ENGINEERING ECONOMICS (ECE)

UNIT-I

WHAT IS ECONOMICS?

Economics is a social science concerned with the production, distribution, and consumption of goods and services. It studies how individuals, businesses, governments, and nations make choices about how to allocate resources. Economics focuses on the actions of human beings, based on assumptions that humans act with rational behavior, seeking the most optimal level of benefit or utility. The building blocks of economics are the studies of labor and trade. Since there are many possible applications of human labor and many different ways to acquire resources, it is the task of economics to determine which methods yield the best results.

Economics can generally be broken down into macroeconomics, which concentrates on the behavior of the economy as a whole, and microeconomics, which focuses on individual people and businesses.

One of the earliest recorded economic thinkers was the 8th-century B.C. Greek farmer/poet Hesiod, who wrote that labor, materials, and time needed to be allocated efficiently to overcome scarcity. But the founding of modern Western economics occurred much later, generally credited to the publication of Scottish philosopher Adam Smith's 1776 book, *An Inquiry Into the Nature and Causes of the Wealth of Nations*.[1]

The principle (and problem) of economics is that human beings have unlimited wants and occupy a world of limited means. For this reason, the concepts of efficiency and productivity are held paramount by economists. Increased productivity and a more efficient use of resources, they argue, could lead to a higher standard of living.

Economic activities create economic or financial gain by producing goods or services. Economic consideration is paramount in these activities because human beings want to satisfy their biological needs like food, shelter etc. Economic activities are undertaken with an economic motive. Non-economic activities, on the other hand, do not have economic motive and are undertaken on account of love, affection, social, cultural or religious reasons.

CHARACTERISTICS OF ECONOMIC ACTIVITIES:

The following are the characteristics of economic activities:

1. Wealth Producing Activities:

The economic activities are undertaken to produce wealth. The wealth is produced by productive activities. The production may be for the consumption of family members or for the others. A farmer may grow vegetables for his family consumption and for selling in the market. The produce sold in the market will fetch income for the farmer.

2. Satisfying Human Wants:

The main aim of economic activities is to satisfy human needs. The needs to be satisfied may be present or future. When a person undertakes a job to earn money and buy necessities for his family then it will be satisfying present needs. On the other hand when a person saves money out of his current earnings for satisfying his needs after the retirement then it will be a plan for the future.

3. Money Income:

All economic activities, these may be related to business, profession or service, help in earning money income. People undertake these activities to satisfy their family needs with the help of money earned through productive activities. A living is possible with money income earned from economic activities.

4. Developmental Activities:

Economic activities not only satisfy human wants but also become a basis for economic development of the society. When old needs are satisfied then new needs crop up. The economic resources are employed to produce new products and this process helps in generating employment avenues and ultimately the money income. The social development is linked to the economic activities undertaken there.

Objectives of Economic Activities:

Economic activities are undertaken to produce goods and services so that human wants are satisfied. The human efforts are directed for the welfare of society. All kinds of occupations and professions are undertaken to create wealth and satisfy human needs. Fisher gives two objectives for economic activities, i.e., proper allocation of resources and optimum use of resources.

These objectives are discussed as follows:

1. Proper Allocation of Resources:

The economic resources are limited and their requirements are many. It is essential to make a judicious allocation of resources so that maximum needs are satisfied. Every person assesses his needs and resources. He determines his priorities for applying his resources. Some needs are urgent while others may wait for some time. An effort is made to get maximum satisfaction out of the use of available resources. Proper allocation of resources will ensure their best use.

2. Optimum Use of Resources:

The other objective of economic activities is the optimum use of resources. The resources should be put to their maximum use. Various factors of production like land, labour capital, etc. should be used in producing goods in such a way that no part is kept idle. For example, if a set of factors of production can produce a specified number of units then the production should not be less than that quantity otherwise the resources will not be fully used.

The optimum is the level of greatest satisfaction and nothing can go beyond it. When the resources are used to their optimum level then one will derive maximum utility out of them. The resources of the whole economy should be put to various uses in such a way that maximum economic welfare of society is possible. The use of various economic resources is dependent on each other. The use of capital will involve the use of land and labour also.

There should be a co-ordination in their use. The social welfare is possible only when factors of production do not remain idle. If a worker sits at home without finding any work then his labour goes waste, if capital is lying unused with the investor then its utility has gone waste. So the object of economic activities is the optimum use of resources.

