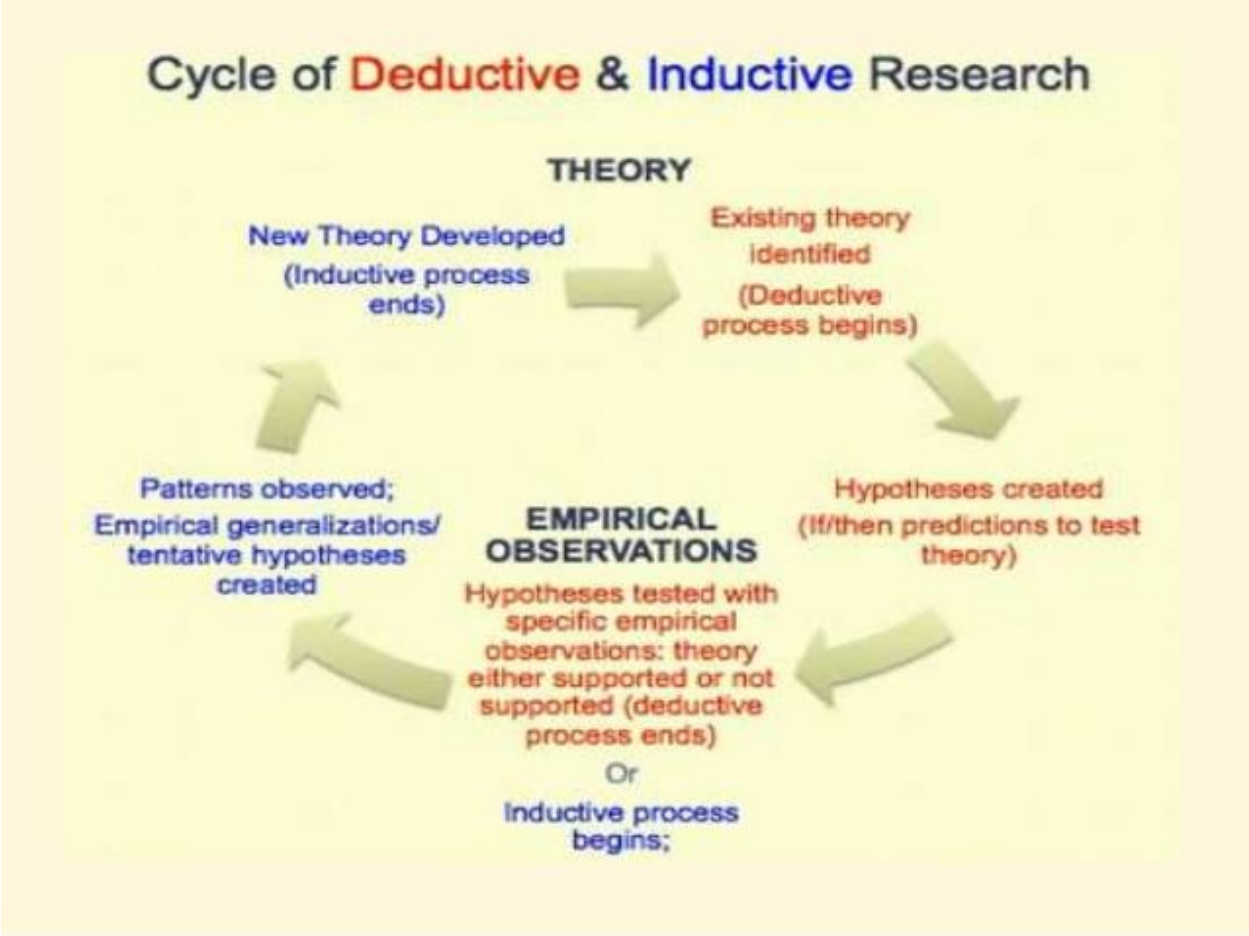
Bases of Difference	Difference Between Inductive and Deductive Approach to Research
Meaning	Inductive approach is concerned with **building a new theory**.
Hypothesis	
Structure	
Size of Sample	Deductive approach is concerned with **testing an existing theory**.
Scrutiny	
Time Factor	
Theory	
Approach	

Bases of Difference
Meaning
Hypothesis
Structure
Size of Sample
Scrutiny
Time Factor
Theory
Approach

Difference Between Inductive and Deductive Approach to Research

Deductive approach to research is top-down approach.





Deductive reasoning and inductive reasoning are two different approaches to conducting scientific research. Using deductive reasoning, a researcher tests a theory by collecting and examining empirical evidence to see if the theory is true. Using inductive reasoning, a researcher first gathers and analyzes data, then constructs a theory to explain her findings.

Within the field of sociology, researchers use both approaches. Often the two are used in conjunction when conducting research and when drawing conclusions from results.

Deductive Reasoning

Many scientists consider deductive reasoning the gold standard for scientific research. Using this method, one begins with a theory or hypothesis, then conducts research in order to test whether that theory or hypothesis is supported by specific evidence. This form of research begins at a general, abstract level and then works its way down to a more specific and concrete level. If something is

found to be true for a category of things, then it is considered to be true for all things in that category in general.

An example of how deductive reasoning is applied within sociology can be found in a 2014 study of whether biases of race or gender shape access to graduate-level education. A team of researchers used deductive reasoning to hypothesize that, due to the prevalence of racism in society, race would play a role in shaping how university professors respond to prospective graduate students who express interest in their research. By tracking professor responses (and lack of responses) to imposter students, coded for race and gender by name, the researchers were able to prove their hypothesis true. They concluded, based on their research, that racial and gender biases are barriers that prevent equal access to graduate-level education across the U.S.

