

## HS 200 BUSINESS ECONOMICS



### NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE (NAAC Accredited)

(Approved by AICTE, Affiliated to APJ Abdul Kalam Technological University, Kerala)



### DEPARTMENT OF MECHATRONICS ENGINEERING

## COURSE MATERIALS



## HS 200 BUSINESS ECONOMICS

### VISION OF THE INSTITUTION

To mould true citizens who are millennium leaders and catalysts of change through excellence in education.

### MISSION OF THE INSTITUTION

**NCERC** is committed to transform itself into a center of excellence in Learning and Research in Engineering and Frontier Technology and to impart quality education to mould technically competent citizens with moral integrity, social commitment and ethical values.

We intend to facilitate our students to assimilate the latest technological know-how and to imbibe discipline, culture and spiritually, and to mould them in to technological giants, dedicated research scientists and intellectual leaders of the country who can spread the beams of light and happiness among the poor and the underprivileged.

## **HS 200 BUSINESS ECONOMICS**

### **ABOUT DEPARTMENT**

- ◆ Established in: 2013
- ◆ Course offered: B.Tech Mechatronics Engineering
- ◆ Approved by AICTE New Delhi and Accredited by NAAC
- ◆ Affiliated to the University of Dr. A P J Abdul Kalam Technological University.

### **DEPARTMENT VISION**

To develop professionally ethical and socially responsible Mechatronics engineers to serve the humanity through quality professional education.

### **DEPARTMENT MISSION**

- 1) The department is committed to impart the right blend of knowledge and quality education to create professionally ethical and socially responsible graduates.
- 2) The department is committed to impart the awareness to meet the current challenges in technology.
- 3) Establish state-of-the-art laboratories to promote practical knowledge of mechatronics to meet the needs of the society

### **PROGRAMME EDUCATIONAL OBJECTIVES**

- I. Graduates shall have the ability to work in multidisciplinary environment with good professional and commitment.
- II. Graduates shall have the ability to solve the complex engineering problems by applying electrical, mechanical, electronics and computer knowledge and engage in lifelong learning in their profession.
- III. Graduates shall have the ability to lead and contribute in a team with entrepreneur skills, professional, social and ethical responsibilities.
- IV. Graduates shall have ability to acquire scientific and engineering fundamentals necessary for higher studies and research.

## HS 200 BUSINESS ECONOMICS

### PROGRAM OUTCOME (PO'S)

#### Engineering Graduates will be able to:

**PO 1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**PO 2. Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

**PO 3. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

**PO 4. Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

**PO 5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

**PO 6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

**PO 7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

**PO 8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

## **HS 200 BUSINESS ECONOMICS**

**PO 9. Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PO 10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**PO 11. Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

**PO 12. Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

### **PROGRAM SPECIFIC OUTCOME(PSO'S)**

**PSO 1:** Design and develop Mechatronics systems to solve the complex engineering problem by integrating electronics, mechanical and control systems.

**PSO 2:** Apply the engineering knowledge to conduct investigations of complex engineering problem related to instrumentation, control, automation, robotics and provide solutions.



## HS 200 BUSINESS ECONOMICS

### COURSE OUTCOME

After the completion of the course the student will be able to

SUBJECT CODE: C206	
COURSE OUTCOMES	
CO 1	Understand the prospective engineers with elementary Principles of Economics and Business Economics.
CO 2	Acquaint the students with tools and techniques that are useful in their profession in Business Decision Making which will enhance their employability;
CO 3	Apply business analysis to the “firm” under different market conditions;
CO 4	Apply economic models to examine current economic scenario and evaluate policy options for addressing economic issues
CO 5	Gain understanding of some Macroeconomic concepts to improve their ability to understand the business climate
CO 6	Prepare and analyse various business tools like balance sheet, cost benefit analysis and rate of returns at an elementary level

### CO VS PO'S AND PSO'S MAPPING

CO Vs PO														
SUBJECT														
COURSE COUTCO ME	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2
CO 1	-	1	2	-	-	2	2	2	-	2	2	2	-	-
CO 2	-	1	2	-	-	2	2	2	-	2	2	2	-	-
CO 3	-	1	2	-	-	2	2	2	-	2	2	2	-	-
CO 4	-	1	2	-	-	2	2	2	-	2	2	2	-	-
CO 5	-	1	2	-	-	2	2	2	-	2	2	2	-	-
CO 6	-	1	2	-	-	2	2	2	-	2	2	2	-	-

Note: H-Highly correlated=3, M-Medium correlated=2, L-Less correlated=1

## HS 200 BUSINESS ECONOMICS

### SYLLABUS

#### Module 1

Business Economics and its role in managerial decision making- meaning-scope-relevance-economic problems-scarcity vs. choice (2 Hrs.)-Basic concepts in economics-scarcity, choice, resource allocation- Trade-off-opportunity cost-marginal analysis- marginal utility theory, Law of diminishing marginal utility –production possibility curve (2 Hrs.)

#### Module 2

Basics of Micro Economics -Demand and Supply analysis-equilibrium-elasticity (demand and supply) (3 Hrs.) –Production concepts-average product-marginal product-law of variable proportions- Production function-Cobb Douglas function-problems (3 Hrs.)

#### Module 3

Basics of Micro Economics II Concept of costs-marginal, average, fixed, variable costs-cost curves-shut down point-long run and short run (3 Hrs.)- Break Even Analysis-Problem-Markets-Perfect Competition, Monopoly and Monopolistic Competition, Oligopoly- Cartel and collusion (3 Hrs.)

#### Module 4

Basics of Macro Economics - Circular flow of income-two sector and multi-sector models-National Income Concepts-Measurement methods-problems-Inflation, deflation (4 Hrs.)-Trade cycles-Money stock and flow concept-Quantity theory of money-Fischer's Equation and Cambridge Equation -velocity of circulation of money-credit control methods-SLR, CRR, Open Market Operations-Repo a Reverse Repo rate-emerging concepts in money-bit coin (4 Hrs.).

#### Module 5

Business Decisions I-Investment analysis-Capital Budgeting-NPV, IRR, Profitability Index, ARR, Payback Period (5 Hrs.)- Business decisions under certainty-uncertainty-selection of alternatives-risk and sensitivity- cost benefit analysis-resource management (4 Hrs.).

#### Module 6

Business Decisions II Balance sheet preparation-principles and interpretation-forecasting techniques (7 Hrs.)-business financing- sources of capital- Capital and money markets-international financing-FDI, FPI, FII-Basic Principles of taxation-direct tax, indirect tax-GST(2hrs.).

**QUESTION BANK**

<b>Q:NO</b>	<b>QUESTIONS</b>	<b>CO</b>	<b>KL</b>	<b>PAGE NO:</b>
<b>MODULE I</b>				
1	What is business economics and its role in managerial decision making?	CO1	K2	15
2	What is the scope of business economics?	CO1	K3	16
3	Differentiate b/w scarcity and choice?	CO1	K2	18
4	Define basic concepts in economics?	CO1	K3	18
5	Define trade-off and opportunity cost?	CO1	K2	20
6	What is Marginal Analysis?	CO1	K2	22
7	Define Marginal Utility Theory?	CO1	K5	24
8	Define Law of Diminishing Marginal Theory?	CO1	K2	24
9	Write a note on Production Possibility Curve?	CO1	K2	26
<b>MODULE II</b>				
1	What is Demand?	CO2	K2	30
2	What is Supply?	CO2	K2	32
3	Define demand and supply analysis?	CO2	K2	36
4	Define demand elasticity and Supply elasticity?	CO2	K1	36
5	What is Production?	CO2	K1	40
6	What is Average?	CO2	K3	41
7	What is Marginal Product?	CO2	K2	42

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8	Define the Law of Variable Proportion?	CO2	K2	43
9	Define Production Function?	CO2	K2	44
10	Define Cobb Douglar function?	CO2	K3	45
<b>MODULE III</b>				
1	Define Marginal Cost?	CO3	K3	48
2	Define Average Cost?	CO3	K3	50
3	Define Fixed Cost?	CO3	K2	52
4	Define Variable Cost?	CO3	K3	54
5	What Cost Curve?	CO3	K5	56
6	What is Shutdown Point?	CO3	K3	57
7	Discuss b\w Short run and Long run?	CO3	K2	60
8	What is Break Even Analysis?	CO3	K1	61
9	Define a Market?	CO3	K1	63
10	What is Perfect Competition Market?	CO3	K2	64
11	Define Imperfect Market And explain different types?	CO3	K1	65
12	What is Lartel?	CO3	K2	70
<b>MODULE IV</b>				
1	Define the circular flow of income?	CO4	K2	72
2	Define National Income?	CO4	K1	80
3	Different Measurement methods of income?	CO4	K2	86
4	What are the problems faced in economics.	CO4	K3	88

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5	What is inflation?	CO4	K1	89
6	What is deflection?	CO4	K2	90
7	Describe repo and reverse repo?	CO4	K1	92
<b>MODULE V</b>				
1	What is Investment Analysis	CO5	K2	100
2	What is capital budgeting?	CO5	K2	122
3	Define business decisions under certainty and uncertainty?	CO5	K3	112
4	Define the selection of alternative?	CO5	K2	113
5	What is sensitivity analysis?	CO5	K3	115
6	What is resource management?	CO5	K2	118
7	Define, NPV, IRR, Profitability Index, ARR, and Payback Period?	CO5	K2	120
8	Define business decisions under certainty and uncertainty?	CO5	K3	122
<b>MODULE VI</b>				
1	Describe Balance sheet preparation?	CO6	K1	124
2	Define Accounting Interpretation?	CO6	K2	125
3	What is forecasting techniques?	CO6	K2	126
4	What is Business Financing?	CO6	K3	127
5	Describe the source of capital?	CO6	K2	128
6	Define money market?	CO6	K2	129
7	What is International Finance?	CO6	K2	130

**APPENDIX 1**

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# MODULE 1



## **ECONOMICS**

- If I have Rs.100 in my hand, should I have a chicken biryani or use it to have a haircut?
- If the government wishes to start a new project with certain cores of rupees, should they invest in road development or in poverty eradication programs?
- What are the different methods by which a person, family, society and a nation acquire wealth and how do they spend them in different areas like food, shelter, entertainment etc?

Economics is a social science that tries to deal with these kinds of problems. We have got a fixed amount of resources in our hand and how we can efficiently use these resources to gain maximum is the basic problem in many aspects of life. Economics studies these problems. Definitions given by various economists are:-

--Economics is a science which studies human behavior as a relationship between ends and scarce means which have alternative uses.

--An enquiry into the nature and causes of wealth of nations.

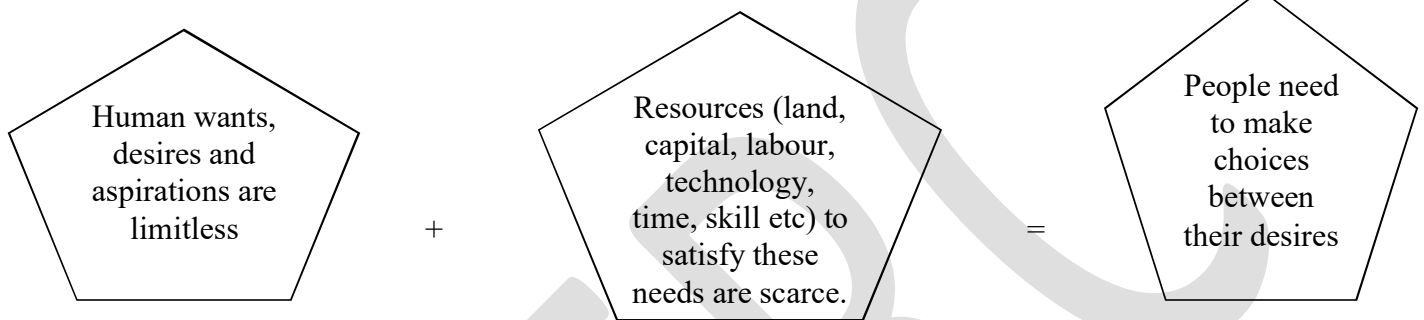
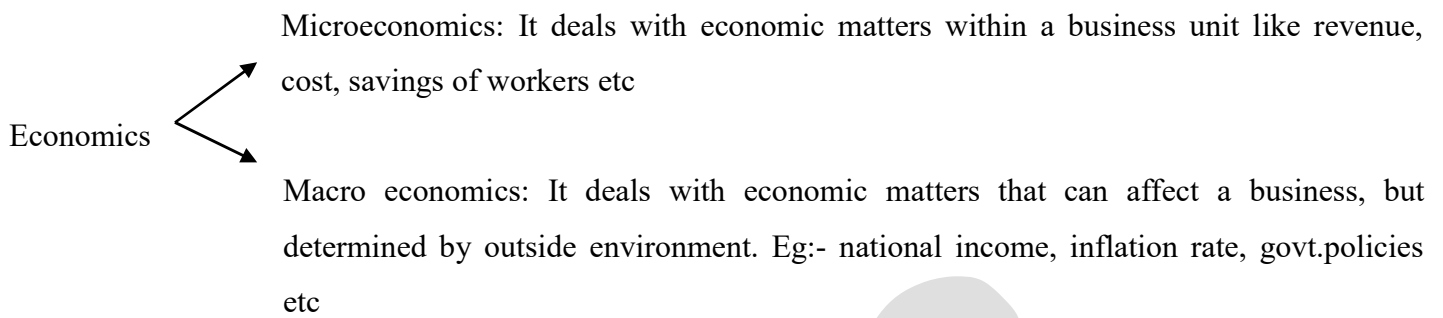
## **BUSINESS ECONOMICS**

Faris is appointed as the manager of a smartphone company. As the manager, Faris has to come across different problems like:-

- a) How many numbers of smartphones should be produced in an year?
- b) How many quantities in different versions of the smartphone should be produced?
- c) In what proportion, the total available capital has to be distributed to manufacture different versions of the product?
- d) How many employees have to be employed in different divisions of the company to fasten the production process and gain maximum profit?

Maximizing gain from the given resources like capital, labor, land, technology, time, skills etc is the main objective of a business firm. So in order to maximize the gain and to address the problems as mentioned above, a manager has to make use of economic theories and analytical tools in decision making process.

Business economics is the branch of economics that deals with the application of economic theories, principles, analytical tools etc to the decision making process within a business unit, thereby to attain the desired economic goals.



### **ECONOMIC PROBLEM IN A BUSINESS UNIT**

You are appointed as the manager of a business unit, say a mobile phone company. The company has to acquire certain number of employees, electronic equipment's, technology etc to manufacture and distribute mobile phones into the market. There are 3 basic problems that we have to face as a decision maker. 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 scarce.