Non-Economic Activities:

Non-economic activities are those activities which are pursued because of social, religious, cultural, psychological or sentimental reasons. These activities have no economic motive but are undertaken to have self satisfaction.

These activities are voluntary in nature and are undertaken at the leisure or pleasure of the person pursuing them. The examples of such activities may be: a housewife working at home, a person engaged in social work, attending a religious activity, listening to a discourse by a saint, attending to accident victims by volunteers etc. All these activities are done for one's own satisfaction.

MANAGERIAL ECONOMICS

Businesses run on various theories that are explained in Economics. Managerial Economics is the **stream of management studies that emphasizes solving problems in businesses using the theories in micro and macroeconomics**. This branch of economics is used by firms to not only find a solution to problems in daily running but also for long-term planning. We can also say that Managerial economics is a practical application of theories in economics.

"Managerial economics is concerned with the application of economic concepts and economic analysis to the problems of formulating rational managerial decisions."

- Edwin Mansfield, Economics Professor, University of Pennsylvania

We should also look here at What is economics? Economics is an inevitable part of any business. All the business assumptions, forecasting, and investments are based on this one single concept. "Economics is a social science concerned with the production, distribution, and consumption of goods and services. It studies how individuals, businesses, governments, and nations make choices about how to allocate resources." So, theories in economics are not just some statements written but rather they act as fuel for a firm. In the broader picture, economics also helps nations in policy formation.

So, in this blog, we will discuss the branch of economics that helps businesses to find a solution to almost every problem they may face. We will discuss the definition of managerial economics, its nature, its scope in businesses, and the principles of managerial economics.

<u>Definition of Managerial Economics</u>

Managerial economics is defined as the branch of economics which deals with the application of various concepts, theories, methodologies of economics to solve practical problems in business management. It is also reckoned as the amalgamation of economic theories and business practices to ease the process of decision making. Managerial economics is also said to cover the gap between the problems of logic and problems of policy.

Managerial economics is used to find a rational solution to problems faced by firms. These problems include issues around demand, cost, production, marketing, and it is used also for future planning. The best thing about managerial economics is that it has a logical solution to almost every problem that may arise during business management and that too by sticking to the microeconomic policies of the firm.

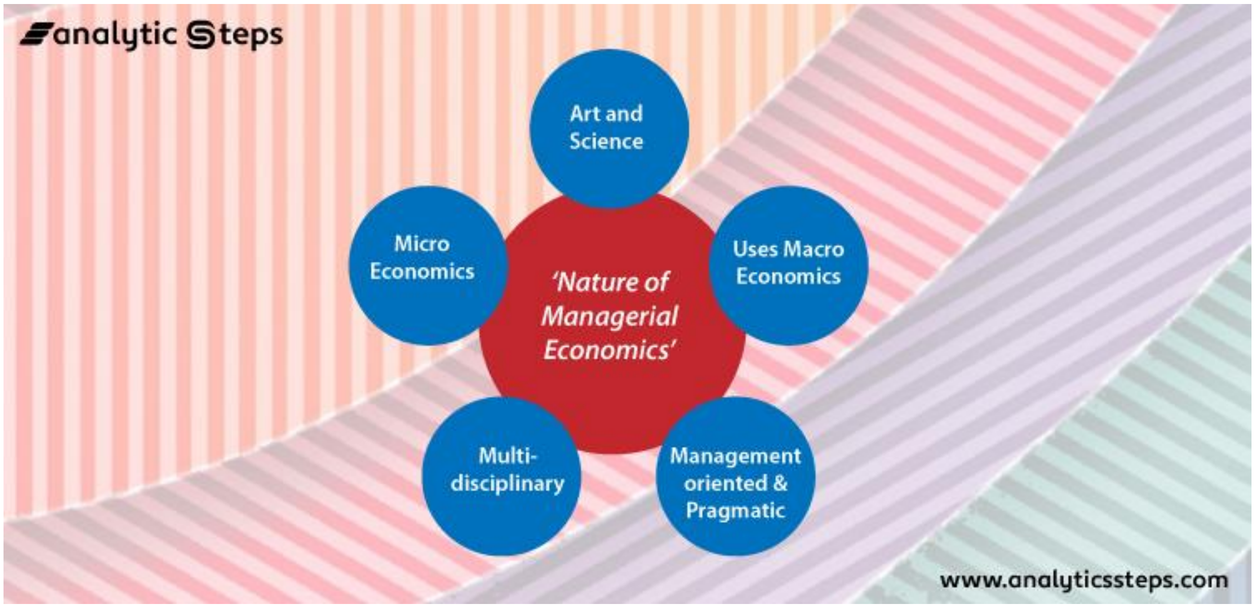
When we talk of managerial economics as a subject, it is a branch of management studies that emphasizes solving business problems using theories of micro and macroeconomics. Spencer and Siegelman have defined the subject as "the integration of economic theory with business practice to facilitate decision making and planning by management." The study of managerial economics helps the students to enhance their analytical skills, developing a mindset that enables them to find rational solutions.