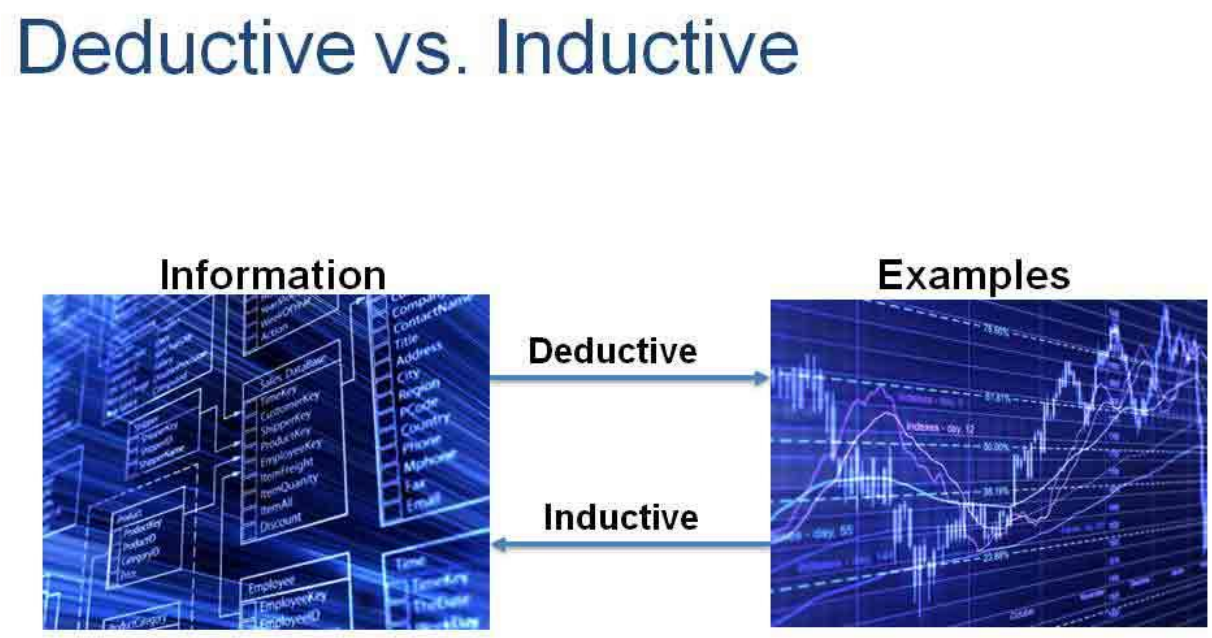
Inductive Reasoning

Unlike deductive reasoning, inductive reasoning begins with specific observations or real examples of events, trends, or social processes. Using this data, researchers then progress analytically to broader generalizations and theories that help explain the observed cases. This is sometimes called a "bottom-up" approach because it starts with specific cases on the ground and works its way up to the abstract level of theory. Once a researcher has identified patterns and trends amongst a set of data, he or she can then formulate a hypothesis to test, and eventually develop some general conclusions or theories.

A classic example of inductive reasoning in sociology is Émile Durkheim's study of suicide. Considered one of the first works of social science research, the famous and widely taught book, "Suicide," details how Durkheim created a sociological theory of suicide—as opposed to a psychological one—based on his scientific study of suicide rates among Catholics and Protestants. Durkheim found that suicide was more common among Protestants than Catholics, and he drew on his training in social theory to create some typologies of suicide and a general theory of how suicide rates fluctuate according to significant changes in social structures and norms.

While inductive reasoning is commonly used in scientific research, it is not without its weaknesses. For example, it is not always logically valid to assume that a general principle is correct simply because it is supported by a limited number of cases. Critics have suggested that Durkheim's theory is not universally true because the trends he observed could possibly be explained by other phenomena particular to the region from which his data came.

By nature, inductive reasoning is more open-ended and exploratory, especially during the early stages. Deductive reasoning is more narrow and is generally used to test or confirm hypotheses. Most social research, however, involves both inductive and deductive reasoning throughout the research process. The scientific norm of logical reasoning provides a two-way bridge between theory and research. In practice, this typically involves alternating between deduction and induction.



- The Deductive Method:

Deduction Means reasoning or inference from the general to the particular or from the universal to the individual. The deductive method derives new conclusions from fundamental assumptions or from truth established by other methods. It involves the process of

reasoning from certain laws or principles, which are assumed to be true, to the analysis of facts.

Then inferences are drawn which are verified against observed facts. Bacon described deduction as a “descending process” in which we proceed from a general principle to its consequences. Mill characterised it as a priori method, while others called it abstract and analytical.

Deduction involves four steps: (1) Selecting the problem. (2) The formulation of assumptions on the basis of which the problem is to be explored. (3) The formulation of hypothesis through the process of logical reasoning whereby inferences are drawn. (4) Verifying the hypothesis. These steps are discussed as under.

(1) Selecting the problem:

The problem which an investigator selects for enquiry must be stated clearly. It may be very wide like poverty, unemployment, inflation, etc. or narrow relating to an industry. The narrower the problem the better it would be to conduct the enquiry.

(2) Formulating Assumptions:

The next step in deduction is the framing of assumptions which are the basis of hypothesis. To be fruitful for enquiry, the assumption must be general. In any economic enquiry, more than one set of assumptions should be made in terms of which a hypothesis may be formulated.

(3) Formulating Hypothesis:

The next step is to formulate a hypothesis on the basis of logical reasoning whereby conclusions are drawn from the propositions. This is done in two ways: First, through logical deduction. If and because relationships (p) and (q) all exist, then this necessarily implies that relationship (r) exists as well. Mathematics is mostly used in these methods of logical deduction.

(4) Testing and Verifying the Hypothesis:

The final step in the deductive method is to test and verify the hypothesis. For this purpose, economists now use statistical and econometric methods. Verification consists in confirming whether the hypothesis is in agreement with facts. A hypothesis is true or not can be verified by observation and experiment. Since economics is concerned with human behaviour, there are problems in making observation and testing a hypothesis.

For example, the hypothesis that firms always attempt to maximise profits, rests upon the observation that some firms do behave in this way. This premise is based on a priori knowledge which will continue to be accepted so long as conclusions deduced from it are consistent with the facts. So the hypothesis stands verified. If the hypothesis is not confirmed, it can be argued that the hypothesis was correct but the results are contradictory due to special circumstances.

Under these conditions, the hypothesis may turn out to the wrong. In economics, most hypotheses remain unverified because of the complexity of factors involved in human behaviour which, in turn, depend upon social, political and economic factors. Moreover, controlled experiments in a laboratory are not possible in economics. So the majority of hypotheses remain untested and unverified in economics.

Merits of Deductive Method:

The deductive method has many advantages.

(1) Real:

It is the method of "intellectual experiment," according to Boulding. Since the actual world is very complicated, "what we do is to postulate in our own minds economic systems which are simpler than reality but more easy to grasp. We then work out the relationship in these simplified systems and by introducing more and more complete assumptions, finally work up to the consideration of reality itself." Thus, this method is nearer to reality.

(2) Simple:

The deductive method is simple because it is analytical. It involves abstraction and simplifies a complex problem by dividing it into component parts. Further, the hypothetical conditions are so chosen as to make the problem very simple, and then inferences are deduced from them.