Three questions arise from this:

- What to produce?

This question deals with selecting the type of supply and the quantity of the supply of products.

Eg:-What type of smartphones should the company produce? How many smartphones should be produced in a year?

- How to produce?

This question deals with procedures and methods used while making the product.

Eg. "Should the company use more workers, or should they invest in more

- machinery?" For whom to produce?

This question deals with distributing goods that have been produced, focusing on efficiency and equity. We have to identify those people for whom the products are to produced and it should be distributed to them.

## SCOPE OF BUSINESS ECONOMICS IN MANAGERIAL POSITION

As a manager, imagine in what all areas should we use business economics in a business organization?

Scope identifies those areas where the theories of business economics can be used. It includes:-

- Demand Analysis and Forecasting: - It is the process of identifying how many units of products of our company will be demanded by the customers in a certain period of time. Accurate estimates of demand is necessary for proper business planning. If forecasting is not done properly, the company may either produce excess or fewer numbers of smartphones which may result in profit loss. A demand forecast can serve as a guide to management for maintaining and strengthening market position and enlarging profits.
- Cost and production Analysis: - To minimize the expenses while manufacturing smartphones, the company should analyze those areas where costs are incurred. A study of economic costs, combined with the data drawn from the firm's accounting records, can yield significant cost estimates which are useful for management decisions. Cost analysis helps in profit planning, cost control and pricing policies. Production analysis and production function analyze various inputs (capital, raw material, labor etc) and outputs( no.of units produced).
- Pricing Decisions, policies and practices.  
----Should we sell our smartphones for rs.5000 or Rs.7000 or Rs.10000 or for any other amount?  
Pricing is an important area of business economic. Revenue of a firm depends a lot upon the price at which the commodities are sold in the market. Economic principles play a part while deciding the price of the commodity, pricing Method, price forecasting etc.
- Profit Management:- Business firms are generally organized for purpose of making profits and in the long run profits earned are taken as an important measure of the firm's success. If knowledge about the future were perfect, profit analysis would have been a very easy task. However, in a world of uncertainty, expectations are not always realized so that profit planning and measurement constitute a difficult area of business economic. The important aspects covered under this area are : Nature and Measurement of profit, Profit policies and Technique of Profit Planning like Break-Even Analysis.
- Capital Management: - We need to find huge capital investments for the smooth running of our firm. We will have many options like investing from the owner's account, issuing shares, Opting for bank loans etc. But which one should the management choose at a certain point of time? For what all purposes should the company use this capital? Capital management implies planning and control of capital expenditure. The main topics dealt with are: Cost of capital, Rate of Return and Selection of Projects.

## **SIGNIFICANCE OF BUSINESS ECONOMICS**

- Business economics is concerned with those aspects of traditional economics which are relevant for business decision making in real life.
- It also incorporates useful ideas from other disciplines such as psychology, sociology, etc, if they are found relevant to decision making.
- Business economics helps in reaching a variety of business decisions in complicated environment. Certain examples are :
  - What products and services should be produced?
  - What input and production technique should be used?
  - How much output should be produced and at what prices it should be sold?
  - What are the best sizes and locations of new plants?
  - When should equipment be replaced?
  - How should the available capital be allocated?
- Business economics makes a manager a more competent model builder.
- At the level of the firm where its operations are conducted through functional areas, such as finance, marketing, personnel and production, business economics serves as an integrating agent by coordinating the activities in these different areas.
- Business economics analyses the interaction between the firm and society, and accomplishes the key role of an agent in achieving its social and economic welfare goals.

## **SCARCITY**

- Scarcity is the fundamental economic problem of having seemingly unlimited human wants in a world of limited resources. Scarcity refers to shortage of resources. It states that society has insufficient productive resources to fulfill all human wants and needs.
- We may wish to have heavy meals on every day, but our income may not be sufficient enough for that. Thus there is a scarcity or shortage of resource (here income/salary) which forces us to resort to normal meals on some days.
- Scarcity leads to another concept in economics called choice.

## **CHOICE**

- A person liked 4 shirts displayed in a textile shop. He wished to buy all the four, but he had only Rs.2000 in his hand. Thus, he had to select only two out of them. Here the person has made a choice out of the four alternatives.
- A company wishes to invest in project A and project B and each one costs Rs.30,000. But the company

has got only Rs. 40,000 as cash. Thus a choice has to be made between Project A and Project B.

- Choice involves decision making. It can include judging the merits of multiple options and selecting one or more of them. People should make choices because the resources available to them are not sufficient enough to satisfy all their desires.

### **TRADE OFF**

- When one item is selected out of the four, we have to sacrifice the other three to get the selected one. Trade off means sacrificing some benefits or products to obtain some other benefits or products.

### **ALLOCATION OF RESOURCES**

- A company with Rs.1 crore in hand and about 100 employees, wishes to manufacture two kinds of products, product A and product B. Here the company can allocate Rs.60 lakhs & 70 employees to manufacture product A, and Rs.40 lakhs & 30 employees to manufacture product B. Here the company has divided its available resources towards different alternatives.
- Utilizing the available resources in different alternatives is called allocation of resources.

### **UTILITY**

- A bottle of water can quench our thirst. A car helps us to travel from one place to another. Every product has got the capacity to fulfill one or more of our needs, thereby giving us a certain amount of satisfaction.
- Utility denotes that quality in a good or service by virtue of which our wants are satisfied. In, other words utility is defined as the want satisfying power of a commodity.
- Utility is the quality of a good to satisfy a want.
- Utility is the quality in commodities that makes individuals want to buy them.
  - We can say a bottle of water has utility of 20 utile.
  - Ordinal utility theory says that utility cannot be measured in quantities, but can only be compared with one another.

### **FEATURES OF UTILITY**

- Utility is Relative: Utility of a good never remains the same. It varies with time and place. A tube light has got utility at night but not so in the morning.
- Utility is Subjective: Utility is subjective because it deals with the mental satisfaction of a man. The same commodity may have different utility for different persons. A pen has got certain amounts of

utility for literate and illiterate persons.

- Utility and usefulness: Utility and usefulness are different. A commodity having utility need not be useful. Cigarette and liquor are harmful to health, but if they satisfy the want of an addict then they have utility for him. Use of liquor or drugs may not be proper from the moral point of views. But as these intoxicants satisfy wants of the addicts, they have utility for them.

### MARGINAL UTILITY

- Suppose on a hot day, we wish to have some cold ice-cream. After finishing the first cup of ice-cream, we will feel a certain amount of satisfaction or in economic terms it gives a certain amount of utility. This utility can be named as the marginal utility of first cup of ice-cream. Immediately after finishing the first cup, we started to have another cup as well. On finishing the second cup, we may feel certain amount of satisfaction/utility, which can be named as the marginal utility of the second cup of ice-cream. If this process is continued, we will obtain the marginal utilities for 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> etc cup of ice-creams. On analyzing the same, we can see that the utility/satisfaction derived out of second cup will be less than the first one. As more and more units are consumed, marginal utility of each unit diminishes.
- Marginal Utility is the utility derived from the additional unit of a commodity consumed.
- Total utility is the sum total of marginal utilities of all units of a commodity consumed at a particular time.
- The change that takes place in the total utility by the consumption of an additional unit of a commodity is called marginal utility.
- As in our case of consuming more and more cups of ice-creams, we have:-

Number of units of ice-cream consumed	Marginal utility (MU)	Total utility
1	20	20
2	15	35
3	10	45
4	05	50
5	00	50
6	-5	45

$$\text{Total utility (TU)} = \text{MU}_1 + \text{MU}_2 + \text{MU}_3 + \text{MU}_4 + \dots$$

$$\text{MU} = \Delta\text{TU} / \Delta\text{Q}$$

$\Delta\text{TU}$ : change in total utility.

$\Delta\text{Q}$ : change in units consumed

Marginal utility can be measured from total utility,

$$\text{MU}_{(n+1)}^{\text{th unit}} = \text{TU}_{(n+1)}^{\text{th}} - \text{TU}_n^{\text{th}}$$

- The marginal utility of each successive units or ice-cream goes on decreasing. At one stage it reaches zero, showing no utility at all. Beyond that point, ice-cream creates a negative impact on the person.

### LAW OF DIMINISHING MARGINAL UTILITY

- As the quantity consumed of a commodity increases continuously, the utility derived from each successive unit decreases, consumption of other commodities remaining the same.

- Marginal utility of each successive unit consumed diminishes with increase in consumption.  
(Analyze the case of consuming more and more cups of ice cream once again)

### ASSUMPTIONS OF THE LAW

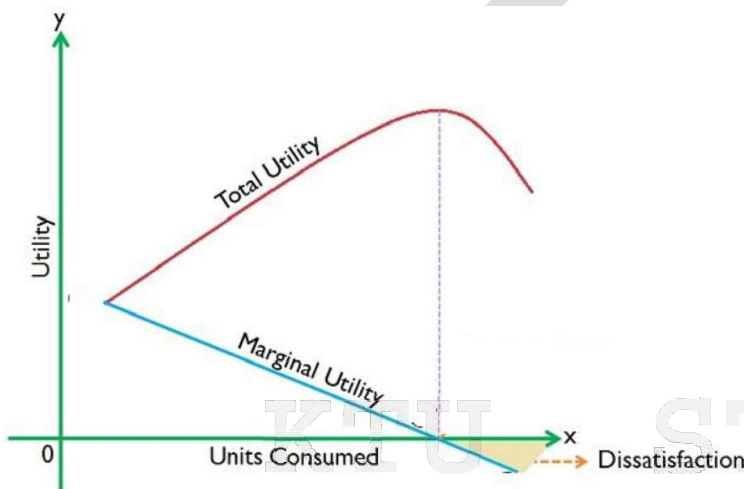
- Utility can be measured in cardinal number system such as 1,2,3 etc
- Continuous consumption of the commodity is assumed.
- No change in income of the consumer, his tastes, character, fashion etc
- No change in the price of the commodity and its substitutes.
- Marginal utility of money remains constant.
- Suitable quantity of the commodity is consumed.
- Marginal Utility of every commodity is independent.
- Every unit of the commodity being used is of same quality and size.

#### Utility curve

Total utility increases at first, reaches a maximum level and then decreases.

Marginal utility decreases throughout, reaching zero at one stage and later moving to negative values showing dissatisfaction for the product.

( check the table for more clarification)



### PRODUCTION POSSIBILITY CURVE

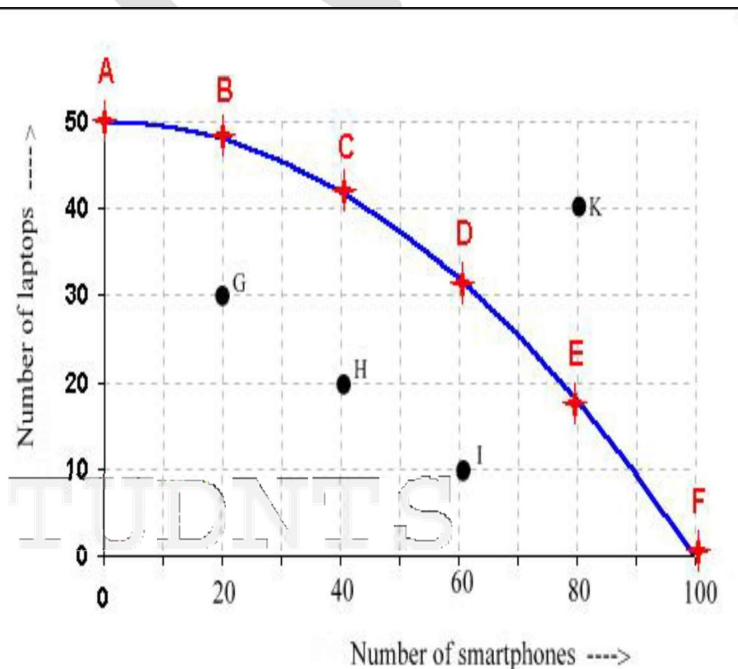
- Suppose we have a fixed amount of resources (capital, labor etc) in our hand. We wish to produce smartphones and laptops using these resources. Since we have only a fixed number of resources, we have to allocate these resources into two sections to manufacture these two products. If all the resources are used to produce only one commodity, then we cannot produce a single unit of the other commodity. If the resources are allocated in different proportions, then the number of laptops and smartphones produced will vary depending upon that proportion.
- Initially, all the resources are used to produce laptops. At that point, the number of laptops produced will be 50 and the number of smartphones produced will be zero. In the next stage, small amount of resources are allocated to the smartphone section and the remaining portion to the laptop section. Thus, the number



of smartphones manufactured will increase by a small amount and that of laptops will decrease by a small amount. If more and more resources are allocated to smartphones, then the number of smartphones will increase and that of laptops will decrease. At last, a stage will be reached where no laptops can be produced at all.

- A production possibility frontier (PPF) or production possibility curve (PPC) is a graphical representation of the alternative combinations of the amounts of two goods or services that an economy can produce by transferring resources employed at full efficiency from one good or service to the other.
- A production possibility frontier (PPF) or production possibility curve (PPC) is a graphical representation of possible combinations of two goods that can be produced with constant resources and technology, such that more of one good could be produced only by diverting resources from the other good, resulting in less production of it. Production possibility frontier (PPF) represents the point at which an economy is most efficiently producing its goods and services and, therefore, allocating its resources in the best way possible.

POINTS	NUMBER OF SMARTPHONES PRODUCED	NUMBER OF LAPTOPS PRODUCED
A	0	50
B	20	47
C	40	42
D	60	31
E	80	18
F	100	0



- A, B, C, D, E and F show various combinations of number of laptops and smartphones that can be produced when the resources are **utilized at full efficiency**..
- ➤G, H and I show combinations of smartphones: laptops as (20:30), (40:20) and (60:10) respectively. But from the table we can see that 47 laptops can be produced with 20 smartphones, 42 laptops can be produced with 40 smartphones and 31 laptops can be produced with 60 smartphones. We have not attained such combinations at the points G, H and I. So these points correspond **to under utilization of resources**.

# MODULE 2

## DEMAND

- **Demand** for a commodity is constituted by 3
  - components:- Desire for the product
  - Ability to pay for the product
  - Willingness to pay for the product
- Quantity demanded is a term used in economics to describe the total amount of goods or services demanded at any given point of time, at a given price.

## DETERMINANTS OF DEMAND

- Determinants of demand refer to the influencing factors of demand. It includes:-
  - **PRICE OF THE PRODUCT**

When the price of a product rises, the quantity demanded of that product falls. That also means that, when prices drop, demand will grow. People base their purchasing decisions on price if all other things are equal. Eg :- When shirts go on sale, you might buy three instead of one. The quantity that you demand increases because the price has fallen.
  - **INCOME EFFECT**

The income of a consumer affects his/her purchasing power, which, in turn, influences the demand for a product. Increase in the income of a consumer would automatically increase the demand for products by him/her, while other factors are at constant, and vice versa.