NATURE OF MANAGERIAL ECONOMICS

We know about managerial economics like what it is and how different people define it. Managerial Economics is an essential scholastic field. It can be termed as a science in the sense that it fulfills the criteria of being a science.

- We all know science as a systematic body of knowledge and it is based on methodological observations. Similarly, Managerial Economics is also a science of making decisions and finding alternatives, keeping the scarce of resources in mind.
- In science, we arrive at any conclusion after continuous experimentation. Similarly, in managerial economics policies are formed after constant testing and trailing.

- In science, principles are universally acceptable and in managerial economics, policies are universally applicable at least partially if not fully.



Nature of Managerial Economics

We will now look at the characteristics of managerial economics in brief.

1. Art and Science

   Managerial Economics requires a lot of creativity and logical thinking to come up with a solution. A managerial economist should possess the art of utilizing his capabilities, knowledge, and skills to achieve the organizational objective. Managerial Economics is also considered as a stream of science as it involves the application of different economic principles, techniques, and methods, to solve business problems.

1. Microeconomics

   In managerial economics, problems of a particular organization are looked upon rather than focusing on the whole economy. Therefore it is termed as a part of microeconomics.

1. Uses Macroeconomics

   Any organization operates in a market that is a part of the whole economy, so external environments affect the decisions within the organization. Managerial Economics uses the concepts of macroeconomics to solve problems. Managers analyze the macroeconomic factors like market conditions, economic reforms, government policies to understand their impact on the organization.

1. Multi-disciplinary

Managerial Economics uses different tools and principles from different disciplines like accounting, finance, statistics, mathematics, production, operation research, human resource, marketing, etc. This helps in coming up with a perfect solution.

1. Management oriented and pragmatic

Managerial economics is a tool in the hands of managers that aids them in finding appropriate solutions to business-related problems and uncertainties. As mentioned above, managerial economics also helps in goal establishment, policy formation, and effective decision making. It is a practical approach to find solutions.

Types of Managerial Economics

Everyone has their perceiving ability, so the same goes with managerial economics. All managers perceive the concept of managerial economics differently. For some, customers' satisfaction can be the priority while some may focus on efficient production. This leads us to different types of managerial economics. So, let us explore the different approaches to managerial economics.

1. <u>Liberal Managerialism</u>

Market is a free and democratic place in terms of decision making. Customers get a lot many options to choose from. So, companies have to modify their policies according to consumers' demands and market trends. If not done so, it may result in business failures. This is what we call liberal managerialism.

1. <u>Normative Managerialism</u>

The normative view of managerial economics means that the decisions taken by the administration would be normal, based on real-life experiences and practices. The decisions reflect a practical approach regarding product design, forecasting, marketing, supply and demand analysis, recruitments, and everything else that is concerned with the growth of a business.

1. <u>Radical Managerialism</u>

Radical managerialism means to come up with revolutionary solutions. Sometimes, when the conventional approach to a problem doesn't work, radical managerialism may have the solution. However, it requires the manager to possess some extraordinary skills and thinking to look beyond. In radical managerialism, consumer needs and satisfaction are prioritized over profit maximization.

So, these were the three different types of managerial economics. These are decided based on the different approaches by managers.

Principles of Managerial Economics

The great macroeconomist N. Gregory Mankiw has given ten principles to explain the significance of managerial economics in business operations which can be further classified into three categories.

Principles of Managerial Economics

Principles of How People Make Decisions

Based on the real-life decision-making processes, four principles are recalled in Managerial Economics.

1. People Face Tradeoffs

There are enormous options in the market. So, people have to make choices among the various options available.

2. Opportunity Cost

Every decision involves an opportunity cost that is the cost of those options which we let go of while selecting the most appropriate one.

3. Rational People Think at the Margin

When we make choices from the various options available and before investing the capital or resources we look at the profit margin we would make in the investment.