(3) Powerful:

It is a powerful method of analysis for deducing conclusions from certain facts. As pointed out by Cairnes, The method of deduction is incomparably, when conducted under proper checks, the most powerful instrument of discovery ever wielded by human intelligence.

(4) Exact:

The use of statistics, mathematics and econometrics in deduction brings exactness and clarity in economic analysis. The mathematically trained economist is able to deduce inferences in a short time and make analogies with other generalisations and theories. Further, the use of the mathematical-deductive method helps in revealing inconsistencies in economic analysis.

(5) Indispensable:

The use of deductive method is indispensable in sciences like economics where experimentation is not possible. As pointed out by Gide and Rist, “In a science like political economy, where experiment is practically impossible, abstraction and analysis afford the only means of escape from those other influences which complicate the problem so much.”

(6) Universal:

The deductive method helps in drawing inferences which are of universal validity because they are based on general principles, such as the law of diminishing returns.

Demerits of Deductive Method:

Despite these merits, much criticism has been levelled against this method by the Historical School which flourished in Germany.

1 .Unrealistic Assumption:

Every hypothesis is based on a set of assumptions. When a hypothesis is tested, assumptions are indirectly tested by comparing their implications with facts. But when facts refute the theory based on the tested hypothesis, the assumptions are also indirectly refuted. So deduction depends upon the nature of assumptions. If they are unrealistic, in this method, economists use the ceteris paribus assumption. But other things seldom remain the same which tend to refute theories.

2. Not Universally Applicable:

Often the conclusions derived from deductive reasoning are not applicable universally because the premises from which they are deduced may not hold good at all time and places. For instance, the classicists assumed in their reasoning that particular conditions prevailing in England of their times were valid universally. This supposition was wrong. Prof. Lerner, therefore, points out that the deductive method is simply “armchair analysis” which cannot be regarded as universal.

3. Incorrect Verification:

The verification of theories, generalisations or laws in economics is based on observation. And right observation depends upon data which must be correct and adequate. If a hypothesis is deduced from wrong

or inadequate data, the theory will not correspond with facts and will be refuted. For instance, the generalisations of the classicists were based on inadequate data and their theories were refuted. As pointed out by ircholson, “the great danger of the deductive method lies in the natural aversion to the labour of verification.”

4. Abstract Method:

The deductive method is highly abstract and requires great skill in drawing inferences for various premises. Due to the complexity of certain economic problems, it becomes difficult to apply this method even at the hands of an expert researcher. More so, when he uses mathematics or econometrics.

5. Static Method:

This method of analysis is based on the assumption that economic conditions remain constant. But economic conditions are continuously changing. Thus this is a static method which fails to make correct analysis.

6. Intellectually:

The chief defect of the deductive method “lies in the fact that those who follow this method may be absorbed in the framing of intellectual toys and the real world may be forgotten in the intellectual gymnastics and mathematical treatment.”

The Inductive Method:

Induction “is the process of reasoning from a part to the whole, from particulars to generals or from the individual to the universal.” Bacon

described it as “an ascending process” in which facts are collected, arranged and then general conclusions are drawn.

The inductive method was employed in economics by the German Historical School which sought to develop economics wholly from historical research. The historical or inductive method expects the economist to be primarily an economic historian who should first collect material, draw gereralisations, and verify the conclusions by applying them to subsequent events. For this, it uses statistical methods. The Engel’s Law of Family Expenditure and the Malthusian Theory of Population have been derived from inductive reasoning.

The inductive method involves the following steps:

1. The Problem:
In order to arrive at a generalisation concerning an economic phenomenon, the problem should be properly selected and clearly stated.

2. Data:
The second step is the collection, enumeration, classification and analysis of data by using appropriate statistical techniques.

3. Observation:
Data are used to make observation about particular facts concerning the problem.

4. Generalisation:

On the basis of observation, generalisation is logically derived which establishes a general truth from particular facts.

Thus induction is the process in which we arrive at a generalisation on the basis of particular observed facts.

The best example of inductive reasoning in economics is the formulation of the generalisation of diminishing returns. When a Scottish farmer found that in the cultivation of his field an increase in the amount of labour and capital spent on it was bringing in less than proportionate returns year after year, an economist observed such instances in the case of a number of other farms, and then he arrived at the generalisation that is known as the Law of Diminishing Returns.

Merits of Inductive Method:

The chief merits of this method are as follows:

(1) Realistic:

The inductive method is realistic because it is based on facts and explains them as they actually are. It is concrete and synthetic because it deals with the subject as a whole and does not divide it into component parts artificially

(2) Future Enquiries:

Induction helps in future enquiries. By discovering and providing general principles, induction helps future investigations. Once a generalisation is established, it becomes the starting point of future enquiries.

(3) Statistical Method:

The inductive method makes use of the statistical method. This has made significant improvements in the application of induction for analysing economic problems of wide range. In particular, the collection of data by governmental and private agencies or macro variables, like national income, general prices, consumption, saving, total employment, etc., has increased the value of this method and helped governments to formulate economic policies pertaining to the removal of poverty, inequalities, underdevelopment, etc.

(4) Dynamic:

The inductive method is dynamic. In this, changing economic phenomena can be analysed on the basis of experiences, conclusions can be drawn, and appropriate remedial measures can be taken. Thus, induction suggests new problems to pure theory for their solution from time to time.

(5) Histrico-Relative:

A generalisation drawn under the inductive method is often histrico-relative in economics. Since it is drawn from a particular historical situation, it cannot be applied to all situations unless they are exactly similar. For instance, India and America differ in their factor endowments. Therefore, it would be wrong to apply the industrial policy which was followed in America in the late nineteenth century to present day India. Thus, the inductive method has the merit of applying generalisations only to related situations or phenomena.

Demerits of Inductive Method:

However, the inductive method is not without its weaknesses which are discussed below.

(1) Misenterpretation of Data:

Induction relies on statistical numbers for analysis that "can be misused and misinterpreted when the assumptions which are required for their use are forgotten."

(2) Uncertain Conclusions:

Boulding points out that "statistical information can only give us propositions whose truth is more or less probable it can never give us certainty."

(3) Lacks Concreteness:

Definitions, sources and methods used in statistical analysis differ from investigator to investigator even for the same problem, as for instance in the case of national income accounts. Thus, statistical techniques lack concreteness.