For example, if the salary of Mr. X increases, then he may be able to buy more chocolates for his children.
  - **PRICES OF RELATED GOODS OR SERVICES:**

Refer to the fact that the demand for a specific product is influenced by the price of related goods to a greater extent. Related goods can be of two types, namely, substitutes and complementary goods, which are explained as follows:

    - a) **Substitutes or supplementary effect:** Refer to goods that satisfy the same need of consumers but at a different price. For example, tea and coffee, groundnut oil and sunflower oil are substitute to each other. The increase in the price of a good results in increase in the demand of its substitute with low.
    - b) **Complementary Goods or complementary effect:**

Refer to goods that are consumed simultaneously or in combination. In other words, complementary goods are consumed together. For example, pen and ink, car and petrol, etc are used together. Therefore, the demand for complementary goods changes simultaneously. The complementary goods are inversely related to each other. For example, increase in the prices of petrol would decrease the

demand of cars.

➤ **Tastes and preference of customers**

The tastes and preferences of consumers are affected due to various factors, such as life styles, customs, common habits, and change in fashion, standard of living, religious values, age, etc

A change in any of these factors leads to change in the tastes and preferences of consumers. Consequently, consumers reduce the consumption of old products and add new products for their consumption. For example, if there is change in fashion, consumers would prefer new and advanced products over old- fashioned products, provided differences in prices are proportionate to their income.

➤ **Expectations of future price**

Expectations of consumers about future changes in the price of a product affect the demand for that product in the short run. For example, if consumers expect that the prices of petrol would rise in the next week, then the demand of petrol would increase in the present. On the other hand, consumers would delay the purchase of products whose prices are expected to be decreased in future, especially in case of non-essential products.

➤ **Advertisement effect**

Consumers are highly sensitive about advertisements as sometimes they get attached to advertisements by their favorite celebrities. This results in the increase demand for a product.

➤ **Number of buyers in the market.**

The number of consumers affects overall, or aggregate, demand. As more buyers enter the market, demand rises. That's true even if prices don't change.

➤ **Government Policy:**

Government policies can affect the demand for a product. For example, if a product has high tax rate, this would increase the price of the product. This would result in the decrease in demand for a product.

➤ **Climatic Conditions:**

The demand of ice-creams and cold drinks increases in summer, while tea and coffee are preferred in winter.

➤ **Distribution of National Income**

If income is equally distributed among people in the society, the demand for products would be higher than in case of unequal distribution of income. However, the distribution of income in the society varies widely. The high income segment of the society would prefer luxury goods, while the low income segment would prefer necessary goods.

➤ **Growth of Population:**

High growth of population would result in the increase in the demand for different products

## LAW OF DEMAND

Other things remaining the same, the higher the price of a good, the smaller is the quantity demanded; and the lower the price of a good, the larger is the quantity demanded.

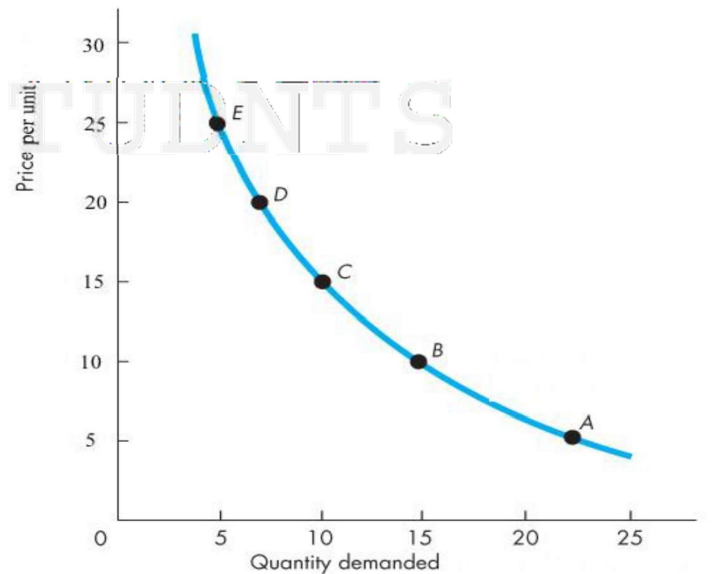
Other factors to be same means that we assume there is no change in tastes & preference of customers, no change in income, no change in price of related goods etc.

- Following are the different quantities of chocolates a boy is willing to buy at different prices.

### Demand schedule

Points	Price per unit	Quantity demanded
A	5	22
B	10	15
C	15	10
D	20	7
E	25	5

### Demand curve



-----There is an inverse relation between price and quantity demanded.

\_The quantity demanded decreases for an increase in price because of:-

- Substitution effect : when the price of product ' A ' increases ,people will buy its substitutes thereby reducing the demand of product A
- Income effect: - When the price of product ' A ' increases, it will reduce the real income or purchasing power of people, thereby reducing the demand of product A

## LAW OF SUPPLY

The quantity supplied of a good or service is the amount that producers plan to sell during a given time period at a particular price

Other things remaining the same, the higher the price of a good, the greater is the quantity supplied; and lower the price of a good, the smaller is the quantity supplied.

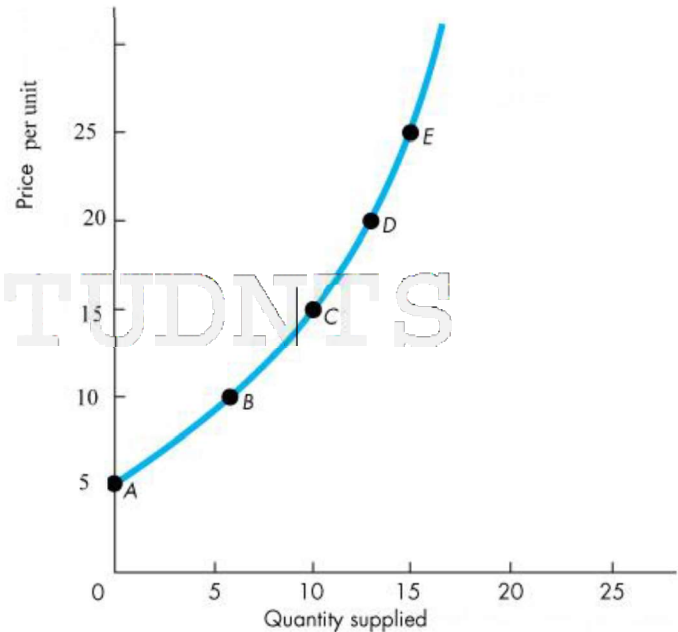
The supply curve shows the relationship between the quantity supplied of a good and its price when all other influences on producers' planned sales remain the same.

### Supply schedule

Following table shows different quantities of chocolates that a person is ready to sell under different prices per unit.

Points	Price per unit	Quantity supplied
A	5	0
B	10	6
C	15	10
D	20	14
E	25	17

### Supply curve



As the price per unit of the product increases, the supplier is willing to sell more and more chocolates as he will get more profit from each chocolate.

### **MARKET EQUILIBRIUM**

Equilibrium is a situation in which opposing forces balance each other. Equilibrium in a market occurs when the price balances the plans of buyers and sellers. Buyers may demand different quantity of goods at different prices. Sellers may supply demand different quantity of goods at different prices. If buyers demand and sellers supply same quantity of goods at a particular price, then we can say that an equilibrium is created.

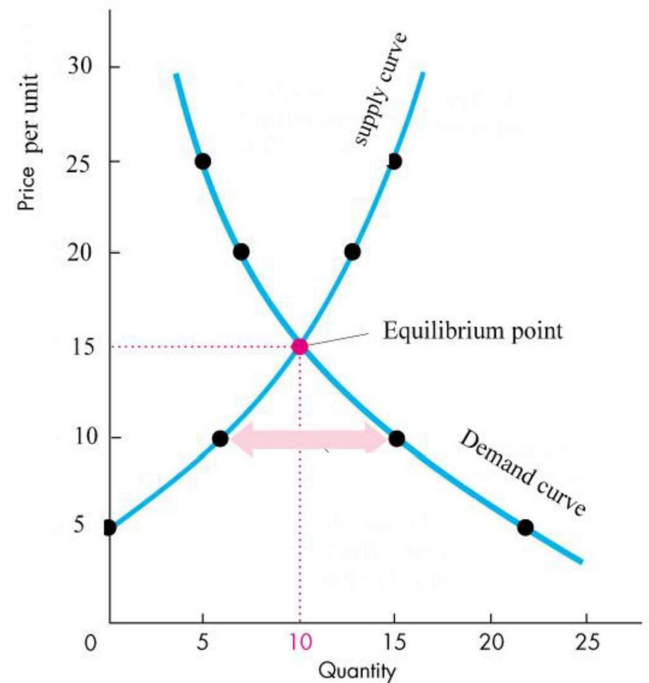
The equilibrium price is the price at which the quantity demanded equals the quantity supplied.

The equilibrium quantity is the quantity bought and sold at the equilibrium price.

## Curve

### Schedule

Price per unit	Quantity supplied	Quantity demanded
5	0	22
10	6	15
15	10	10
20	14	7
25	17	5



At Rs.10 per unit, the supplier will sell only 6 units but the customer demands 15 units. That means there is a shortage of supply and excess demand.

At Rs.20 per unit, the supplier is ready to sell 14 units but the customer demands only 7 units. That means there is an excess of supply and shortage of demand.

At Rs.15 per unit, the supplier will sell 10 units and the customer also demands 10 units. That means the plans of both customer and supplier will meet at this point. Here equilibrium price is Rs.15 and equilibrium quantity is 10.



## **EXCEPTIONS TO THE LAW OF DEMAND**

- **Inferior goods/ Giffen goods**

A Giffen good is a good for which demand increases as the price increases, and falls when the price decreases, unlike the law of demand

- **Goods having prestige value**

Few goods like diamond can be purchased only by rich people. The prices of these goods are so high that they are beyond the capacity of common people. The higher the price of the diamond the higher the prestige value of it.

In this case, a consumer will buy less of the diamonds at a low price because with the fall in price, its prestige value goes down. On the other hand, when price of diamonds increase, the prestige value goes up and therefore, the quantity demanded of it will increase.

- **Price expectation**

When the consumer expects that the price of the commodity is going to fall in the near future, they do not buy more even if the price is lower.

On the other hand, when they expect further rise in price of the commodity, they will buy more even if the price is higher. Both of these conditions are against the law of demand.

- **Fear of shortage**

When people feel that a commodity is going to be scarce in the near future, they buy more of it even if there is a current rise in price.

For example: If the people feel that there will be shortage of L.P.G. gas in the near future, they will buy more of it, even if the price is high.

- **Change in fashion**

The law of demand is not applicable when the goods are considered to be out of fashion.

If the commodity goes out of fashion, people do not buy more even if the price falls. For example: People do not purchase old fashioned shirts and pants nowadays even though they've become cheap. Similarly, people buy fashionable goods in spite of price rise.

- **Basic necessities of life**

In case of basic necessities of life such as salt, rice, medicine, etc. the law of demand is not applicable as the demand for such necessary goods does not change with the rise or fall in price.

## **PRODUCTION FUNCTION**

- Availability of any product in the market depends upon the production of that commodity. Production of commodities depends upon various inputs like capital, labor, land, materials, technology, time, managerial efficiency etc. In order to increase the level of output we have to increase the level of these input factors.

Thus there exists a relationship between these input factors and the total output produced.

- Production function is a mathematical expression that analyzes the relationship between various input factors like capital, labor, land, materials, technology, time, managerial efficiency etc with the total quantity of output produced.
- A General form of production function can be expressed as  $Q = f(K, L, T, t, e, \text{etc})$ ,

Read as Total quantity of output (Q) is a function of capital(K), labour (L), technology (T), time (t), managerial efficiency (e) , etc.

- In order to simplify the analysis we consider only capital and labour does the production function can be expressed as  $Q = f(K, L)$
- That means, we consider only capital and labour in our discussion.

Short run production function

Production function can be of two types



Long run production function In the short run,

labor is the only variable input, capital remains constant

In the long run, both capital and labor can be varied together or one at a time.

### **SHORT RUN LAWS OF PRODUCTION OR LAW OF VARIABLE PROPORTION**

1. Law of variable proportion examines what will happen to the total output when more and more units of one input (labor) are combined with a fixed quantity of the other input.
2. Consider an example. A business unit has got 4 machines at their site. Let's see what will happen if more and more labors are used to work with these 4 machines. Here capital is kept constant and labour is varied.
3. Law of variable proportion says that when more and more units of a variable input is combined with fixed quantities of other inputs, the total product may increase on increasing rate at first but then increases at a diminishing rate and eventually the total output decrease

### **LONG RUN LAWS OF PRODUCTION**

- Both labor and capital can be varied. Cobb- Douglas Production function is a widely used production function when both capital and labor are varied.
- Imagine, a person had started a new business unit, producing packaged potato chips. The total packets of potato chips produced (or the total quantity of output) depend upon various factors (inputs) like number of machines (capital) used in the business unit, number of workers in the unit (labors) etc. So, it is necessary to derive a relationship between input factors capital and labor with the total output.

- Cobb- Douglas Production function was proposed by two Economists named Charles Cobb and Paul Douglas. It is a widely used production function. It helps us to calculate how the variations in physical inputs like capital, labor etc can change the level of output in a business firm.

### **MARGINAL PRODUCT OF CAPITAL**

In the first example, we had calculated the total output when the capital was 10 units and labor was 30 units. If we increase the **capital alone** by one unit, that means the capital is made to 11 units and labor is kept at 30 units, the total output will increase by a certain amount.