4. People Respond to Incentives

It is human nature to look for something extra while purchasing something. Decision-making is affected by the incentives attached to a particular product or service. Positive incentive motivates people to opt for the particular product while negative incentive discourages.

<u>Principles of How People Interact</u>

Communication with the audience plays a vital role in good performance. Over the years, organizations have realized the need to communicate well with their audience. Based on this, three principles are given in Managerial Economics.

1. Trade can Make Everyone Better Off

This principle states that trade is a medium to exchange services and products. Everyone gets a fair chance to offer products and services which they are good at making and also to purchase those products and services.

2. Markets Are Usually A Good Way to Organize Economic Activity

Market is a place where buyers and sellers interact with each other. Consumers put in their demands and requirements and the producers decide on the production and supply of those products and services.

3. Government can better the market outcomes

Government intervenes in business operations whenever there are unfavorable market conditions like the current pandemic situation or also for the welfare of society. One example of the latter is deciding the minimum wage for laborers.

<u>Principle of How Economy Works as a Whole</u>

Three principles are given to explain the role of the economy in the functioning of an organization.

1. A Country's Standard of Living Depends on the Goods and Services produced

The role of organizations in the economic growth of a country is one of the major, so, the organizations must be capable enough to produce goods and services for the population. This ultimately raises the standard of living and also contributes to GDP growth.

2. Price Rises When Government Prints Too Much Money

If there is surplus money available with people, their spending capacity increases, ultimately leading to a rise in demand. When the producers are unable to meet the consumer's demand, inflation takes place.

3. Society Faces a Short-Run Tradeoff between Inflation and Unemployment

Government bring-in policies to tackle the problem of unemployment and boost the economy in the short run as well. This further leads to inflation.

SCOPE OF MANAGERIAL ECONOMICS

Managerial Economics has a more narrow scope. It solves a firm's problem using microeconomics. In the situation of scarce resources, managerial economics ensures that managers make effective and efficient decisions that are equally beneficial to customers, suppliers, and the organization. The fact of scarcity of resources gives rise to three fundamental questions-

1. What to produce?
2. How to produce?
3. For whom to produce?

Managerial Economics is not only applicable to profit-making business organizations, but also to non- profit organizations such as hospitals, schools, government agencies, etc. 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.

By making economics a human science, Robbins has unnecessarily widened the scope of the subject. Thus, in accordance with the view of Robbins, economics would also study the problem faced by Robinson Crusoe, who lives in an isolated island with no contact with the rest of the world.

He has to face the problem of choice between work and leisure. He has to spend some time for his survival — for collecting fruits and roots. He utilizes the rest of his time in sleeping or enjoying leisure. Thus, he has also to face the problem of distributing his time between various ends. Thus, Robinson Crusoe has also to face the problem of choice and would surely come within the purview of Robbins' definition.

However, most modern economists, like R. G. Lipsey, Paul Samuelson Milton Friedman, etc., held the view that, economics is not a human but a social science. Thus, economics should not study the problem of choice faced by a single individual like Robinson Crusoe.

It should instead study the choice problem where it has a social impact, because man lives in society and an individual often interacts with other members of society.

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.