(4) Costly Method:

The inductive method is not only time-consuming but also costly. It involves detailed and painstaking processes of collection, classification, analyses and interpretation of data on the part of trained and expert investigators and analysts

(5) Difficult to Prove Hypothesis:

Again the use of statistics in induction cannot prove a hypothesis. It can only show that the hypothesis is not inconsistent with the known

facts. In reality, collection of data is not illuminating unless it is related to a hypothesis.

(6) Controlled Experimentation not Possible in Economics: Besides the statistical method, the other method used in induction is of controlled experimentation. This method is extremely useful in natural and physical sciences which deal with matter. But unlike the natural sciences, there is little scope for experimentation in economics because economics deals with human behaviour which differs from person to person and from place to place.

Further, economic phenomena are very complex as they relate to man who does not act rationally. Some of his actions are also bound by the legal and social institutions of the society in which he lives. Thus, the scope for controlled experiments in inductive economics is very little. As pointed Out by Friendman, "The absence of controlled experiments in economics renders the weeding out of unsuccessful hypo-these slow and difficult."

Conclusion:

The above analysis reveals that independently neither deduction nor induction is helpful in scientific enquiry. In reality, both deduction and induction are related to each other because of some facts. They are the two forms of logic that are complementary and co-relative and help establish the truth.

Marshall also supported the complementary nature of the two methods when he quoted Schmoller: "Induction and deduction are

both needed for scientific thought as the right and left foot are needed for walking." And then Marshall stressed the need and use of integrating these methods.

Now-a-days, economists are combining induction and deduction in their studies of economic phenomena in various fields for arriving at generalisations from observed facts and for the indirect verification of hypotheses. They are using the two methods to confirm the conclusions drawn through deduction by inductive reasoning and vice versa. Thus true progress in economic enquiries can be made by a wise combination of deduction and induction.

Induction Vs. Deduction Economics

By Shane Hall

Reason is the tool by which the human mind comes to understand the world. There are two processes by which reason tries to understand events: deductive reasoning, based on generally accepted principles, and inductive reasoning, in which general principles are formed from observed events. The field of economics has deductive and inductive sides, which are complementary to each other.

Deduction in Economics

Deductive economics starts with a set of axioms about economies and how they work, and relies on these principles to explain individual cases or events. Supply and demand analysis, a staple in any introductory economics course, is an example of deductive reasoning because it involves a set of generally accepted principles about demand and supply. To summarize, deduction in

economics starts with a generally accepted principle and proceeds to the specific.

Induction in Economics

Inductive reasoning in economics does the reverse of deductive reasoning; namely, it begins with an individual problem or question and proceeds to form a general principle based on the evidence observed in the real world of economic activity. For example, an economist who asks if a government program of public works spending will stimulate a region's economy will proceed to research the issue, collect and analyze data, and based on conclusions, form a general theory about the economic impact of fiscal policies.

Induction-Deduction Link

Although deduction and induction represent two differing approaches to understanding economic phenomena, the 19th century American economist Henry George observed that they are related. George noted that induction involves the use of human reason to investigate facts, while deduction is the derivative of the former.

Effects

Applying George's insight on deduction and induction in economics, deduction involves the use of economic principles and theories that have been empirically verified through observation, research, and critical analysis. Generally accepted principles of supply and demand, for example, can inform our understanding of economic transactions only if they are based on empirical evidence, collected and analyzed through the inductive process.

Features

Induction in economics requires rigorous use of the methodology of economic research. This includes use of the mathematical modeling and statistical

processes used in econometrics, or economic measurement. Findings from inductive reasoning then form economic theories used in deductive analysis.

The Deductive Method:

Deduction Means reasoning or inference from the general to the particular or from the universal to the individual. The deductive method derives new conclusions from fundamental assumptions or from truth established by other methods. It involves the process of reasoning from certain laws or principles, which are assumed to be true, to the analysis of facts.

Then inferences are drawn which are verified against observed facts. Bacon described deduction as a “descending process” in which we proceed from a general principle to its consequences. Mill characterised it as a priori method, while others called it abstract and analytical.

Deduction involves four steps: (1) Selecting the problem. (2) The formulation of assumptions on the basis of which the problem is to be explored. (3) The formulation of hypothesis through the process of logical reasoning whereby inferences are drawn. (4) Verifying the hypothesis. These steps are discussed as under.

(1) Selecting the problem:

The problem which an investigator selects for enquiry must be stated clearly. It may be very wide like poverty, unemployment, inflation, etc. or narrow relating to an industry. The narrower the problem the better it would be to conduct the enquiry.

(2) Formulating Assumptions:

The next step in deduction is the framing of assumptions which are the basis of hypothesis. To be fruitful for enquiry, the assumption must be general. In any economic enquiry, more than one set of assumptions should be made in terms of which a hypothesis may be formulated.

(3) Formulating Hypothesis:

The next step is to formulate a hypothesis on the basis of logical reasoning whereby conclusions are drawn from the propositions. This is done in two ways: First, through logical deduction. If and because relationships (p) and (q) all exist, then this necessarily implies that relationship (r) exists as well. Mathematics is mostly used in these methods of logical deduction.

(4) Testing and Verifying the Hypothesis:

The final step in the deductive method is to test and verify the hypothesis. For this purpose, economists now use statistical and econometric methods. Verification consists in confirming whether the hypothesis is in agreement with facts. A hypothesis is true or not can be verified by observation and experiment. Since economics is

concerned with human behaviour, there are problems in making observation and testing a hypothesis.

For example, the hypothesis that firms always attempt to maximise profits, rests upon the observation that some firms do behave in this way. This premise is based on a priori knowledge which will continue to be accepted so long as conclusions deduced from it are consistent with the facts. So the hypothesis stands verified. If the hypothesis is not confirmed, it can be argued that the hypothesis was correct but the results are contradictory due to special circumstances.

Under these conditions, the hypothesis may turn out to the wrong. In economics, most hypotheses remain unverified because of the complexity of factors involved in human behaviour which, in turn, depend upon social, political and economic factors. Moreover, controlled experiments in a laboratory are not possible in economics. So the majority of hypotheses remain untested and unverified in economics.

Merits of Deductive Method:

The deductive method has many advantages.

(1) Real:

It is the method of "intellectual experiment," according to Boulding. Since the actual world is very complicated, "what we do is to postulate in our own minds economic systems which are simpler than reality but more easy to grasp. We then work out the relationship in these

simplified systems and by introducing more and more complete assumptions, finally work up to the consideration of reality itself." Thus, this method is nearer to reality.