**Marginal product of capital** gives the measure of change in total output level due to one unit change in the **level of capital**

For example , when the capital was 10 units and labour was 30 units, we got the total output (Q) as 86 units. when the capital is 11 units and labour is 30 units, we can calculate the total output (Q) as

$$Q = 4 (11)^{0.3} (30)^{0.7} \quad \Rightarrow \quad Q = 89 \text{ units.}$$

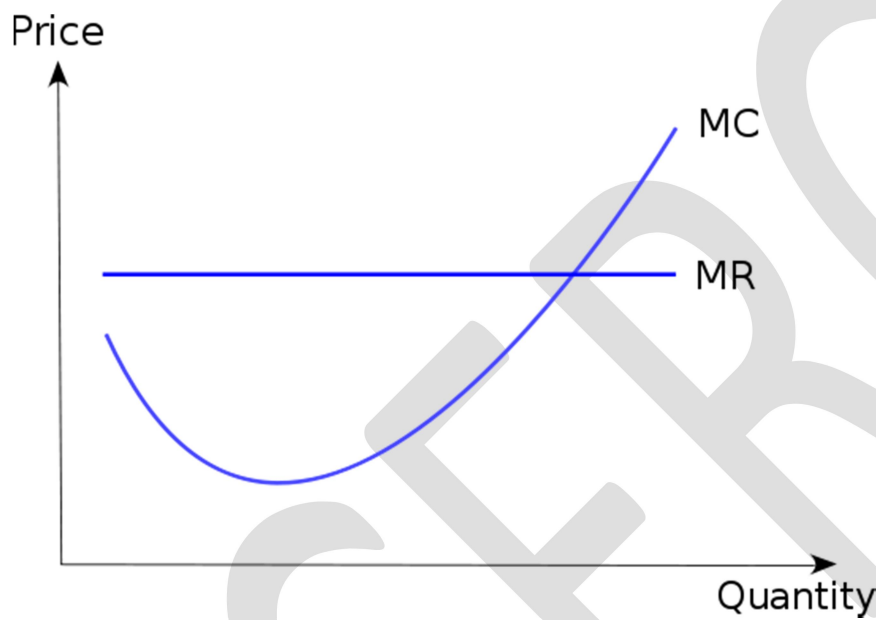
$$\text{Change in total output} = 89 - 86 = 3 \text{ units}$$

Here the marginal product of capital = 3 units

# MODULE 3

## MARGINAL COST

In economics, marginal cost is the change in the total cost that arises when the quantity produced is incremented by one unit, that is, it is the cost of producing one more unit of a good. In general terms, marginal cost at each level of production includes any additional costs required to produce the next unit MR-Marginal Revenue, MC-Marginal Cost



## AVERAGE COST

In economics, average cost and/or unit cost is equal to total cost divided by the number of goods produced (the output quantity,  $Q$ ). It is also equal to the sum of average variable costs (total variable costs divided by  $Q$ ) plus average fixed costs (total fixed costs divided by  $Q$ ). Average costs may be dependent on the time period considered (increasing production may be expensive or impossible in the short term. for example) average costs affect the supply curve and are a fundamental component of supply and demand

## FIXED COST

In economics, fixed costs, indirect costs or overheads are business expenses that are not dependent on the level of goods or services produced by the business. They tend to be time-related, such as salaries or rents being paid

per month, and are often referred to as overhead costs. This is in contrast to variable costs, which are volume-related (and are paid per quantity produced). The relation between fixed cost and variable cost can be modeled by an analytical formula.

### **DEFINE VARIABLE COST**

A variable cost is a corporate expense that varies with production output. Variable costs are those costs that vary depending on a company's production volume; they rise as production increases and fall as production decreases. Variable costs differ from fixed costs such as rent, advertising, insurance and office supplies, which tend to remain the same regardless of production output. Fixed costs and variable costs comprise total cost.

### **COST CURVE**

In economics, a cost curve is a graph of the costs of production as a function of total quantity produced. In a free market economy, productively efficient firms use these curves to find the optimal point of production (minimizing cost), and profit maximizing firms can use them to decide output quantities to achieve those aims. There are various types of cost curves, all related to each other, including total and average cost curves, and marginal ("for each additional unit") cost curves, which are equal to the differential of the total cost curves.

### **SHUTDOWN POINT**

A shutdown point is a point of operations where a company experiences no benefit for continuing operations or from shutting down temporarily; it is the combination of output and price where the company earns just enough revenue to cover its total variable costs. If a company can produce revenue greater or equal to its total variable costs, it can use the additional revenue to pay down its fixed costs, assuming fixed costs, such as lease contracts or other lengthy obligations, will still be incurred when it shuts down. In other words, when a company can earn a positive contribution margin, it should remain in operations despite an overall loss.

### **SHORT RUN AND LONG RUN.**

In microeconomics, the long run is the conceptual time period in which there are no fixed factors of production, so that there are no constraints preventing changing the output level by changing the capital stock or by entering or leaving an industry. The long run contrasts with the short run, in which some factors are variable and others are fixed, constraining entry or exit from an industry. In macroeconomics, the long run is the period when the general price level, contractual wage rates, and expectations adjust fully to the state of the economy, in contrast to the short run when these variables may not fully adjust.

## **LONG RUN**

In the long run, firms change production levels in response to (expected) economic profits or losses, and the land, labour, capital goods and entrepreneurship vary to reach associated long-run average cost. In the simplified case of plant capacity as the only fixed factor, a generic firm can make these changes in the long run:

- enter an industry in response to (expected) profits
- leave an industry in response to losses
- increase its plant in response to profits
- decrease its plant in response to losses

## **BREAK EVEN ANALYSIS**

Break-even analysis entails the calculation and examination of the margin of safety for an entity based on the revenues collected and associated costs. Analyzing different price levels relating to various levels of demand, an entity uses break-even analysis to determine what level of sales are needed to cover total fixed costs. A demand-side analysis would give a seller greater insight regarding selling capabilities.

## **MARKET.**

A market is one of the many varieties of systems, institutions, procedures, social relations and infrastructures whereby parties engage in exchange. While parties may exchange goods and services by barter, most markets rely on sellers offering their goods or services (including labour) in exchange for money from buyers. It can be said that a market is the process by which the prices of goods and services are established. Markets facilitate trade and enable the distribution and allocation of resources in a society. Markets allow any trade-able item to be evaluated and priced.

## **PERFECT COMPETITION MARKET**

Perfect competition is a market structure in which the following five criteria are met:

- 1) All firms sell an identical product;
- 2) All firms are price takers - they cannot control the market price of their product;
- 3) All firms have a relatively small market share;
- 4) Buyers have complete information about the product being sold and the prices charged by each firm; and



5) The industry is characterized by freedom of entry and exit. Perfect competition is sometimes referred to as "pure competition".

## **IMPERFECT MARKET**

Imperfect competition, in which a competitive market does not meet the above conditions, is very common. Examples of imperfect competition include oligopoly, monopolistic competition, monopsony and oligopsony.

In an oligopoly, there are many buyers for a product or service but only a few sellers. The cable television industry in most areas of the United States is a prototypical oligopoly. While an oligopolistic market is competitive - the few active firms within an industry compete with one another - it falls well short of perfect competition in several key areas. The firms involved usually sell similar products, but they are not identical. Because of the small number of firms, a singular firm has the power to influence market prices; in fact, collusion, an underhanded tactic in which competing firms join forces to manipulate market prices, has historically been rampant in oligopolies. By its very nature, an oligopoly provides large market share to each firm. Perfect knowledge does not exist, and the barriers to entry are typically high, ensuring the number of players remains small.

Monopolistic competition describes a market that has a lot of buyers and sellers, but whose firms sell vastly different products. Therefore, the condition of perfect competition that products must be identical from firm to firm is not met. The restaurant, clothing and shoe industries all exhibit monopolistic competition; firms within those industries attempt to carve out their own sub-industries by offering products or services not duplicated by their competitors. In many ways, monopolistic competition is closer than oligopoly to perfect competition. Barriers to entry and exit are lower, individual firms have less control over market prices and consumers, for the most part, are knowledgeable about the differences between firms' products.

Monopsony and oligopsony are counterpoints to monopoly and oligopoly. Instead of being made up of many buyers and few sellers, these unique markets have many sellers but few buyers. The defense industry in the U.S. constitutes a monopsony; many firms create products and services and attempt to sell them to a singular buyer, the

U.S. military. An example of an oligopsony is the tobacco industry. Almost all of the tobacco grown in the world is purchased by less than five companies, which use it to produce cigarettes and smokeless tobacco products. In a monopsony or an oligopsony, it is the buyer, not the seller, who has the ability to manipulate market prices by playing firms against one another.

## **LARTEL**

In economics, a cartel is an agreement between competing firms to control prices or exclude entry of a new competitor in a market. It is a formal organization of sellers or buyers that agree to fix selling prices, purchase prices, or reduce production using a variety of tactics.<sup>[1]</sup> Cartels usually arise in an oligopolistic industry, where the number of sellers is small or sales are highly concentrated and the products being traded are usually commodities. Cartel members may agree on such matters as setting minimum or target prices (price fixing), reducing total industry output, fixing market shares, allocating customers, allocating territories, bid rigging, establishment of common sales agencies, altering the conditions of sale, or combination of these. The aim of such collusion (also called the cartel agreement) is to increase individual members' profits by reducing competition. If the cartelists do not agree on market.

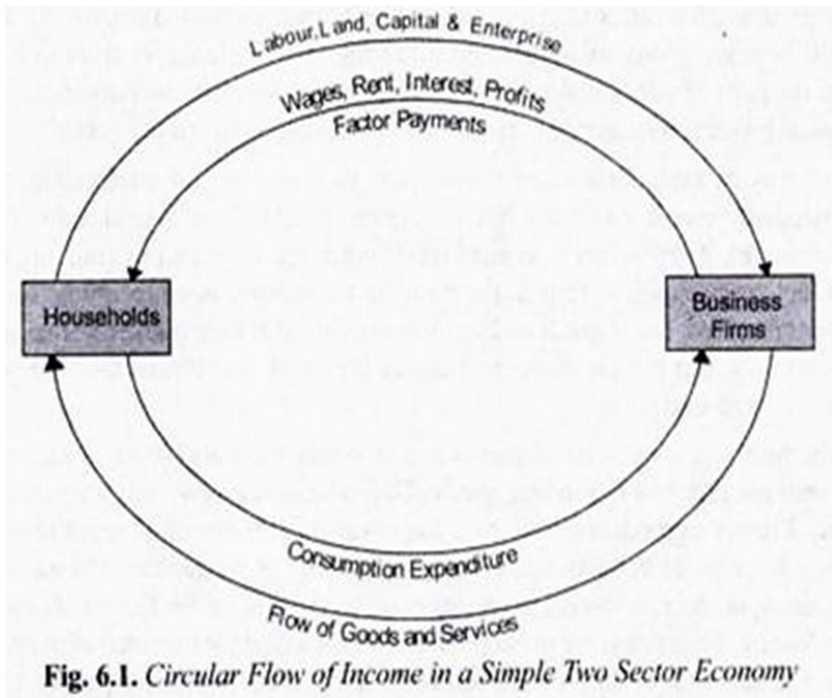
# MODULE 4

## CIRCULAR FLOW OF INCOME

- The circular flow of income and expenditure refers to the process whereby the national income and expenditure of an economy flow in a circular manner continuously through time.

## CIRCULAR FLOW IN A TWO SECTOR ECONOMY:

- We begin with a simple hypothetical economy where there are only two sectors, the household and business.

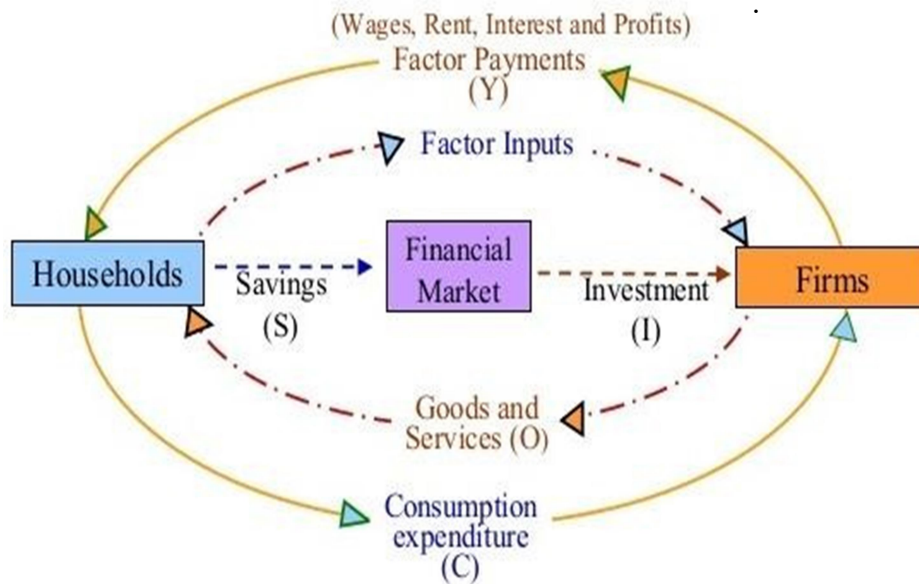


- The household sector provides all the factors of production, that is, land, labour and capital to the business sector.
- In return, the business sector provides salaries, rent dividend etc as income to the household sector
- Using the factors of production, business sector produces various goods and services. These goods and services are delivered to the household sector.

- In return, household sector has to pay for the used up goods and services. Thus a consumption expenditure flows from household sector to business sector.
- We assume that goods and services from business sector are completely sold and used by the household sector. If Y denotes total income and E denotes total expenditure, then here  $Y = E$ .

## CIRCULAR FLOW WITH SAVING AND INVESTMENT ADDED

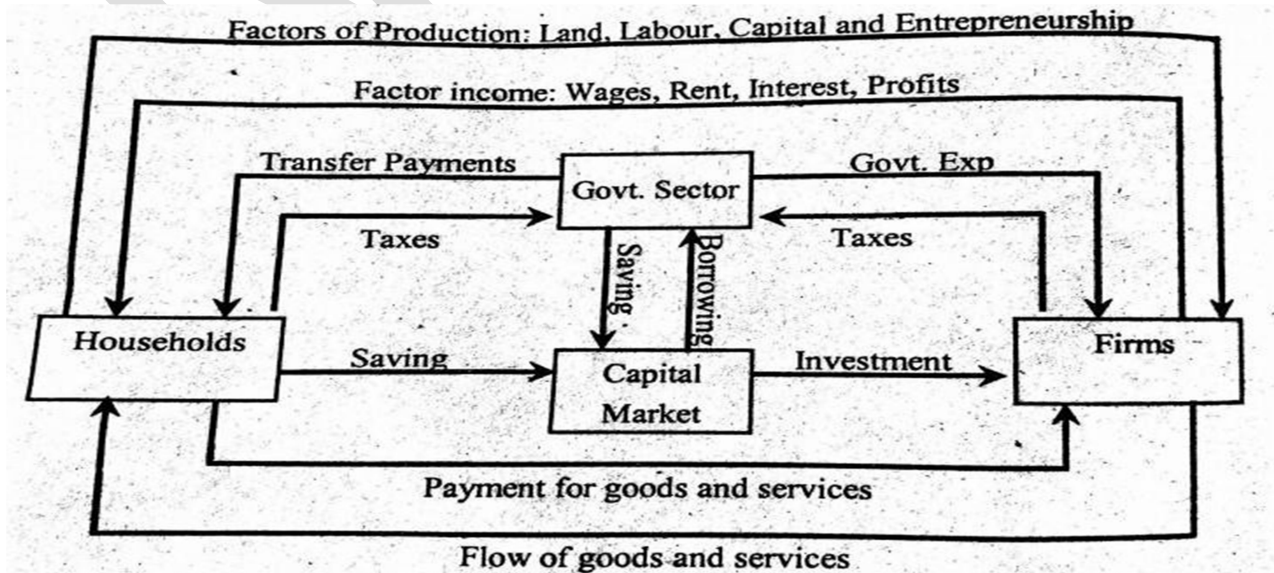
- The actual economy is not as explained above. Households will not spend their entire income as expenditure. A part of income is saved in capital markets., The capital market refers to a number of financial institutions such as commercial banks, savings banks, loan institutions, the stock and bond markets, etc. These capital markets provide funds to the business sector as investments.
- The households supply saving to the capital market and the firms, in turn, obtain investment funds from the capital market. In an economy, “inflows” and “leakages” occur in the expenditure and income flows
- Injection mean introduction of income into the circular flow
- Here leakages are Savings (S) and injections are investments (I) which equals each other.