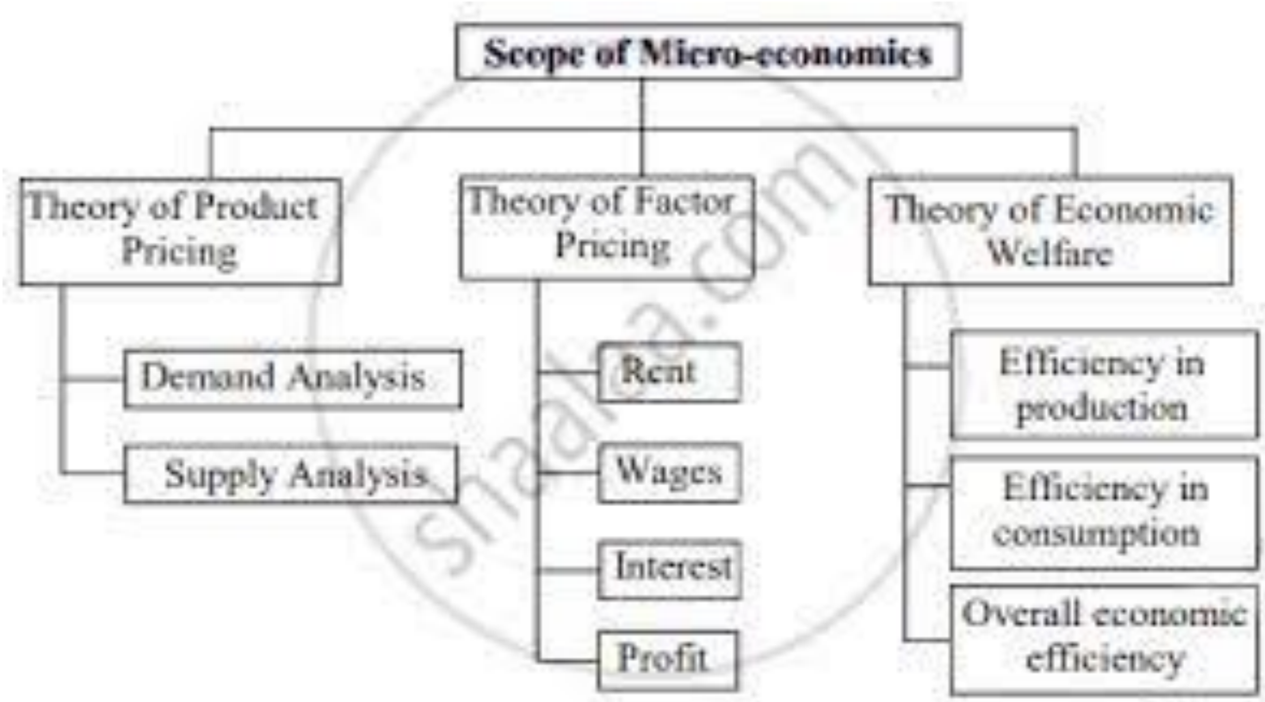
This is why modern governments take the help of economists for formulating monetary fiscal and exchange rate policies. Since the New Deal era in the 1930s, economists have moved in the forefront of government policy analysis.

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.

SCOPE OF ECONOMICS

Economics is divided into two categories: microeconomics and macroeconomics. Microeconomics is the study of individuals and business decisions, while macroeconomics looks at the decisions of countries and governments.

Though these two branches of economics appear different, they are actually interdependent and complement one another. Many overlapping issues exist between the two fields.



MICROECONOMICS

Microeconomics is the study of decisions made by people and businesses regarding the allocation of resources, and prices at which they trade goods and services. It considers taxes, regulations, and government legislation.

Microeconomics focuses on supply and demand and other forces that determine price levels in the economy. It takes a bottom-up approach to analyzing the economy. In other words, microeconomics tries to understand human choices, decisions, and the allocation of resources.

Having said that, microeconomics does not try to answer or explain what forces should take place in a market. Rather, it tries to explain what happens when there are changes in certain conditions.

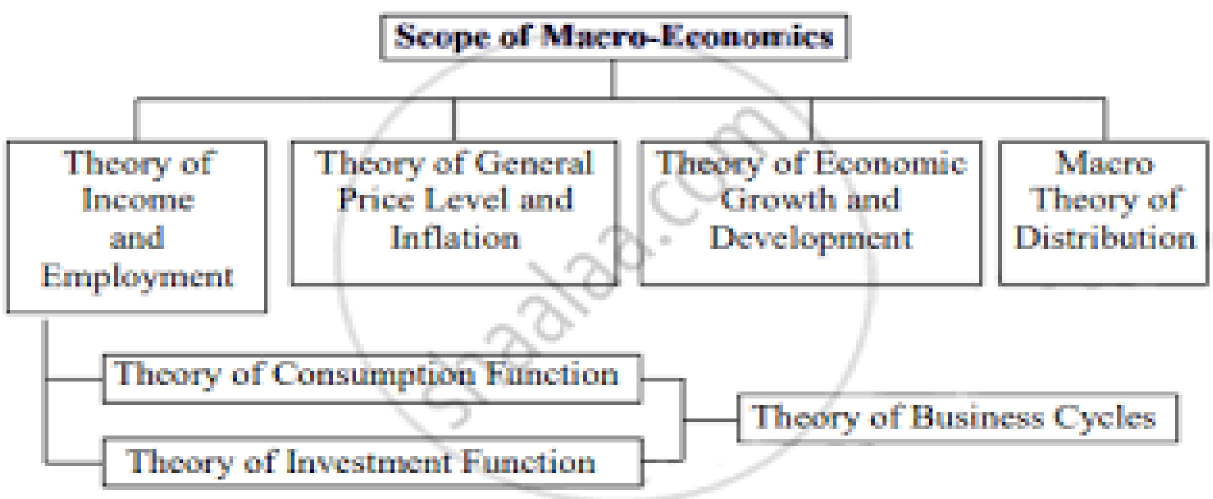
For example, microeconomics examines how a company could maximize its production and capacity so that it could lower prices and better compete. A lot of microeconomic information can be gleaned from company financial statements.