(2) Simple:

The deductive method is simple because it is analytical. It involves abstraction and simplifies a complex problem by dividing it into component parts. Further, the hypothetical conditions are so chosen as to make the problem very simple, and then inferences are deduced from them.

(3) Powerful:

It is a powerful method of analysis for deducing conclusions from certain facts. As pointed out by Cairnes, The method of deduction is incomparably, when conducted under proper checks, the most powerful instrument of discovery ever wielded by human intelligence.

(4) Exact:

The use of statistics, mathematics and econometrics in deduction brings exactness and clarity in economic analysis. The mathematically trained economist is able to deduce inferences in a short time and make analogies with other generalisations and theories. Further, the use of the mathematical-deductive method helps in revealing inconsistencies in economic analysis.

(5) Indispensable:

The use of deductive method is indispensable in sciences like economics where experimentation is not possible. As pointed out by

Gide and Rist, “In a science like political economy, where experiment is practically impossible, abstraction and analysis afford the only means of escape from those other influences which complicate the problem so much.”

(6) Universal:

The deductive method helps in drawing inferences which are of universal validity because they are based on general principles, such as the law of diminishing returns.

Demerits of Deductive Method:

Despite these merits, much criticism has been levelled against this method by the Historical School which flourished in Germany.

1 .Unrealistic Assumption:

Every hypothesis is based on a set of assumptions. When a hypothesis is tested, assumptions are indirectly tested by comparing their implications with facts. But when facts refute the theory based on the tested hypothesis, the assumptions are also indirectly refuted. So deduction depends upon the nature of assumptions. If they are unrealistic, in this method, economists use the ceteris paribus assumption. But other things seldom remain the same which tend to refute theories.

2. Not Universally Applicable:

Often the conclusions derived from deductive reasoning are not applicable universally because the premises from which they are deduced may not hold good at all time and places. For instance, the

classicists assumed in their reasoning that particular conditions prevailing in England of their times were valid universally. This supposition was wrong. Prof. Lerner, therefore, points out that the deductive method is simply “armchair analysis” which cannot be regarded as universal.

3. Incorrect Verification:

The verification of theories, generalisations or laws in economics is based on observation. And right observation depends upon data which must be correct and adequate. If a hypothesis is deduced from wrong or inadequate data, the theory will not correspond with facts and will be refuted. For instance, the generalisations of the classicists were based on inadequate data and their theories were refuted. As pointed out by ircholson, “the great danger of the deductive method lies in the natural aversion to the labour of verification.”

4. Abstract Method:

The deductive method is highly abstract and requires great skill in drawing inferences for various premises. Due to the complexity of certain economic problems, it becomes difficult to apply this method even at the hands of an expert researcher. More so, when he uses mathematics or econometrics.

5. Static Method:

This method of analysis is based on the assumption that economic conditions remain constant. But economic conditions are continuously changing. Thus this is a static method which fails to make correct analysis.

6. Intellectually:
The chief defect of the deductive method "lies in the fact that those who follow this method may be absorbed in the framing of intellectual toys and the real world may be forgotten in the intellectual gymnastics and mathematical treatment."

The Inductive Method:
Induction "is the process of reasoning from a part to the whole, from particulars to generals or from the individual to the universal." Bacon described it as "an ascending process" in which facts are collected, arranged and then general conclusions are drawn.

The inductive method was employed in economics by the German Historical School which sought to develop economics wholly from historical research. The historical or inductive method expects the economist to be primarily an economic historian who should first collect material, draw gereralisations, and verify the conclusions by applying them to subsequent events. For this, it uses statistical methods. The Engel's Law of Family Expenditure and the Malthusian Theory of Population have been derived from inductive reasoning.

The inductive method involves the following steps:

1. The Problem:
In order to arrive at a generalisation concerning an economic phenomenon, the problem should be properly selected and clearly stated.

2. Data:

The second step is the collection, enumeration, classification and analysis of data by using appropriate statistical techniques.

3. Observation:
Data are used to make observation about particular facts concerning the problem.

4. Generalisation:
On the basis of observation, generalisation is logically derived which establishes a general truth from particular facts.

Thus induction is the process in which we arrive at a generalisation on the basis of particular observed facts.

The best example of inductive reasoning in economics is the formulation of the generalisation of diminishing returns. When a Scottish farmer found that in the cultivation of his field an increase in the amount of labour and capital spent on it was bringing in less than proportionate returns year after year, an economist observed such instances in the case of a number of other farms, and then he arrived at the generalisation that is known as the Law of Diminishing Returns.

Merits of Inductive Method:
The chief merits of this method are as follows:

(1) Realistic:
The inductive method is realistic because it is based on facts and explains them as they actually are. It is concrete and synthetic because

it deals with the subject as a whole and does not divide it into component parts artificially

(2) Future Enquiries:

Induction helps in future enquiries. By discovering and providing general principles, induction helps future investigations. Once a generalisation is established, it becomes the starting point of future enquiries.

(3) Statistical Method:

The inductive method makes use of the statistical method. This has made significant improvements in the application of induction for analysing economic problems of wide range. In particular, the collection of data by governmental and private agencies or macro variables, like national income, general prices, consumption, saving, total employment, etc., has increased the value of this method and helped governments to formulate economic policies pertaining to the removal of poverty, inequalities, underdevelopment, etc.

(4) Dynamic:

The inductive method is dynamic. In this, changing economic phenomena can be analysed on the basis of experiences, conclusions can be drawn, and appropriate remedial measures can be taken. Thus, induction suggests new problems to pure theory for their solution from time to time.

(5) Histrico-Relative:

A generalisation drawn under the inductive method is often histrico-relative in economics. Since it is drawn from a particular historical situation, it cannot be applied to all situations unless they are exactly similar. For instance, India and America differ in their factor endowments. Therefore, it would be wrong to apply the industrial policy which was followed in America in the late nineteenth century to present day India. Thus, the inductive method has the merit of applying generalisations only to related situations or phenomena.

Demerits of Inductive Method:

However, the inductive method is not without its weaknesses which are discussed below.

(1) Misenterpretation of Data:

Induction relies on statistical numbers for analysis that "can be misused and misinterpreted when the assumptions which are required for their use are forgotten."

(2) Uncertain Conclusions:

Boulding points out that "statistical information can only give us propositions whose truth is more or less probable it can never give us certainty."

(3) Lacks Concreteness:

Definitions, sources and methods used in statistical analysis differ from investigator to investigator even for the same problem, as for instance in the case of national income accounts. Thus, statistical techniques lack concreteness.