### CIRCULAR FLOW IN A THREE- SECTOR ECONOMY:

To the two sector model, we add the government sector so as to make it a three-sector closed model of circular flow of income and expenditure. For this, we add taxation and government purchases (or expenditure) in 3 sector model.

- First, take the circular flow between the household sector and the government sector. Taxes in the form of personal income tax and commodity taxes paid by the household sector flows from household to government.
- Government pays salaries to its employees, makes transfer payments in the form of old age pensions, unemployment relief, sickness benefit, etc., and also spends on them to provide certain social services like education, health, housing, water, parks and other Facilities. All such expenditures by the government flow from government sector to household sector.

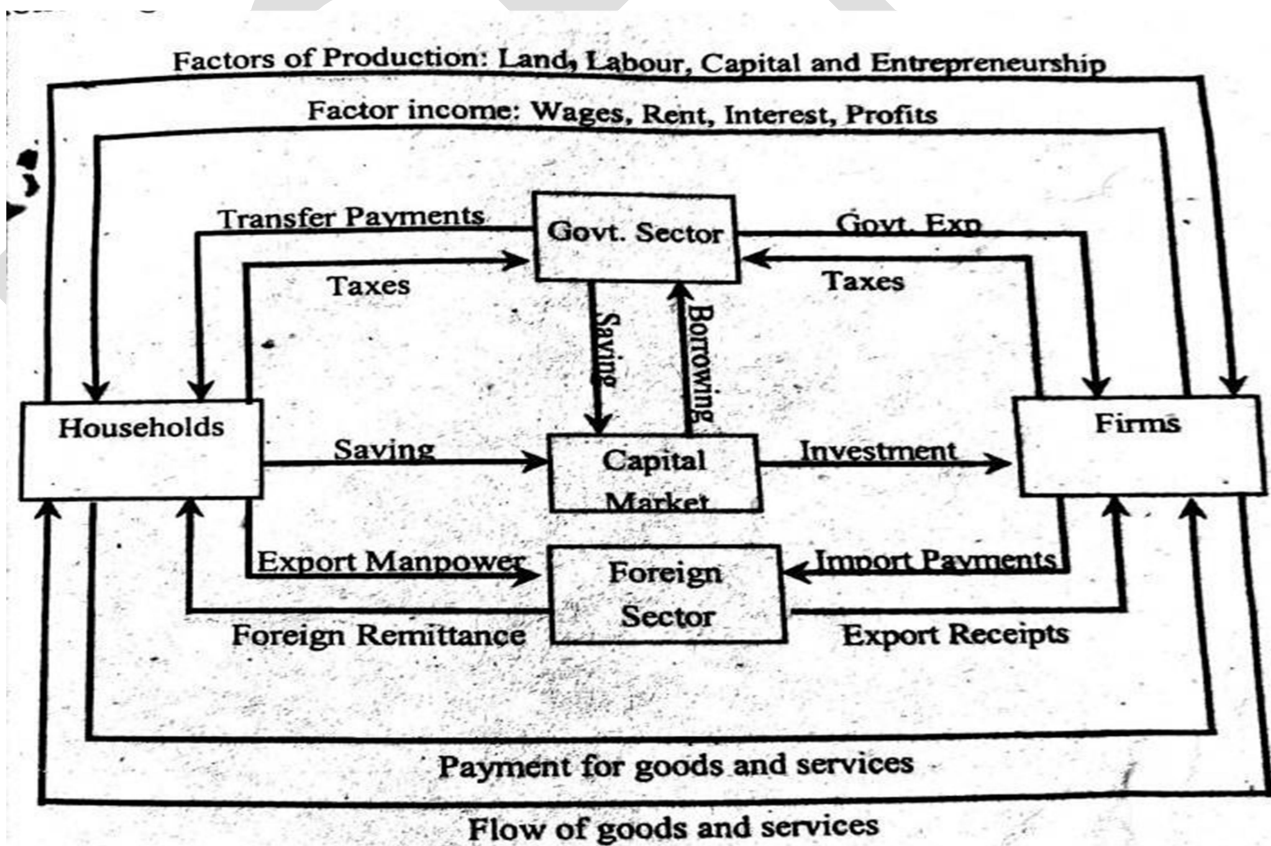


- Next take the circular flow between the business sector and the government sector.
- Subsidies to the business unit and payment for goods and services purchased by the government ( government expenditures) flow from government sector to business sector.
- In the three sector flow, Taxation (T) is a leakage from the circular flow and government expenditures (G) are injections into the circular flow.
- If  $T > G$ , government can save the surplus in financial markets.,
- If  $T < G$ , government has to borrow from financial markets to meet its expenses.

### CIRCULAR FLOW IN A FOUR-SECTOR ECONOMY: ( OPEN ECONOMY)

Foreign sector is added as fourth sector in the circular flow of income and expenditure.

- Households supply manpower (labours) to foreign countries and in return, salaries are received from those countries (foreign remittance)
- Firms supply goods to foreign countries and receive export receipts. Also when goods are bought from foreign countries, import payments have to be paid to foreign nations.



Export receipts (E) are an injection into the economy  
Import payments (M) are leakages from the economy

### **THE WHOLE ANALYSIS OF ALL SECTORS CAN BE SHOWN AS:-**

- Total injections = Investments (I) + Government expenditure (G) + Export Receipts (E)
- Total leakages = Savings (S) + Taxes (T) + Import payments (M)
- If leakages = injections , then economy is in equilibrium.
- If leakages > injections , then economy is in a bad state.
- If leakages < injections , then economy is in good condition.

### **INFLATION**

- It is defined as a sustained increase in the general level of prices for goods and services in a country, and is measured as an annual percentage change.
- Purchasing power of money decreases during inflation: Suppose 1 kg of a commodity costs Rs.10. By the course of time, inflation had occurred and price increased to Rs. 20/kg. power of Rs.10 was only  $\frac{1}{2}$  kg of the product
- We can say that during inflation, the value of money decreases.

### **CAUSES OF INFLATION**

- Demand-Pull Inflation – If there are only a few number of products in the market and a greater number of people require them, then sellers will sell those products to those customers who are ready to pay higher prices. Thus the price of the product increases.
- Inflation is caused by the overall increase in demand for goods and services, which bids up their prices. This theory can be summarized as "too much money chasing too few goods". In other words, if demand is growing faster than supply, prices will increase. This usually occurs in rapidly growing economies.
- Cost-Push Inflation – Inflation is caused when companies' costs of production go up. When this happens, they need to increase prices to maintain their profit margins. Increased costs can include things such as wages, taxes, or increased costs of natural resources or imports.
- Monetary Inflation – Inflation is caused by an oversupply of money in the economy. If people have a lot of money in their hands, then they will be ready to pay any price for products they want. Thus suppliers will charge huge prices for their products.

- Increase in public expenditure:- when the expenditure of government increases , more and more goods will be used by them which creates an overall shortage in the availability of goods. Then there will be huge demand for the remaining goods and sellers will charge high prices for them.
- Increase in disposable income: - When the personal income of people increases, they will be ready to pay huge amounts to get the limited number of products in the market.
- Shortage of factors of production: - When the production of goods in country decreases, people who pay higher prices for the available products will only get them and thereby prices increases.
- Occurrence of natural calamities and artificial scarcities

## **MEASURES TO CONTROL INFLATION**

- Inflation is caused by the failure of aggregate supply to equal the increase in aggregate demand. Inflation can, therefore, be controlled by increasing the supplies of goods and services and reducing money incomes in order to control aggregate demand. There are 3 methods to control inflation.

--MONETARY POLICY

---FISCAL POLICY

--- OTHER MEASURES

### **1. MONETARY MEASURES:**

- Monetary measures aim at reducing money supply. If the availability of money with the people is decreased, then people will not be willing to pay high prices for the products and thereby prices will come down. Monetary policy can be helpful in controlling inflation due to demand- pull factors

#### **(a) CREDIT CONTROL:**

- It refers to the methods adopted by the central bank of a nation to reduce the tendency of people to take more and more loans from banks. If credit control techniques are applied, then the tendency to take loans will decrease which will lead to decrease in availability of money .
- During inflation, central bank will increase the rate of CRR. If the central bank decides to increase the CRR, the available amount with the banks comes down. As a result, public will get only lesser amounts as loans from commercial banks. Thus the availability of money with the public can be reduced.

#### **● REPO RATE**

- The rate at which the RBI lends money to commercial banks is called repo rate. Whenever banks have any shortage of funds they can borrow from the RBI. Current repo rate is 6.25%
- During inflation repo rates will be increased. Thus banks have to pay higher interest rates for the money borrowed from RBI. As a result, banks will lend money to the public at even higher prices. This reduces tendency of people to take loans and availability of money with the public can be reduced.



- **REVERSE REPO RATE**

- It is the rate at which the RBI borrows money from commercial banks. Banks are always happy to lend money to the RBI since their money are in safe hands with a good interest. Current reverse repo rate is 6%
- During inflation, Reverse repo rate is increased. An increase in reverse repo rate can prompt banks to deposit more funds with the RBI to earn higher returns on idle cash. Thus only less amount of funds will be available to the public as loans.

- **SLR (STATUTORY LIQUID RATIO)**

- Banks have to invest certain percentage of their deposits in specified liquid assets like gold, financial securities like Central Government or State Government securities. This percentage is known as SLR. Current SLR percentage is 20.5%
- During inflation, SLR is increased so as to reduce the availability of cash with commercial banks.
- Open market operations:
  - It refers to the buying and selling of government securities like treasury bills etc to people and banks thereby reducing the money supply with the public

**DEMONETISATION OF CURRENCY:**

- Demonetization of currency of higher denominations is usually adopted when there is abundance of black money in the country.

**ISSUE OF NEW CURRENCY:**

- The most extreme monetary measure is the issue of new currency in place of the old currency. Under this system, one new note is exchanged for a number of notes of the old currency. The value of bank deposits is also fixed accordingly. Such a measure is adopted when there is an excessive issue of notes and there is hyperinflation in the country.

**FISCAL MEASURES:**

- Monetary policy alone is incapable of controlling inflation. It should, therefore, be supplemented by fiscal measures. Fiscal measures are highly effective for controlling government expenditure, personal consumption expenditure, and private and public investment. The principal fiscal measures are the following:

**(a) REDUCTION IN UNNECESSARY EXPENDITURE:**

- The government should reduce unnecessary expenditure on non-development activities in order to control inflation. This will also put a check on private expenditure which is dependent upon government demand for goods and services.

**(b) INCREASE IN TAXES:**

- To cut personal consumption expenditure, the rates of personal, corporate and commodity taxes should be raised and even new taxes should be levied, but the rates of taxes should not be so high as to discourage saving, investment and production. Rather, the tax system should provide larger incentives to those who save, invest and produce more.

**(c) INCREASE IN SAVINGS:**

- Another measure is to increase savings on the part of the people. This will tend to reduce liquid cash with the people, and hence personal consumption expenditure. But due to the rising cost of living, people are not in a position to save much voluntarily.

**(d) SURPLUS BUDGETS:**

- An important measure is to adopt anti-inflationary budgetary policy. For this purpose, the government should give up deficit financing and instead have surplus budgets. It means collecting more in revenues and spending less.

**(e) PUBLIC DEBT:**

- At the same time, it should stop repayment of public debt and postpone it to some future date till inflationary pressures are controlled within the economy. Instead, the government should borrow more to reduce money supply with the public.

**OTHER MEASURES:**

The other types of measures are those which aim at increasing aggregate supply and reducing aggregate demand directly.

**(a) TO INCREASE PRODUCTION:**

- One of the foremost measures to control inflation is to increase the production of essential consumer goods like food, clothing, kerosene oil, sugar, vegetable oils, etc.

**(b) PRICE CONTROL:**

- Price control and rationing is another measure of direct control to check inflation. Price control means fixing an upper limit for the prices of essential consumer goods. They are the maximum prices fixed by law and anybody charging more than these prices is punished by law. But it is difficult to administer price control.

**(c) RATIONING:**

- Rationing aims at distributing consumption of scarce goods so as to make them available to a large number of consumers.

## **DEFLATION**

- Deflation is a decrease in the general price level of goods and services
- Deflation is a contraction in the supply of circulated money within an economy, and therefore the opposite of inflation. In times of deflation, the purchasing power of currency and wages are higher than they otherwise would have been.
- To control deflation, monetary measures should be adopted just opposite to that of inflation.

# MODULE 5

## INVESTMENT ANALYSIS

- An investment is an asset or item that is purchased with the hope that it will generate income in the future.
- Eg:- Buying the shares of a company , real estate, buying gold hoping that its value will increase in the future, buying new machines in a business unit which helps to increase the production level and thereby earn profits, etc
- Capital budgeting, or investment analysis, is the planning process used to determine whether an organization's long term investments are profitable or not.

### Examples of *Capital budgeting*

- A car manufacturer considering investment in a new plant.
- An Airline planning to buy a fleet of jet aircraft.
- A pharmaceutical firm deciding to invest in Research and Development.
- A firm planning to launch a new product line
- A firm planning to invest in new technology

Capital budgeting decisions are important and crucial to a firm due to following reasons:

- **Substantial outlays:** Capital expenditure decisions involve investment of substantial amount of funds. It is therefore necessary for a firm to make such decisions after careful analysis.
1. **Long-term impact:** Capital budgeting decisions define the strategic direction of a firm in the sense that their effects continue for a long period of time, thereby reducing a firm's flexibility. These decisions not only affect the future benefits and costs of the firm but also influence the rate of growth and direction of growth of the firm. A firm's growth, and even its ability to remain competitive and to survive, depends on good capital budgeting decisions.
  2. **Irreversibility:** Most of the capital budgeting decisions are difficult and expensive to reverse. Once they are taken, the firm may not be in a position to reverse them back
  3. **Complexity of decision:** The capital investment decisions involve an assessment of future events, which in fact is difficult to predict. Further, it is quite difficult to estimate in quantitative terms all the benefits or the costs relating to a particular investment decision.