Microeconomics involves several key principles, including (but not limited to):

- **Demand, Supply and Equilibrium**: Prices are determined by the law of supply and demand. In a perfectly competitive market, suppliers offer the same price demanded by consumers. This creates economic equilibrium.
- **Production Theory**: This principle is the study of how goods and services are created or manufactured.
- **Costs of Production**: According to this theory, the price of goods or services is determined by the cost of the resources used during production.
- **Labor Economics**: This principle looks at workers and employers, and tries to understand patterns of wages, employment, and income.

The rules in microeconomics flow from a set of compatible laws and theorems, rather than beginning with empirical study.

MACROECONOMICS



Macroeconomics, on the other hand, studies the behavior of a country and how its policies impact the economy as a whole. It analyzes entire industries and economies, rather than individuals or specific companies, which is why it's a top-down approach. It tries to answer questions such as "What should the rate of inflation be?" or "What stimulates economic growth?"

Macroeconomics examines economy-wide phenomena such as gross domestic product (GDP) and how it is affected by changes in unemployment, national income, rates of growth, and price levels.

Macroeconomics analyzes how an increase or decrease in net exports impacts a nation's capital account, or how gross domestic product (GDP) is impacted by the unemployment rate.

Macroeconomics focuses on aggregates and econometric correlations, which is why governments and their agencies rely on macroeconomics to formulate economic and fiscal policy. Investors who buy interest-rate-sensitive securities should keep a close eye on monetary and fiscal policy.

John Maynard Keynes is often credited as the founder of macroeconomics, as he initiated the use of monetary aggregates to study broad phenomena. Some economists dispute his theories, while many Keynesians disagree on how to interpret his work.

Microeconomics deals with the economic interactions of a specific person, a single entity, or a company. These interactions, which mainly are buying and selling goods, occur in markets. Therefore, microeconomics is the study of markets. The two key elements of this economic science are the interaction between supply and demand and scarcity of goods.

Supply and Demand Graph: Microeconomics is based on the study of supply and demand at the personal and corporate level.

One of the major goals of microeconomics is to analyze the market and determine the price for goods and services that best allocates limited resources among the different alternative uses. This study is especially important for producers as they decide what to manufacture and the appropriate selling price. Microeconomics assumes businesses are rational and produce goods that maximizes their profit. If each firm takes the most profitable path, the principles of microeconomics state that the market's limited resources will be allocated efficiently.

The science of microeconomics covers a variety of specialized areas of study including:

- Industrial Organization: the entry and exit of firms, innovation, and the role of trademarks.
- Labor Economics: wages, employment, and labor market dynamics.
- Financial Economics: topics such as optimal portfolios, the rate of return to capital, and corporate financial behavior.
- Public Economics: the design of government tax and expenditure policies.
- Political Economics: the role of political institutions in policy.
- Health Economics: the organization of health care system.
- Urban Economics: challenges faced by cities, such as sprawl, traffic congestion, and poverty.
- Law and Economics: applies economic principles to the selection and enforcement of legal regimes.
- Economic History: the history and evolution of the economy.

- Stemming from Adam Smith's seminal book, *The Wealth of Nations*, microeconomic and macroeconomics both focus on the allocation of scarce resources. Both disciplines study how the demand for certain resources interacts with the ability to supply that good to determine how to best distribute and allocate that resource among many consumers. Both disciplines are about maximization: microeconomics is about maximizing profit for firms, and surplus for consumers and producers, while macroeconomics is about maximizing national income and growth.

Adam Smith, Founding Father of Economics: Adam Smith's book, Wealth of Nations, was the basis of both microeconomic and macroeconomic study.

- The main difference between microeconomics and macroeconomics is scale. Microeconomics studies the behavior of individual households and firms in making decisions on the allocation of limited resources. Another way to phrase this is to say that microeconomics is the study of markets.

  In contrast macroeconomics involves the sum total of economic activity, dealing with the issues such as growth, inflation, and unemployment. Macroeconomics is the study of economies on the national, regional or global scale.