(4) Costly Method:

The inductive method is not only time-consuming but also costly. It involves detailed and painstaking processes of collection, classification, analyses and interpretation of data on the part of trained and expert investigators and analysts

(5) Difficult to Prove Hypothesis:

Again the use of statistics in induction cannot prove a hypothesis. It can only show that the hypothesis is not inconsistent with the known facts. In reality, collection of data is not illuminating unless it is related to a hypothesis.

(6) Controlled Experimentation not Possible in Economics:

Besides the statistical method, the other method used in induction is of controlled experimentation. This method is extremely useful in natural and physical sciences which deal with matter. But unlike the natural sciences, there is little scope for experimentation in economics because economics deals with human behaviour which differs from person to person and from place to place.

Further, economic phenomena are very complex as they relate to man who does not act rationally. Some of his actions are also bound by the legal and social institutions of the society in which he lives. Thus, the scope for controlled experiments in inductive economics is very little. As pointed Out by Friendman, “The absence of controlled experiments in economics renders the weeding out of unsuccessful hypo-these slow and difficult.”

Conclusion:

The above analysis reveals that independently neither deduction nor induction is helpful in scientific enquiry. In reality, both deduction and induction are related to each other because of some facts. They are the two forms of logic that are complementary and co-relative and help establish the truth.

Marshall also supported the complementary nature of the two methods when he quoted Schmoller: “Induction and deduction are both needed for scientific thought as the right and left foot are needed for walking.” And then Marshall stressed the need and use of integrating these methods.

Now-a-days, economists are combining induction and deduction in their studies of economic phenomena in various fields for arriving at generalisations from observed facts and for the indirect verification of hypotheses. They are using the two methods to confirm the conclusions drawn through deduction by inductive reasoning and vice versa. Thus true progress in economic enquiries can be made by a wise combination of deduction and induction.

National Income: Definition, Concepts and Methods of Measuring National Income

National Income: Definition, Concepts and Methods of Measuring National Income!

Introduction:

National income is an uncertain term which is used interchangeably with national dividend, national output and national expenditure. On this basis, national income has been defined in a number of ways. In common parlance, national income means the total value of goods and services produced annually in a country

In other words, the total amount of income accruing to a country from economic activities in a year's time is known as national income. It includes payments made to all resources in the form of wages, interest, rent and profits.

1. Definitions of National Income:

The definitions of national income can be grouped into two classes: One, the traditional definitions advanced by Marshall, Pigou and Fisher; and two, modern definitions.

The Marshallian Definition:

According to Marshall: "The labour and capital of a country acting on its natural resources produce annually a certain net aggregate of commodities, material and immaterial including services of all kinds. This is the true net annual income or revenue of the country or national dividend." In this definition, the word 'net' refers to

deductions from the gross national income in respect of depreciation and wearing out of machines. And to this, must be added income from abroad.

It's Defects:

Though the definition advanced by Marshall is simple and comprehensive, yet it suffers from a number of limitations. First, in the present day world, so varied and numerous are the goods and services produced that it is very difficult to have a correct estimation of them.

Consequently, the national income cannot be calculated correctly. Second, there always exists the fear of the mistake of double counting, and hence the national income cannot be correctly estimated. Double counting means that a particular commodity or service like raw material or labour, etc. might get included in the national income twice or more than twice.

For example, a peasant sells wheat worth Rs.2000 to a flour mill which sells wheat flour to the wholesaler and the wholesaler sells it to the retailer who, in turn, sells it to the customers. If each time, this wheat or its flour is taken into consideration, it will work out to Rs.8000, whereas, in actuality, there is only an increase of Rs.2000 in the national income.

Third, it is again not possible to have a correct estimation of national income because many of the commodities produced are not marketed

and the producer either keeps the produce for self-consumption or exchanges it for other commodities. It generally happens in an agriculture- oriented country like India. Thus the volume of national income is underestimated.

The Pigouvian Definition:

A.C. Pigou has in his definition of national income included that income which can be measured in terms of money. In the words of Pigou, "National income is that part of objective income of the community, including of course income derived from abroad which can be measured in money."

This definition is better than the Marshallian definition. It has proved to be more practical also. While calculating the national income now-a- days, estimates are prepared in accordance with the two criteria laid down in this definition.

First, avoiding double counting, the goods and services which can be measured in money are included in national income. Second, income received on account of investment in foreign countries is included in national income.

It's Defects:

The Pigouvian definition is precise, simple and practical but it is not free from criticism. First, in the light of the definition put forth by Pigou, we have to unnecessarily differentiate between commodities which can and which cannot be exchanged for money.

But, in actuality, there is no difference in the fundamental forms of such commodities, no matter they can be exchanged for money. Second, according to this definition when only such commodities as can be exchanged for money are included in estimation of national income, the national income cannot be correctly measured.

According to Pigou, a woman's services as a nurse would be included in national income but excluded when she worked in the home to look after her children because she did not receive any salary for it. Similarly, Pigou is of the view that if a man marries his lady secretary, the national income diminishes as he has no longer to pay for her services.

Thus the Pigovian definition gives rise to a number of paradoxes. Third, the Pigovian definition is applicable only to the developed countries where goods and services are exchanged for money in the market.

According to this definition, in the backward and underdeveloped countries of the world, where a major portion of the produce is simply bartered, correct estimate of national income will not be possible, because it will always work out less than the real level of income. Thus the definition advanced by Pigou has a limited scope.

Fisher's Definition:

Fisher adopted 'consumption' as the criterion of national income whereas Marshall and Pigou regarded it to be production. According to Fisher, "The National dividend or income consists solely of services

as received by ultimate consumers, whether from their material or from the human environments. Thus, a piano, or an overcoat made for me this year is not a part of this year's income, but an addition to the capital. Only the services rendered to me during this year by these things are income."

Fisher's definition is considered to be better than that of Marshall or Pigou, because Fisher's definition provides an adequate concept of economic welfare which is dependent on consumption and consumption represents our standard of living.

It's Defects:

But from the practical point of view, this definition is less useful, because there are certain difficulties in measuring the goods and services in terms of money. First, it is more difficult to estimate the money value of net consumption than that of net production.

In one country there are several individuals who consume a particular good and that too at different places and, therefore, it is very difficult to estimate their total consumption in terms of money. Second, certain consumption goods are durable and last for many years.