## CAPITAL BUDGETING PROCESS

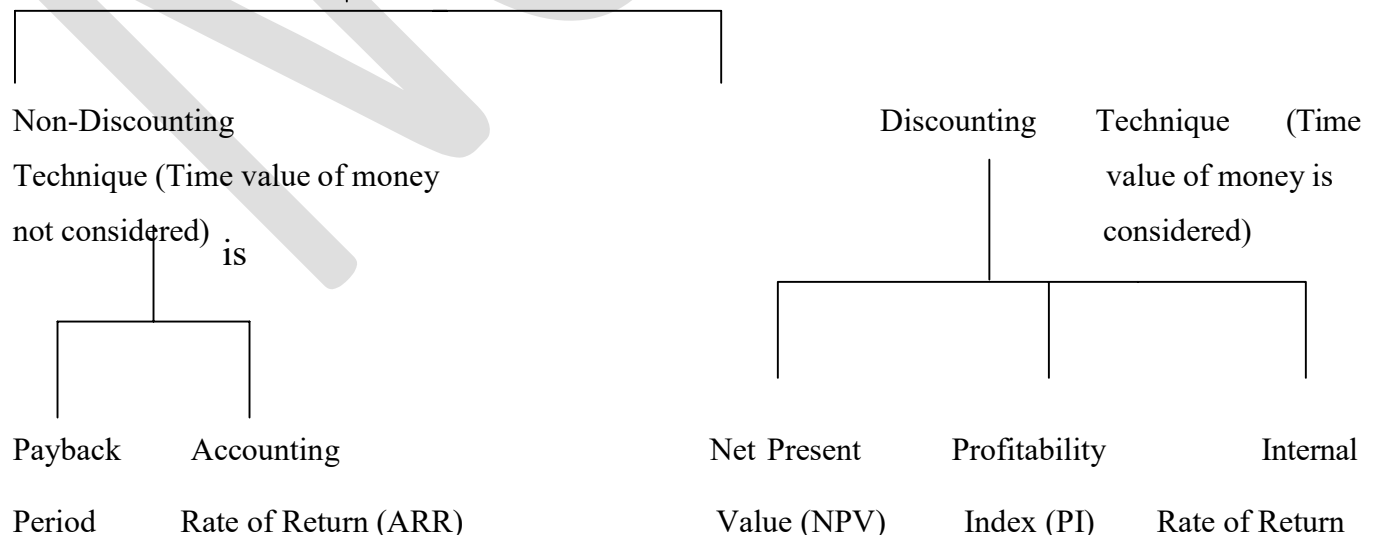
The capital budgeting process involves six distinct and interrelated steps:-

1. Identifying potential investments: Capital budgeting process begins with an idea and ends with implementation and monitoring. Ideas for investment projects can come from virtually anywhere within the firm.
2. Review and Analysis: Once a project proposal is identified, a formal review and analysis is performed to evaluate its economic viability.
3. Decision making and selection: The decision making and selection process follows the detailed analysis. A go/no-go decision on the project is made after a detailed analysis and appraisal of the project in order to determine whether the project is worthwhile.
4. Project financing: Once a project is selected, suitable financing arrangements have to be made.
5. Implementation: The implementation of a project involves several stages such as project and engineering designs, negotiations and contracting, construction, training and plant commissioning
6. Performance review: Once a project is commissioned, performance review is done periodically. In a Performance review, the actual performance of the project is compared with the projected performance. Actions may be required if actual outcomes differ from projected ones.

**Capital budgeting consists of various techniques used by managers such as:**

1. Accounting Rate of Return (ARR)
2. Internal Rate of Return (IRR)
3. Profitability Index

### 4. CAPITAL BUDGETING TECHNIQUES



## **PAYBACK PERIOD**

- Mr. X has started a business by investing Rs.100000. Each year, he receives certain amount as revenue from the business. The initial motive of Mr.X will be to recover his Rs.100000 from the business. He will be eager to know after how many years he will be able to recover his initial investment.
- The payback period is the length of time required to recover the cost of an investment.
- The payback period method is the simplest of all capital budgeting techniques. It is based on the convention that a business enterprise would consider the recovery of the original investment in a project as the first and foremost concern.
- Longer payback periods are typically not desirable for investment positions. According to the payback period criterion, the shorter the payback period of a project, the more desirable would be the project. The rationale behind this is that the shorter the payback period, the less risky is the project, and the greater is its liquidity.

## **DECISION RULE**

- In the case of mutually exclusive projects, project having shorter payback period is selected subject to the condition that such payback period is less than the maximum acceptable payback period for the firm.
- For independent projects, projects with payback periods less than the maximum standard payback for the firm will be accepted and all other projects will be rejected.

## **ADVANTAGES**

- Pay back method is simple to understand and easy to use.
- It takes less time to calculate as compared to other methods.
- Payback method takes into account the risk of a project by stressing on earlier cash inflows. Projects that take longer to pay off are obviously riskier than those that recover the initial investments more quickly due to uncertainty in the future cash inflows.
- The method, by stressing earlier cash inflows, also considers the liquidity dimension in the selection criteria. This is important in situations of liquidity crunch and high cost of capital.
- Because of its ability to measure a project's risk, the payback method is particularly suitable in the case of industries where the risk of technological obsolescence is very high and such risky investments as oil drilling.

## **DISADVANTAGES**

- The payback method fails to consider the time value of money.
- It ignores the cash flows beyond the payback period. This leads to discrimination against the shareholders than a project with shorter payback period with insignificant cash inflows after the payback period.

## DECISION RULE

A firm can set a target ARR for acceptance of a project. In that case the decision rule would be:

- In the case of mutually exclusive projects, the project with the highest ARR is selected provided that the rate is higher than the pre-specified target rate.
- In the case of independent projects, if the calculated ARR is equal to or more than the pre-specified target ARR, the project is accepted. If the calculated ARR is less than the pre-specified target rate of return, the project is rejected.

## MERITS

- The method is simple in concept and application.
- The method considers the returns over the entire life of the project and therefore serves as a measure of profitability.

## DEMERITS

- It is based on accounting profits and not on cash flows
- It ignores time value of money.
- The method considers only the rate of return and not the life of the project or the size of the investment required for each project.
- It ignores the risk and liquidity associated with a project. Numerical problems

## DISCOUNTING METHODS

### Time value of money

- Money has got a time value. Consider an example. A person has got the option of either receiving Rs.100 today or receiving Rs.100 after one year. Naturally, the person will go for the option of receiving Rs.100 today itself. It is because, receiving Rs.100 after one year is associated with a lot of risk. If he can buy 3 kg of a commodity with that Rs.100 today, he may be able to buy only 2 kg of that commodity after 1 year for Rs.100 because the prices may have gone up. Also if we have Rs.100 today, we can invest it in any business opportunities and earn Rs.110 after 1 year. That means Rs.110 received after one year will be equivalent to Rs.100 received today. Here Rs.110 is called the future value and Rs.100 is the present value. Present value (PV) can be calculated by :-  $PV = \frac{FV}{(1 + r)^n}$

### NET PRESENT VALUE METHOD (NPV)

- Net Present Value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows.
- The Net Present Value (NPV) of a project is the sum of the present value of all its cash flows, both inflows and outflows, discounted at a rate consistent with the project's risk.



- So under the net present value method, the present values of all cash inflows are compared against the present value of cash outflows (cost of investment). The difference between the present value of cash inflows and cash outflows is the net present value.

#### **THE FOLLOWING STEPS ARE INVOLVED IN THE COMPUTATION OF NPV:**

- Estimate the cash flows: Estimate the cash flows of the project for the life.
- Determine the minimum required rate of return: To discount the cash flows the minimum required rate of return should be selected. This is generally the cost of capital of the firm or the opportunity cost, after making adjustments for the project's risk.
- Compute the value of NPV: The net present value of the project is determined by finding out the algebraic sum of present value of cash inflows and present value of cash outflows.

#### **DECISION RULE**

- The general decision rule for NPV is that if NPV of a project is positive accept the project and if NPV is negative reject the project. That is,  $NPV \geq 0$  Accept  $NPV < 0$  Reject
- So in the case of mutually exclusive projects, project with highest NPV is accepted subject to the condition that NPV should be positive. In the case of independent projects, all projects with positive NPV will be accepted and projects with negative NPV will be rejected. What does NPV imply? A firm's goal in choosing investment projects is to maximize shareholder wealth. Conceptually the discount rate,  $r$ , in NPV equation represents the opportunity cost or the highest rate of return the investors can obtain on an investment with the same risk as the risk of the specific project. When the NPV of a project is zero, that project is providing a rate of return exactly equal to the shareholder's required return. Such projects will preserve the wealth of the shareholders. When the NPV of a project is positive, such a project is offering an expected return that is higher than the shareholder's requirement. Such a project will create value to the shareholders. Conversely, if the NPV of a project is negative, such a project will destroy the wealth of the shareholders. So the NPV, in effect, represents the amount of additional value created by an investment. The NPV rule, thus, is clearly in consistent with the value-creation goal of a firm.

#### **MERITS OF NPV**

- It takes into account the time value of money.
- It considers the cash flow stream over the entire life of the project.
- It is in conformity with the basic financial objective of wealth maximization of shareholders.
- The method is most suitable when cash inflows are not uniform.
- When risk adjusted discount rate is used, it takes into account risk of a project.

## DEMERITS

1. It involves complicated and tedious calculations.
2. The application of this technique necessitates forecasting cash flows and discount rate. The accuracy of the method depends on accurate estimation of these two factors, which may be quite difficult in practice.
3. The method may not provide satisfactory results in the case of two projects having different useful lives and size of investment.

## Numerical problems on NPV

1) Mr. X has 3 investment proposals in front of him. The cost of each proposal is Rs. 50000. The future cash inflows associated with each proposal are given below.

- a) Rank the proposals based on NPV if the cost of capital is 10%
- b) Which all projects can be selected if more than one project can be selected?
- c) Which project can be selected if these proposals are mutually exclusive?

Year	Cash inflows		
	Proposal A	Proposal B	Proposal C
1	17000	15000	10000
2	20000	19000	10000
3	14000	10000	10000
4	10000	13000	10000
5	5000	9000	10000

### Proposal A

Year	Cash inflow	PV of cash inflow
1	15000	$15000 / (1 + 0.10)^1 = 13636.36$
2	19000	$19000 / (1 + 0.10)^2 = 15702.47$
3	10000	$10000 / (1 + 0.10)^3 = 7513.14$

Given, Cost of investment = Rs. 50000

Sum of PV of cash inflows = Rs.  
51320.13

NPV = Sum of PV of cash inflows - total cost  
= 51320.13 - 50000  
= Rs. 1320.13

**NPV of proposal B = Rs. 1320.13**

4	13000	$13000 / (1+0.10)^4 = 8879.17$
5	9000	$9000 / (1+0.10)^5 = 5588.29$
		Sum = 51320.13

Proposal b

Year	Cash inflow	PV of cash inflow
1	10000	$10000 / (1+0.10)^1 = 9090.90$
2	10000	$10000 / (1+0.10)^2 = 8264.46$
3	10000	$10000 / (1+0.10)^3 = 7513.14$
4	10000	$10000 / (1+0.10)^4 = 6830.13$
5	10000	$10000 / (1+0.10)^5 = 6209.21$
		Sum of PVs = 37907.84

Given, Cost of investment = Rs. 50000

Sum of PV of cash inflows = Rs. 37907.84

NPV = Sum of PV of cash inflows - total cost  
= 37907.84 - 50000  
= Rs. - 12092.16

**NPV of proposal C = - 12092.16**

Proposal	NPV	Rank
A	Rs. 2436.61	1
B	Rs. 1320.13	2
C	Rs. - 12092.16	3

a) Proposal A and proposal B can be selected as their NPV s are greater than zero

b) Proposal A has highest NPV, so it has to be selected.

## PROFITABILITY INDEX (BENEFIT-COST RATIO)

- One of the limitations of NPV method is that it ignores the differences in initial investments required for the projects and also the differences in the life spans. Two projects having different investment outlays cannot be compared by net present value method because it indicates the NPV in absolute terms.
- Profitability Index (or Benefit-Cost Ratio) is defined as the present value of the future cash inflows divided by the initial investment. Profitability Index (PI) indicates the net benefits expected from the project per rupee of investment. Profitability index is formally expressed as follows:

$$\text{Profitability Index} = \frac{\text{PV of cash inflow}}{\text{PV of cash outflow ( initial investment)}}$$

- The method is more suitable in a situation where there is capital rationing or capital is scarce. In such a case, a project with highest PI is accepted.
- For example, consider two Projects X and Y having initial investment of Rs.10,000 and Rs.1,00,000 respectively. Further, assume that the present values of cash inflows of these projects are Rs.20,000 and Rs.1,50,000 respectively. Their NPV and PI will be:

	Project X (Rs)	Project Y (Rs)
Initial investment (Cost)	(-) 10,000	(-) 1,00,000
Present value of cash inflows (Benefits)	20,000	1,50,000
NPV	10,000	50,000
Profitability Index	2.00	1.50

- If we consider only absolute figures of NPV, Project Y appears better than Project X. But in fact Project X is better because, for each rupee of investment Project X brings Rs.2 cash inflows in present value terms, while Project Y is bringing only Rs.1.50 cash inflows in present value terms. Thus, accepting Project X would create more value to the shareholders than accepting Project Y. Decision rule (Selection criteria)
- A project for which PI is more than one is accepted and a project for which PI is less than one is rejected.

## **MERITS**

- The method uses the concept of time value of money.
- It considers the cash flow stream over the entire life of the project.
- It is in conformity with the basic financial objective of wealth maximization of shareholders.
- It is a better project evaluation technique than NPV when the projects are having different investment outlays and in situations where there is capital rationing.