  This key difference alters how the two approach economic situations. Microeconomics does consider how macroeconomic forces impact the world, but it focuses on how those forces impact individual firms and industries. While macroeconomists study the economy as a whole, microeconomists are concerned with specific firms or industries.

  Many economic events that are of great interest to both microeconomist and macroeconomists, though they differ in how they analyze those events. A shift in tax policy would interest economists in both disciplines. A microeconomist might focus on how the tax might shift supply in a specific market or influence a firm's decision making, while the macroeconomist will consider whether the tax will translate into an improved standard of living for all of the economy's participants.

DECISION-MAKING PROCESS OF MANAGERIAL ECONOMICS

Decision making is crucial for running a business enterprise which faces a large number of problems requiring decisions.

Which product to be produced, what price to be charged, what quantity of the product to be produced, what and how much advertisement expenditure to be made to promote the sales, how much investment expenditure to be incurred are some of the problems which require decisions to be made by managers.

The five steps involved in managerial decision making process are explained below:

1. Establishing the Objective:

The first step in the decision making process is to establish the objective of the business enterprise. The important objective of a private business enterprise is to maximise profits. However, a business firm may have some other objectives such as maximisation of sales or growth of the firm.

But the objective of a public enterprise is normally not of maximisation of profits but to follow benefit-cost criterion. According to this criterion, a public enterprise should evaluate all social costs and benefits when making a decision whether to build an airport, a power plant, a steel plant, etc.

2. Defining the Problem:

The second step in decision making process is one of defining or identifying the problem. Defining the nature of the problem is important because decision making is after all meant for solution of the problem. For instance, a cotton textile firm may find that its profits are declining.

It needs to be investigated what are the causes of the problem of decreasing profits. Whether it is the wrong pricing policy, bad labour-management relations or the use of outdated technology which is causing the problem of declining profits. Once the source or reason for falling profits has been found, the problem has been identified and defined.

3. Identifying Possible Alternative Solutions (i.e. Alternative Courses of Action):

Once the problem has been identified, the next step is to find out alternative solutions to the problem. This will require considering the variables that have an impact on the problem. In this way, relationship among the variables and with the problems has to be established.

In regard to this, various hypotheses can be developed which will become alternative courses for the solution of the problem. For example, in case of the problem mentioned above, if it is identified that the problem of declining profits is due to be use of technologically inefficient and outdated machinery in production.

The two possible solutions of the problem are:

(1) Updating and replacing only the old machinery.

(2) Building entirely a new plant equipped with latest machinery.

The choice between these alternative courses of action depends on which will bring about larger increase in profits.

4. Evaluating Alternative Courses of Action:

The next step in business decision making is to evaluate the alternative courses of action. This requires, the collection and analysis of the relevant data. Some data will be available within the various departments of the firm itself, the other may be obtained from the industry and government.

The data and information so obtained can be used to evaluate the outcome or results expected from each possible course of action. Methods such as regression analysis, differential calculus, linear programming, cost- benefit analysis are used to arrive at the optimal course. The optimum solution will be one that helps to achieve the established objective of the firm. The course of action which is optimum will be actually chosen. It may be further noted that for the choice of an optimal solution to the problem, a manager works under certain constraints.

The constraints may be legal such as laws regarding pollution and disposal of harmful wastes; they way be financial (i.e. limited financial resources); they may relate to the availability of physical infrastructure and raw materials, and they may be technological in nature which set limits to the possible output to be produced per unit of time. The crucial role of a business manager is to determine optimal course of action and he has to make a decision under these constraints.

5. Implementing the Decision:

After the alternative courses of action have been evaluated and optimal course of action selected, the final step is to implement the decision. The implementation of the decision requires constant monitoring so that expected results from the optimal course of action are obtained. Thus, if it is found that expected results are not forthcoming due to the wrong implementation of the decision, then corrective measures should be taken.

However, it should be noted that once a course of action is implemented to achieve the established objective, changes in it may become necessary from time to time in response in changes in conditions or firm's operating environment on the basis of which decisions were taken.