If we consider the example of piano or overcoat, as given by Fisher, only the services rendered for use during one year by them will be included in income. If an overcoat costs Rs. 100 and lasts for ten years, Fisher will take into account only Rs. 100 as national income during one year, whereas Marshall and Pigou will include Rs. 100 in the national income for the year, when it is made.

Besides, it cannot be said with certainty that the overcoat will last only for ten years. It may last longer or for a shorter period. Third, the durable goods generally keep changing hands leading to a change in their ownership and value too.

It, therefore, becomes difficult to measure in money the service-value of these goods from the point of view of consumption. For instance, the owner of a Maruti car sells it at a price higher than its real price and the purchaser after using it for a number of years further sells it at its actual price.

Now the question is as to which of its price, whether actual or black market one, should we take into account, and afterwards when it is transferred from one person to another, which of its value according to its average age should be included in national income?

But the definitions advanced by Marshall, Pigou and Fisher are not altogether flawless. However, the Marshallian and Pigovian definitions tell us of the reasons influencing economic welfare, whereas Fisher's definition helps us compare economic welfare in different years.

Modern Definitions:

From the modern point of view, Simon Kuznets has defined national income as "the net output of commodities and services flowing during the year from the country's productive system in the hands of the ultimate consumers."

On the other hand, in one of the reports of United Nations, national income has been defined on the basis of the systems of estimating

national income, as net national product, as addition to the shares of different factors, and as net national expenditure in a country in a year's time. In practice, while estimating national income, any of these three definitions may be adopted, because the same national income would be derived, if different items were correctly included in the estimate.

3. Methods of Measuring National Income:

There are four methods of measuring national income. Which method is to be used depends on the availability of data in a country and the purpose in hand.

(1) Product Method:

According to this method, the total value of final goods and services produced in a country during a year is calculated at market prices. To find out the GNP, the data of all productive activities, such as agricultural products, wood received from forests, minerals received from mines, commodities produced by industries, the contributions to production made by transport, communications, insurance companies, lawyers, doctors, teachers, etc. are collected and assessed at market prices. Only the final goods and services are included and the intermediary goods and services are left out.

(2) Income Method:

According to this method, the net income payments received by all citizens of a country in a particular year are added up, i.e., net incomes that accrue to all factors of production by way of net rents, net wages,

net interest and net profits are all added together but incomes received in the form of transfer payments are not included in it. The data pertaining to income are obtained from different sources, for instance, from income tax department in respect of high income groups and in case of workers from their wage bills.

(3) Expenditure Method:

According to this method, the total expenditure incurred by the society in a particular year is added together and includes personal consumption expenditure, net domestic investment, government expenditure on goods and services, and net foreign investment. This concept is based on the assumption that national income equals national expenditure.

(4) Value Added Method:

Another method of measuring national income is the value added by industries. The difference between the value of material outputs and inputs at each stage of production is the value added. If all such differences are added up for all industries in the economy, we arrive at the gross domestic product.

4. Difficulties or Limitations in Measuring National Income:

There are many conceptual and statistical problems involved in measuring national income by the income method, product method, and expenditure method.

We discuss them separately in the light of the three methods:

(A) Problems in Income Method:

The following problems arise in the computation of National Income by income method:

1. Owner-occupied Houses:

A person who rents a house to another earns rental income, but if he occupies the house himself, will the services of the house-owner be included in national income. The services of the owner-occupied house are included in national income as if the owner sells to himself as a tenant its services.

For the purpose of national income accounts, the amount of imputed rent is estimated as the sum for which the owner-occupied house could have been rented. The imputed net rent is calculated as that portion of the amount that would have accrued to the house-owner after deducting all expenses.

2. Self-employed Persons:

Another problem arises with regard to the income of self-employed persons. In their case, it is very difficult to find out the different inputs provided by the owner himself. He might be contributing his capital, land, labour and his abilities in the business. But it is not possible to estimate the value of each factor input to production. So he gets a mixed income consisting of interest, rent, wage and profits for his factor services. This is included in national income.

3. Goods meant for Self-consumption:

In under-developed countries like India, farmers keep a large portion of food and other goods produced on the farm for self-consumption. The problem is whether that part of the produce which is not sold in the market can be included in national income or not. If the farmer were to sell his entire produce in the market, he will have to buy what he needs for self-consumption out of his money income. If, instead he keeps some produce for his self-consumption, it has money value which must be included in national income.

4. Wages and Salaries paid in Kind:

Another problem arises with regard to wages and salaries paid in kind to the employees in the form of free food, lodging, dress and other amenities. Payments in kind by employers are included in national income. This is because the employees would have received money income equal to the value of free food, lodging, etc. from the employer and spent the same in paying for food, lodging, etc.

(B) Problems in Product Method:

The following problems arise in the computation of national income by product method:

1. Services of Housewives:

The estimation of the unpaid services of the housewife in the national income presents a serious difficulty. A housewife renders a number of useful services like preparation of meals, serving, tailoring, mending, washing, cleaning, bringing up children, etc.

She is not paid for them and her services are not including in national income. Such services performed by paid servants are included in

national income. The national income is, therefore, underestimated by excluding the services of a housewife.

The reason for the exclusion of her services from national income is that the love and affection of a housewife in performing her domestic work cannot be measured in monetary terms. That is why when the owner of a firm marries his lady secretary, her services are not included in national income when she stops working as a secretary and becomes a housewife.

When a teacher teaches his own children, his work is also not included in national income. Similarly, there are a number of goods and services which are difficult to be assessed in money terms for the reason stated above, such as painting, singing, dancing, etc. as hobbies.

2. Intermediate and Final Goods:

The greatest difficulty in estimating national income by product method is the failure to distinguish properly between intermediate and final goods. There is always the possibility of including a good or service more than once, whereas only final goods are included in national income estimates. This leads to the problem of double counting which leads to the overestimation of national income.

3. Second-hand Goods and Assets:

Another problem arises with regard to the sale and purchase of second-hand goods and assets. We find that old scooters, cars, houses, machinery, etc. are transacted daily in the country. But they are not

included in national income because they were counted in the national product in the year they were manufactured.

If they are included every time they are bought and sold, national income would increase many times. Similarly, the sale and purchase of old stocks, shares, and bonds of companies are not included in national income because they were included in national income when the companies were started for the first time. Now they are simply financial transactions and represent claims.

But the commission or fees charged by the brokers in the repurchase and resale of old shares, bonds, houses, cars or scooters, etc. are included in national income. For these are the payments they receive for their productive services during the year.