## **DEMERITS**

- When the investment outlay is spread over more than one period, this criterion cannot be used. The method may lead to incorrect decisions when projects are mutually exclusive and indivisible

## **INTERNAL RATE OF RETURN**

- The internal rate of return (IRR) of a project is that discount rate at which the sum of the present value of cash inflows of the project is equal to the sum of the present value of cash outflows. In other words, the internal rate of return of a project is the discount rate at which the net present value (NPV) of the project is zero.
- In the numerical problem for NPV, we had calculated  $r$  as 10%. If the value of  $r$  is varied, NPV also changes and for a particular value of  $r$ , NPV will become zero. This value of  $r$  at which  $NPV = 0$  denotes IRR.
- In the Net Present Value method, NPV is calculated at a known discount rate, which is usually the cost of capital or opportunity cost. In the IRR method, the NPV is set to zero to determine the effective discount rate which satisfies this condition.
- IRR is computed by a trial and error method, specially when the cash inflows are not even. Interpretation of IRR
- IRR is the rate of return earned on the initial investment in the project. It is the rate of return earned on the uncovered investment balance in the project.

## **DECISION RULE**

- In the case of mutually exclusive projects, accept the project with highest IRR provided that it is higher than the cost of capital.
- In the case of independent projects, accept the project if its IRR is higher than the cost of capital and reject if its IRR is less than the cost of capital.

## **MERITS**

- It takes into account the time value of money
- It considers the cash flow stream over the entire investment horizon.
- It is in conformity with the basic financial objective of wealth maximization of shareholders. Demerits

- The method involves tedious and complicated calculations.
- If there are more than one *cashoutflows* interspersed between the cash inflows, there can be multiple IRRs, the interpretation of which is difficult.
- The IRR approach can be misleading when two mutually exclusive projects with different inflow/outflow patterns are compared.
- One of the basic assumptions of IRR is that all future cash inflows of the project will be reinvested at a rate equal to IRR. It may not be possible for a firm to reinvest intermediate cash flows at IRR, which usually will be quite high.

## **COMPARISON BETWEEN NPV AND IRR METHODS**

### **SIMILARITIES**

- Both consider time value of money.
- Both lead to the same acceptance or rejection decision when:
  - the projects are economically independent; i.e the projects can be accepted or rejected without reference to any other projects and
  - the cash flows of the projects are conventional; i.e the first cash flow (initial investment) is negative and the subsequent cash flows are positive.
- Difference Under the NPV method, the minimum required rate of return (cost of capital) is assumed to be known. But in case of IRR technique, the rate is to be determined through trial and error to arrive at the rate at which NPV is zero.
- In the case of mutually exclusive projects, both methods may give contradictory results in terms of acceptance or rejection under the following conditions:
  - if projects have different life expectations;
  - if the projects have different sizes of investment or
  - if the cash flow patterns of the of the projects differ over time ; for example, the cash flows of one project increase over time , while those of another decrease.
- The IRR method implies that future inflows will be reinvested at the internal rate of return of the project. On the other hand, in the NPV method, the future cash inflows are assumed reinvested at the cost of capital.

### **DECISION MAKING PROCESS**

- Decision making is an integral part of business. Every day various decisions must be taken in a business unit. In case of capital budgeting decisions ( huge investment decisions) ,we may not be able to predict the results of our decisions in all cases. We have 3 types of decision making circumstances:-

1. Decision making under certainty
2. Decision making under risk
3. Decision making under uncertainty

## DECISION MAKING UNDER RISK

- Here, the business decision is expected to yield more than one result and the probability associated with each result is known to the decision maker. Eg:- A company has decided to double its advertisement expenses. Then there is a 10% chance that the sales may get more than doubled, 40% chance that the sales may get doubled and 50% chance that sales may get less than doubled. Thus decision to double the advertisement expenses falls under the category of decision making under risk. To make decisions under risk conditions, a decision tree can be used.

## DECISION TREE

- A decision tree is a graphical method of representing all managerial decisions in a sequence and their expected outcomes under different states of the economy.
- Suppose an investor wishes to invest in either of the two projects –Project A or Project B , each costs Rs.400 million. The cash inflows of the two projects depend upon the condition of the Indian economy (whether economy has a high growth or low growth). The cash inflow also depends upon the demand of the product associated with project A and project B. Thus the project can have a high demand, medium demand or a low demand. If the decision maker is aware of the probabilities of each demand prospect and the cash inflows associated with each case, he can develop a decision tree as follows.

Strategy (1)	State of Economy (2)	Demand Prospect (3)	Probability (P) (4)	Present Value of cash flows (million Rs.) (5)	Expected Values = (4) × (5) (million Rs.) (6)
Invest in Project A	High growth P = 0.6	High	0.3	800	240
		Medium	0.2	600	120
		Low	0.1	500	50
	Low growth P = 0.4	High	0.1	600	60
		Medium	0.2	400	80
		Low	0.1	300	30
					<b>Rs. 580 million</b>
Invest in Project B	High growth P = 0.6	High	0.3	600	180
		Medium	0.2	500	100
		Low	0.1	400	40
	Low growth P = 0.4	High	0.1	500	50
		Medium	0.2	400	80
		Low	0.1	200	20
					<b>Rs. 470 million</b>

## **DECISION MAKING UNDER UNCERTAINTY**

- Here there is more than one outcome to a business decision and the probability of no outcome is known to the decision maker.
- The techniques used for decision making under this section are Maximin criteria, Minmax criteria, Hurwicz criteria and Laplace criteria.

## **COST – BENEFIT ANALYSIS (CBA)**

- A cost-benefit analysis is a process by which business decisions are analyzed, the benefits of a given situation or business-related action is summed, and then the costs associated with taking that action are subtracted.
- Prior to erecting a new plant or taking on a new project, managers conduct a cost-benefit analysis as a means of evaluating all the potential costs and revenues that may be generated if the project is completed. The outcome of the analysis will determine whether the project is financially feasible or if another project should be pursued.
- The final step is to quantitatively compare the results of the aggregate costs and benefits to determine if the benefits outweigh the costs. If so, then the rational decision is to go forward with project. In not, a review of the project is warranted to see if adjustments can be made to either increase benefits and/or decrease costs to make the project viable. If not, the project may be abandoned.
- If total benefits are denoted as B and total costs are denoted as C, then ratio  $B/C$  analysis whether to accept or reject the project. If  $B/C > 1$ , the project can be accepted. If  $B/C < 1$ , the project has to be abandoned



# MODULE 6

## BALANCE SHEET

- A balance sheet is a financial statement that summarizes a company's assets, liabilities and shareholders' equity at a specific point in time. It gives an account of what the company owns and owes, as well as the amount invested by shareholders.

### Uses of balance sheet

- It shows the financial position of the business concern.
- It shows what the firm owes to others and also what others owe to the firm.
- It shows the nature and value of the assets.
- It also reflects the liquidity of a firm.

### Characteristics

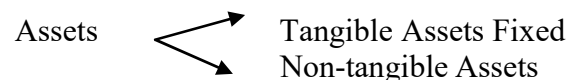
- It is a statement and not an account
- It is always prepared on a particular date, and thus shows the position of the company at that date.
- The headings are Liabilities and Assets.
- It shows the financial position of the business concern.
- It shows what the firm owes to others and also what others owe to the firm.
- The totals of Liabilities and Assets always are equal.
- Balance sheet always adheres to the following formula:

$$\text{Assets} = \text{Liabilities} + \text{Shareholder's Equity}$$

This equation is known as Basic Accounting Equation. The terms in this equation are explained below.

### ASSETS

An asset is a resource or property having a monetary/economic value possessed by an individual or entity, which is capable of producing some future economic benefit.



**Current Assets:** Assets which are easily convertible into cash.

- Eg:- stock of products, inventory, marketable securities, short-term investments, fixed deposits in banks, accrued incomes (income earned but not received yet), bank balances, Sundry debtors (people who have to pay money to the business firm), prepaid expenses etc.
- Current assets are generally of a shorter life span. Current assets can also be termed as liquid assets.

**Fixed Assets:** Fixed assets are of a fixed nature in the context that they are not readily convertible into cash. They require elaborate procedure and time for their sale and converted into cash.

- *Eg:-Land, building, plant, machinery, equipment, furniture etc.*
- Other names used for fixed assets are non-current assets, long-term assets or hard assets. Generally, the value of fixed assets generally reduces over a period of time (known as depreciation)

**Intangible Assets:** Intangible assets cannot be seen, felt or touched physically by us.

- *Eg:- goodwill, franchise agreements, patents, copyrights, brands, trademarks etc.*

## LIABILITY

- In simple words, liability is an obligation of the entity to transfer cash or other resources to another party.
- **Current Liability** is one which the entity expects to pay off within one year from the reporting date.
- **Non-Current Liability** is one which the entity expects to settle after one year from the reporting date.

<b>Current liability</b>
Bank Overdraft ( Extra money borrowed from bank account)
Short Term Bank Loan
Sundry Creditors ( People from whom company has taken a benefit without complete payments)
Tax Payables

<b>Non-Current liability</b>
LongTerm Bank Loan
Debenture

We have the Basic Accounting Equation as:-

$$\text{Assets} = \text{Liabilities} + \text{Shareholders' Equity}$$

- Initially, the company is not in existence. Since the business has not yet started it has neither assets nor liabilities.
- Now, Mr B accounting we have to consider the businessman and the business as two separate

factors. This is known as Dual entity Concept.

When Mr.B invests the amount, the business will have Assets

= Liabilities + Shareholders' Equity

- $50000(\text{cash}) = 0 + 50000(\text{owner's investment})$  ----- (Equation is satisfied)
- He purchased some goods for Rs. 10000 to the business. Now, the cash is reduced by RS. 10000 and goods worth Rs. 10000 will be added to the business. New equation will be:-
- $40000(\text{cash}) + 10000(\text{goods}) = 0 + 50000(\text{owner's investment})$  (Equation is satisfied)
- He purchased furniture worth Rs. 15000. This will reduce the cash by Rs.15000 and will increase furniture asset by same amount.
- $40000(\text{cash}) + 10000(\text{goods}) = 0 + 50000(\text{owner's investment})$ ----- (Equation is satisfied)
- He sold goods for cash Rs.8000.This will reduce his goods by Rs. 8000 and increase the cash by same amount.
- $48000(\text{cash}) + 2000(\text{goods}) = 0 + 50000(\text{owner's investment})$ ----- (Equation is satisfied)
- He bought goods on credit from Mr.C for Rs. 30000.This will increase the stock of goods by Rs. 30000 and his creditors by same amount.
- $48000(\text{cash}) + 32000(\text{goods}) = 30000(\text{creditors}) + 50000(\text{owner's investment})$  ----(Equation is satisfied)
- He opened a bank account for his business by depositing Rs.5000 . Now bank balance will increase by 5000 and cash balance will reduce by same amount.
- $43000(\text{cash}) + 32000(\text{goods}) + 50000(\text{bank balance}) = 30000(\text{creditors}) + 50000(\text{owner's investment})$ -- (Equation is satisfied)
- He sold goods worth Rs.20000 on credit to Mr.Y. This will increase the debtors by Rs. 20000 and decrease the stock of goods of worth the same amount.
- $43000(\text{cash}) + 12000(\text{goods}) + 50000(\text{bank balance}) + 20000(\text{debtors}) = 30000(\text{creditors}) + 50000(\text{owner's investment})$ ----- (Equation is satisfied)
- He also sold goods to Mr. K for Rs.4000 .This transaction will increase the cash by Rs.4000 and reduce the worth of goods by same amount.
- $47000(\text{cash}) + 8000(\text{goods}) + 5000(\text{bank balance}) + 20000(\text{debtors}) = 30000(\text{creditors}) + 50000(\text{owner's investment})$  ---- (Equation is satisfied)
- He took loan of Rs.20000 from bank for business purposes. Then we have :-  $67000(\text{cash}) + 8000(\text{goods}) + 5000(\text{bank balance}) + 20000(\text{debtors}) = 30000(\text{creditors}) + 20000(\text{bank loan}) + 50000(\text{owner's investment})$ ----- (Equation is satisfied)
- Thus whatever transaction takes place, the basic accounting equation will always be satisfied.

## **BUSINESS FORECASTING**

*Forecasting is the process of making predictions of the future based on past and present data and most commonly by analysis of trends.*

**Business Forecasting** —————> **Qualitative forecasting and**

### **Qualitative forecasting**

- Used when past data are not available.
- Applied to intermediate or long-range decisions.
- Examples: - Delphi technique, Nominal Group Technique (NGT), sales force opinions, executive opinions, market research, opinion and judgment and historical life-cycle analogy.

### **Quantitative forecasting**

- Some of the patterns in the past data are expected to continue into the future.
- Applied to short- or intermediate-range decisions.
- Examples: - Associative forecasting or trend projection, last period demand, simple and weighted-Period moving averages, simple exponential smoothing, Poisson process model based forecasting and multiplicative seasonal indexes.

## **NOMINAL GROUP TECHNIQUE**

- Nominal Group Technique is similar to the Delphi technique in that it utilizes a group of participants, usually experts. After the participants respond to forecast-related questions, they rank their responses in order of perceived relative importance. Then the rankings are collected and aggregated. Eventually, the group should reach a consensus regarding the priorities of the ranked issues.

## **SALES FORCE OPINIONS**

- The sales staff is often a good source of information regarding future demand. The sales manager may ask for input from each sales-person and aggregate their responses into a sales force composite forecast. Caution should be exercised when using this technique as the members of the sales force may not be able to distinguish between what customers say and what they actually do. Also, if the forecasts will be used to establish sales quotas, the sales force may be tempted to provide lower estimates.

## **EXECUTIVE OPINIONS**

- Sometimes upper-levels managers meet and develop forecasts based on their knowledge of their areas of responsibility. This is sometimes referred to as a jury of executive opinion.

## **MARKET RESEARCH**

- In market research, consumer surveys are used to establish potential demand. Such marketing research usually involves constructing a questionnaire that solicits personal, demographic, economic, and marketing information. On occasion, market researchers collect such information in person at retail outlets and malls, where the consumer can experience—taste, feel, smell, and see—a particular product. The researcher must be careful that the sample of people surveyed is representative of the desired consumer target.

## **ASSOCIATIVE FORECASTING AND TREND PROJECTION**

- In this technique, we develop an association between an independent variable and a dependent variable.
- There is always an association between sales of bikes in an area and percentage of the young population living in that area.
- Cool Drinks sales can be related to temperature.
- Increase in energy cost leads to price increases in products and services.
- Thus in all these cases we can see an association between one variable and another. We have to form a general linear regression equation between the two variables by which we can forecast the future trends.

## **Business Financing**

- Analyses the different methods to obtain investments for business purposes.
- Business financing can be made possible through financial markets or by international investments.
- **Financial Markets**-The financial market is a broad term describing any marketplace where trading of securities including equity shares, bonds, currencies etc occurs.
- **Financial markets are of 2 types--- Capital market and Money market.**

## **INTERNATIONAL INVESTMENTS**

- Investments made by a company or individual in one country towards business interests in another country.
- **Foreign Direct Investment (FDI)** as the name suggests is investing directly in another country. A foreign company which is based in some other country like France invests in India either by setting up a wholly owned subsidiary or getting into a joint venture With some company based in India and then conducts its business in India.