The five steps in the decision making process are shown in Fig. 1.2

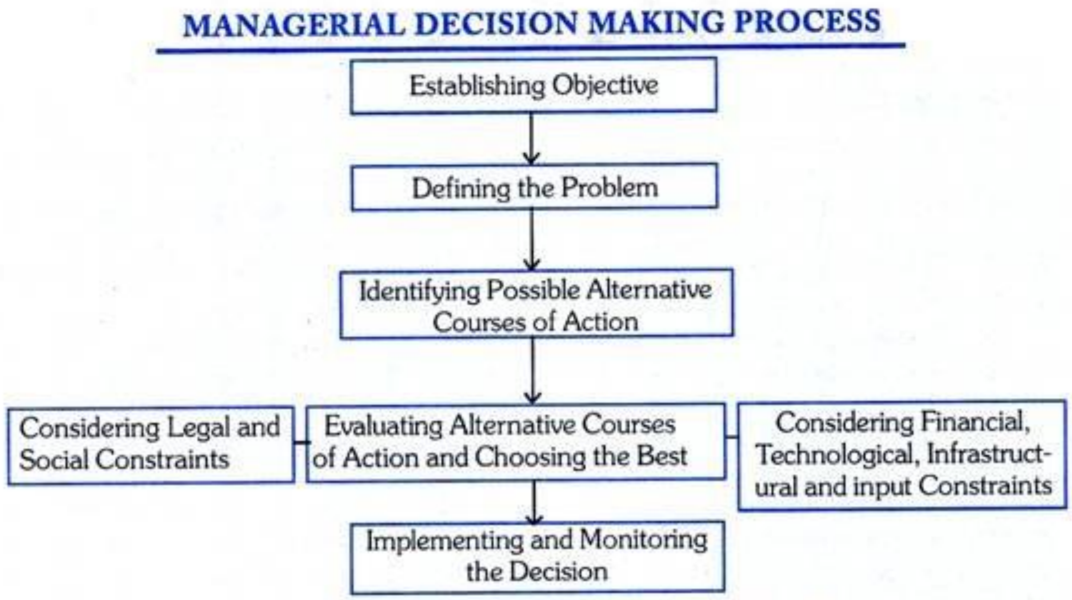


Fig. 1.2. *Managerial Decision Making Process : Various Steps*

SCOPE OF MANAGERIAL ECONOMICS IN ENGINEERING PERSPECTIVE

1. Product policy, sales promotion and market strategy

The scope of managerial economics extends to some of the core managerial aspects of the firm because the decision in this regard play a very significant role in the success of the firm. If the economics aspects of these decision are not taken care of, it may prove to be disastrous. Some of these are , the product policy which explains how and what quality a product should be. The expenditure on sales promotion and its benefits also required to be studied. Market strategy has also to be planned keeping in view the economics aspects.

2. **Demand Analysis and Forecasting**

A business firm is the economic unit which operates to transform productive resources into goods and services for sales in a market. Thus the first task in the managerial decision-making is to get accurate estimates of demand for the product of the firm. Until the firm has clear idea of the demand for its product it is not possible to prepare production schedules and employ resources for management, as it hieghlights the factor on which demand for their product depends.

3. **Cost Analysis**

The study of the data about costs made available from the firm accounding record yield significant cost estimation for the management's decision-making. The managerial economics identifies the factors causing cost uncertainty exists because all the factors determine costs are not clearly known.

4. **Production analysis**

It is concerned with quantitative aspects of physical inputs. Given the technology and the nature of the product, the managerial economist studies the production function of the firm-the economies and diseconomies of scale, the minimum efficient scale of the plant etc. The behaviour of costs of a firm depends directly on the nature of its production function.

5. **Pricing decisions, policies and practices**

Pricing of a product is an important element of the marketing mix of a firm. Besides the knowledge of fixed and variable costs of inputs, a scientific decision about price needs the knowledge of various elasticity of demand and the potential rivals who may enter the market. The price policy of a firm is based on such analysis. The area of study deals with the analysis of market structures, pricing methods, differential pricing, product pricing and pricing forecasting.

6. **Profit Management**

Business firms not only want to make profits but also want to make more profits. They want profit maximization or sales revenue maximization.

According to Drucker, profit is the measure of business success in the longrun. However, an important point worth considering is the element of uncertainty existing about profits becauses the variations in costs and revenues. If knowledge about future were perfect, profit analysis would have been a very easy task. Break-even analysis and profit elasticity calculations are of great use in pricing and profit management.

7. **Capital management**

Decision about investment are most crucial for a firm because the funds involved are often huge and the behaviour of the capital market is least predictable. A firm can raise funds by issuing shares or debentures and debt instruments. It can also choose to employ its own cash reserves. But the most difficult part is the choice of the investment projects. This is the choice of the top-management because the committed expenditures cannot be recalled.