4. Illegal Activities:

Income earned through illegal activities like gambling, smuggling, illicit extraction of wine, etc. is not included in national income. Such activities have value and satisfy the wants of the people but they are not considered productive from the point of view of society. But in countries like Nepal and Monaco where gambling is legalised, it is included in national income. Similarly, horse-racing is a legal activity in England and is included in national income.

5. Consumers' Service:

There are a number of persons in society who render services to consumers but they do not produce anything tangible. They are the actors, dancers, doctors, singers, teachers, musicians, lawyers,

barbers, etc. The problem arises about the inclusion of their services in national income since they do not produce tangible commodities. But as they satisfy human wants and receive payments for their services, their services are included as final goods in estimating national income.

6. Capital Gains:

The problem also arises with regard to capital gains. Capital gains arise when a capital asset such as a house, some other property, stocks or shares, etc. is sold at higher price than was paid for it at the time of purchase. Capital gains are excluded from national income because these do not arise from current economic activities. Similarly, capital losses are not taken into account while estimating national income.

7. Inventory Changes:

All inventory changes (or changes in stocks) whether positive or negative are included in national income. The procedure is to take changes in physical units of inventories for the year valued at average current prices paid for them.

The value of changes in inventories may be positive or negative which is added or subtracted from the current production of the firm. Remember, it is the change in inventories and not total inventories for the year that are taken into account in national income estimates.

8. Depreciation:

Depreciation is deducted from GNP in order to arrive at NNP. Thus depreciation lowers the national income. But the problem is of

estimating the current depreciated value of, say, a machine, whose expected life is supposed to be thirty years. Firms calculate the depreciation value on the original cost of machines for their expected life. This does not solve the problem because the prices of machines change almost every year.

9. Price Changes:

National income by product method is measured by the value of final goods and services at current market prices. But prices do not remain stable. They rise or fall. When the price level rises, the national income also rises, though the national production might have fallen.

On the contrary, with the fall in the price level, the national income also falls, though the national production might have increased. So price changes do not adequately measure national income. To solve this problem, economists calculate the real national income at a constant price level by the consumer price index.

(C) Problems in Expenditure Method:

The following problems arise in the calculation of national income by expenditure method:

(1) Government Services:

In calculating national income by, expenditure method, the problem of estimating government services arises. Government provides a number of services, such as police and military services, administrative and legal services. Should expenditure on government services be included in national income?

If they are final goods, then only they would be included in national income. On the other hand, if they are used as intermediate goods, meant for further production, they would not be included in national income. There are many divergent views on this issue.

One view is that if police, military, legal and administrative services protect the lives, property and liberty of the people, they are treated as final goods and hence form part of national income. If they help in the smooth functioning of the production process by maintaining peace and security, then they are like intermediate goods that do not enter into national income.

In reality, it is not possible to make a clear demarcation as to which service protects the people and which protects the productive process. Therefore, all such services are regarded as final goods and are included in national income.

(2) Transfer Payments:

There arises the problem of including transfer payments in national income. Government makes payments in the form of pensions, unemployment allowance, subsidies, interest on national debt, etc. These are government expenditures but they are not included in national income because they are paid without adding anything to the production process during the current year.

For instance, pensions and unemployment allowances are paid to individuals by the government without doing any productive work during the year. Subsidies tend to lower the market price of the

commodities. Interest on national or public debt is also considered a transfer payment because it is paid by the government to individuals and firms on their past savings without any productive work.

(3) Durable-use Consumers' Goods:

Durable-use consumers' goods also pose a problem. Such durable-use consumers' goods as scooters, cars, fans, TVs, furniture's, etc. are bought in one year but they are used for a number of years. Should they be included under investment expenditure or consumption expenditure in national income estimates? The expenditure on them is regarded as final consumption expenditure because it is not possible to measure their used up value for the subsequent years.

But there is one exception. The expenditure on a new house is regarded as investment expenditure and not consumption expenditure. This is because the rental income or the imputed rent which the house-owner gets is for making investment on the new house. However, expenditure on a car by a household is consumption expenditure. But if he spends the amount for using it as a taxi, it is investment expenditure.

(4) Public Expenditure:

Government spends on police, military, administrative and legal services, parks, street lighting, irrigation, museums, education, public health, roads, canals, buildings, etc. The problem is to find out which expenditure is consumption expenditure and which investment expenditure is.

Expenses on education, museums, public health, police, parks, street lighting, civil and judicial administration are consumption expenditure. Expenses on roads, canals, buildings, etc. are investment expenditure. But expenses on defence equipment are treated as consumption expenditure because they are consumed during a war as they are destroyed or become obsolete. However, all such expenses including the salaries of armed personnel are included in national income.

5. Importance of National Income Analysis:

The national income data have the following importance:

1. For the Economy:

National income data are of great importance for the economy of a country. These days the national income data are regarded as accounts of the economy, which are known as social accounts. These refer to net national income and net national expenditure, which ultimately equal each other.

Social accounts tell us how the aggregates of a nation's income, output and product result from the income of different individuals, products of industries and transactions of international trade. Their main constituents are inter-related and each particular account can be used to verify the correctness of any other account.

2. National Policies:

National income data form the basis of national policies such as employment policy, because these figures enable us to know the

direction in which the industrial output, investment and savings, etc. change, and proper measures can be adopted to bring the economy to the right path.

3. Economic Planning:

In the present age of planning, the national data are of great importance. For economic planning, it is essential that the data pertaining to a country's gross income, output, saving and consumption from different sources should be available. Without these, planning is not possible.

4. Economic Models:

The economists propound short-run as well as long-run economic models or long-run investment models in which the national income data are very widely used.

5. Research:

The national income data are also made use of by the research scholars of economics. They make use of the various data of the country's input, output, income, saving, consumption, investment, employment, etc., which are obtained from social accounts.

6. Per Capita Income:

National income data are significant for a country's per capita income which reflects the economic welfare of the country. The higher the per capita income, the higher the economic welfare of the country.

7. Distribution of Income:

National income statistics enable us to know about the distribution of income in the country. From the data pertaining to wages, rent, interest and profits, we learn of the disparities in the incomes of different sections of the society. Similarly, the regional distribution of income is revealed.

It is only on the basis of these that the government can adopt measures to remove the inequalities in income distribution and to restore regional equilibrium. With a view to removing these personal and regional disequibria, the decisions to levy more taxes and increase public expenditure also rest on national income statistics.