➤ **Examples:** Various software companies like IBM India which is initially based in Unites States but has opened its subsidiaries in different part of India. Maruti Suzuki is yet another example in which Suzuki of Japan had joint ventured with MarutiUdyog Ltd.

<b>BASIS FOR COMPARISON</b>	<b>MONEY MARKET</b>	<b>CAPITAL MARKET</b>
Meaning	A segment of the financial market where lending and borrowing of short term securities are done.	A section of financial market where long term securities are issued and traded.
Institutions	Central bank, Commercial bank, Non-bank financial institutions, bill brokers, acceptance houses, and so on.	Commercial banks, Stock exchange, etc
Risk Factor	Low	Comparatively High
Liquidity (convertibility to cash)	High	Low
Purpose	To fulfill short term credit needs of the business.	To fulfill long term credit needs of the business.
Time Horizon	Within a year	More than a year
<b>BASIS FOR COMPARISON</b>	<b>MONEY MARKET</b>	<b>CAPITAL MARKET</b>
Merit	Increases liquidity of funds in the economy.	Mobilization of Savings in the economy.
Return on Investment	Less	Comparatively High

## Foreign Portfolio Investment (FPI)

- Is similar to FDI in a way that this is also direct investment but investment is only in financial assets such as stocks, bonds etc. of a company located in another country. When a foreigner buys shares of Indian Based Company, it is a FPI. In contrast to FDI, a portfolio investment is an investment made by an investor who is not involved in the management and day-to-day business of a company.
- **Example:** Any foreign company or individual invests in the shares of Infosys (based in India).

## Foreign Institutional Investor (FII)

- Is an investor or group of investors who bring FPIs. Institutional investors include insurance companies, pension funds and mutual funds. They participate in the secondary market of economy. To participate in the market of India, FIIs must register themselves with Securities and Exchange Board of India (SEBI).

FDI	FPI
Investment in productive assets (whose value increase over time) like plant and machinery, new unit or subsidiary for a business	Investment in financial assets like stocks, bonds, mutual funds, etc.
Investment gives investors ownership right as well as management right	Investment gives investors only ownership right and not management right
Investors cannot depart from the country easily	Investors can easily depart from the country
FDI is more important for a country	FPI is less important as compared to FDI

## Taxation

- Taxation refers to compulsory or coercive money collection by a levying authority, usually a government.
- **Principles of taxation** are a set of criteria which act as a guide to the government when designing and implementing a new tax.

They are:

1. Taxes should be proportional to peoples' income.
2. Taxes should be certain, not arbitrary.
3. Taxes should be levied at a convenient time.



4. The cost of the collection of the tax should be as low as possible.
5. Tax assessment and determination should be easy to understand by an average tax payer.
6. Taxes should be just enough to generate revenue required.

Direct Tax	Indirect Tax
<ul style="list-style-type: none"> <li>• Taxes that cannot be transferred or shifted to another person.</li> <li>• Eg:- Income tax has to be paid by the individual himself who earns taxable income .</li> <li>• The liability as well as the burden to pay tax resides on the same individual</li> <li>• Involve higher administration cost</li> </ul> <p>Examples:-</p> <ul style="list-style-type: none"> <li>• <b>Income Tax:</b> Levied on and paid by the same person according to tax brackets as defined by the income tax department.</li> <li>• <b>Corporate Tax:</b> Paid by companies and corporations on their profits.</li> <li>• <b>Wealth Tax:</b> Levied on the value of property that a person holds</li> </ul>	<ul style="list-style-type: none"> <li>• Taxes which can be shifted from one person to another person.</li> <li>• charging higher prices for the commodity by including taxes in the final price.</li> <li>• Liability to pay the tax lies on a person who then shifts the tax burden to another individual.</li> <li>• Lower administration costs.</li> </ul> <p>Examples:-</p> <ul style="list-style-type: none"> <li>• <b>Excise Duty:</b> Payable by the manufacturer who shifts the tax burden to retailers and wholesalers.</li> <li>• <b>Sales Tax:</b> Paid by a shopkeeper or retailer, who then shifts the tax burden to customers by charging sales tax on goods and services.</li> </ul>
<ul style="list-style-type: none"> <li>• Estate Duty: Paid by an individual in case of inheritance.</li> <li>• Gift Tax: An individual receiving the taxable gift pays tax to the government.</li> </ul>	<ul style="list-style-type: none"> <li>• Custom Duty: Import duties levied on goods from outside the country ultimately paid for by consumers and retailers.</li> <li>• Entertainment Tax: Liability is on the cinema owners, who transfer the burden to cinemagoers.</li> <li>• Service Tax: Charged on services rendered to consumers, such as food bill in a restaurant.</li> </ul>

### GST ( GOODS AND SERVICE TAX)

- The Indian constitution divides taxation powers between centre and states. Both levels of government have some exclusive areas where they can levy tax. There are two important problems with the current arrangement.

- Consider a shirt manufactured in UP. The central government, therefore, levies its indirect tax called central excise at the factory gate. Subsequently, a shirt reaches a retail outlet and is bought by a consumer. The state government, at this stage, levies a tax on consumption named value added tax (VAT).
- So, we have a tax at the factory gate which adds to the cost of the shirt and another tax on the final price.
- When these shirts are transported to another states to trading purposes, each state will levy tax on it at different stages. Thus, multiple taxes are levied on the same commodity at different places and different stages.
- Thus, India is politically one country, but economically it is fragmented. GST will put an end to this concept. It will create single economic zone in the entire country.
- Goods and Services Tax (GST) is an indirect tax reform which aims to remove tax barriers between states and create a single market. Once this step is taken, the tax barriers between states, and centre and states will disappear.
- Goods and Services Tax (GST) is an indirect taxation in India merging most of the existing tax system into single system of taxation.

A dual GST system is planned to be implemented in India as proposed by the Empowered Committee under which the GST will be divided into two parts:

- ✓ State Goods and Services Tax (SGST)
- ✓ Central Goods and Services Tax (CGST)

#### **ADVANTAGES**

- ✓ It will lower the cost of goods and services, give a boost to the economy and make the products and services globally competitive
- ✓ GST will be levied only at the final destination of consumption based on VAT principle and not at various points

## APPENDIX 1

### ECONOMICS AS A SCIENCE

A subject is considered science if:

- a. It is a systematized body of knowledge which studies the relationship between cause and effect.
  - b. It is capable of measurement.
  - c. It has its own methodological apparatus.
  - d. It should have the ability to forecast.
- If we analyse economics, we find that it has all the features of science. Like science, it studies cause and effect relationship between economic phenomena.
  - To understand, let us take the law of demand. It explains the cause and effect relationship between price and quantity demanded for a commodity.
  - It says, given that other things remain constant, as price rises, the demand for a commodity falls and vice versa. Here, the cause is price and the effect is change in quantity demanded. Similarly, the outcomes are measurable in terms of money.
  - It has its own methodology of study (induction and deduction) and it forecasts the future market condition with the help of various statistical and non-statistical tools. Thus, a majority of economic laws are of this type and therefore, economics is science. But it is to be noted that economics is not a perfect science like physical science.
  - The fact is that we cannot rely upon the accuracy of the economic laws. The predictions made on the basis of economic laws can easily go wrong. This is because economists do not have uniform opinion about a particular event. The problem of actual results differing from the predicted ones arises on account of the fact that in economics we cannot have controlled experiments.
  - This is so because economic processes involve human agency, their behaviors and adaptation to a particular economic situation. In other words, the subject matter of economics is the economic behavior of man which is highly unpredictable.
  - Money which is used to measure outcomes in economics is itself a dependent variable. It is not possible to make correct predictions about the behavior of economic variables

### ECONOMICS AS AN ART

- A discipline of study is termed as art if it tells us how to do a thing that is to achieve an end (objective). It is noteworthy that the final justification for studying economics lies in the possibility of our ability to use it for solving economic problems faced by us.
- Prof. J. M. Keynes says that “An art is a system of rules for the achievement of a given end.” We know that in practice, economics is used for achieving a variety of goals.
- Every individual economic unit whether acting as a consumer or a producer or an investor or a supplier of an input or in any other capacity has an economic goal to achieve. It decides its course of action by keeping in mind the end to be achieved and the situation faced by it.
- Even at national level the authorities formulate a variety of policies. In certain cases they attempt to plan and operate the entire economy so as to achieve a given set of ends.
- Therefore, economic laws are widely used and relied upon at all levels of our economic activities. And that makes economics an art. Art is nothing but practice of knowledge. Whereas science teaches us to know, art teaches us to do. Unlike science which is theoretical, art is practical.
- If we analyse economics, we find that it has the features of being an art also. Its various branches provide practical solutions to various economic problems.
- It helps in solving various economic problems which we face in our day-to-day life. From the above discussion, one can easily understand that Economics is not a pure science as other natural sciences. Economics does follow standard practices adopted by science subjects, since it has human element attached in its processes, it cannot completely satisfy the fundamental requirements of being a science subject. Economics is both a science and an art. It is science in its methodology and art in its application.

## **POSITIVE AND NORMATIVE ECONOMICS**

- The next question arises as to whether Economics is positive or normative in nature. The application of mathematical models, empirical testing of economic theories, scientifically obtainable results for business or policy decisions makes Economics as being positive in nature while moral, ethical and collective welfare approaches used in Economics make it normative in nature.
- A positive or pure science analyses cause and effect relationship between variables but it does not pass value judgment. In other words, it states what is and not what ought to be.
- Positive statements are about facts. They state what the reality is. According to Robbins, economics is concerned only with the study of the economic decisions of individuals and the society as positive facts but not with the ethics of these decisions.
- Economics should be neutral between ends. It is not for economists to pass value judgments and make pronouncements on the goodness or otherwise of human decisions. An individual with a limited amount of money may use it for buying liquor and not milk, but that is entirely his business.
- A community may use its limited resources for making guns rather than butter, but it is no concern of the economists to condemn or appreciate this policy. Economics only studies facts and makes generalizations from them.
- It is a pure and positive science, which excludes from its scope the normative aspect of human behavior. Complete neutrality between ends is, however, neither feasible nor desirable. It is because in many matters the economist has to suggest measures for achieving certain socially desirable ends.
- For example, when he suggests the adoption of certain policies for increasing employment and raising the rates of wages, he is making value judgments; or that the exploitation of labour and the state of unemployment are bad and steps should be taken to remove them.
- Similarly, when he states that the limited resources of the economy should not be used in the way they are being used and should be used in a different way; that the choice between ends is wrong and should be altered, etc. he is making value judgments.
- Normative economics is concerned with normative statements. Normative statements are concerned with what ought to be? In this case, economics is not concerned with facts rather it is concerned with how things should be. As normative science, economics involves value judgments.
- It is prescriptive in nature and describe 'what ought to be' or 'what should be the things'. For example, the questions like what should be the level of national income, what should be the wage rate, how much of national product be distributed among people - all fall within the scope of normative economics.
- Thus, normative economics is concerned with welfare propositions. The above discussion shows that Economics is both positive as well as normative in nature.

## **SCOPE OF ECONOMICS**

- The scope of the subject of economics is vast and ever expanding. It is no more a branch of knowledge that deals only with the production and consumption.
- However, the basic thrust still remains on using the available resources efficiently while giving the maximum satisfaction or welfare to the people on a sustainable basis. One example gives us an understanding of how vast the scope of the subject of economics is.
- In December 2007, the IPCC (Intergovernmental Panel on Climate Change) was awarded the Nobel Peace Prize for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change.
- What did IPCC do to disseminate knowledge about climate change? IPCC basically presented economic analysis of impacts of climate change and estimates to mitigate the challenge of climate change. Economics is being extensively used in assessment of impact of climate change in almost every industrial zone, environmental projects, energy plants and investment in renewable energy resources like solar, wind, tidal and others.

- Economics is also used for assessment of economic efficiency of space mission, analysis of socio-economic problems like expenditure on health-care, eradication of poverty, management of government budget, taxation, and investment in industrial production.
- Given this, we can list some of the major branches of economics as under:
  - **Micro Economics:** This is considered to be the basic economics. Microeconomics may be defined as that branch of economic analysis which studies the economic behaviour of the individual unit, may be a person, a particular household, or a particular firm. It is a study of one particular unit rather than all the units combined together. The microeconomics is also described as price and value theory, the theory of the household, the firm and the industry. Most production and welfare theories are of the microeconomics variety.
  - **Macro Economics:** Macroeconomics may be defined as that branch of economic analysis which studies behavior of not one particular unit, but of all the units combined together. Macroeconomics is a study in aggregates. Hence, it is often called Aggregative Economics. It is, indeed, a realistic method of economic analysis, though it is complicated and involves the use of higher mathematics. In this method, we study how the equilibrium in the economy is reached consequent upon changes in the macro-variables and aggregates. The publication of Keynes' General Theory, in 1936, gave a strong impetus to the growth and development of modern macroeconomics.
  - **International Economics:** As the countries of the modern world are realizing the significance of trade and commerce with other countries, the role of international economics is getting more and more significant nowadays.
  - **Public Finance:** The great depression of the 1930s led to the realization of the role of government instabilising the economic growth besides other objectives like growth, redistribution of income, etc. Therefore, a full branch of economics known as Public Finance or the fiscal economics has emerged to analyses the role of government in the economy. Earlier the classical economists believed in the laissez faire economy ruling out role of the government in economic issues.
  - **Development Economics:** After the Second World War many countries got freedom from the colonial rule, their economics required different treatment for growth and development. This led to emergence of new branch of economics known as development economics.
  - **Health Economics:** A new realization has emerged from human development for economic growth. Therefore, branches like health economics are gaining momentum. Similarly, educational economics is also coming up.
  - **Environmental Economics:** Unchecked emphasis on economic growth without caring for natural resources and ecological balance, now, economic growth is facing a new challenge from the environmental side. Therefore, Environmental Economics has emerged as one of the major branches of economics that is considered significant for sustainable development.
  - **Urban and Rural Economics:** Role of location is quite important for economic attainments. There is also much debate on urban-rural divide. Therefore, economists have realized that there should be specific focus on urban areas and rural areas. Therefore, there is expansion of branches like urban economics and rural economics. Similarly, regional economics is also being emphasized to meet the challenge of geographical inequalities. There are many other branches of economics that form the scope of economics. There are welfare economics, monetary economics, energy economics, transport economics, demography, labour economics, agricultural economics, gender economics, economic planning, economics of infrastructure, etc.