



JAIPUR ENGINEERING COLLEGE
AND RESEARCH CENTRE

JAIPUR ENGINEERING COLLEGE AND RESEARCH CENTRE

JECRC Campus ,Shri Ram ki Nangal, Via-Vatika ,Tonk Road, Jaipur

Department of Mechanical Engineering

**Name of Subject: Managerial Economics & Financial
Accounting (MEFA)**

Subject Code: 3ME1-03

Year: 2nd Year, 3rd Semester



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Department of Mechanical Engineering

Vision and Mission of Institute:

Vision: To become a renowned center of outcome based learning, and work towards academic, professional, cultural and social enrichment of the lives of individuals and communities.

Mission:

M1: Focus on evaluation of learning outcomes and motivate students to inculcate research aptitude by project based learning.

M2: Identify, based on informed perception of Indian, regional and global needs, areas of focus and provide platform to gain knowledge and solutions.

M3: Offer opportunities for interaction between academia and industry.

M4: Develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions.

Vision and Mission of Department:

Vision: The Mechanical Engineering Department strives to be recognized globally for outcome based technical knowledge and to produce quality human resource, who can manage the advance technologies and contribute to society.

Mission:

M1: To impart quality technical knowledge to the learners to make them globally competitive mechanical engineers.

M2: To provide the learners ethical guidelines along with excellent academic environment for a long productive career.

M3: To promote industry-institute relationship.



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PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

PEO1: To equip graduates with a strong foundation in engineering sciences, with an emphasis on mechanical engineering principles, enabling them to analyze, design, and solve real-world engineering challenges.

PEO2: To prepare graduates with sound scientific and engineering fundamentals to innovate and deliver effective solutions addressing practical challenges in mechanical engineering

PEO3: To inculcate in graduates a professional and ethical attitude, effective communication and teamwork skills, a multidisciplinary approach, entrepreneurial mindset, and the ability to connect engineering solutions with societal and environmental concerns.

PEO4: To provide students with an academic environment that fosters excellence, leadership, adherence to ethical standards, and encourages self-motivated lifelong learning essential for a successful professional career in mechanical

PEO5: To prepare students to excel in industry and higher education by providing quality education grounded in strong technical knowledge and high moral values

Program Specific Outcomes (PSOs)

PSO1: Graduates will be able to design, analyze, and fabricate electric and hybrid vehicles using modern engineering tools and sustainable practices.

PSO2: Graduates will be able to apply design principles and computational techniques, including programming and data structures, to analyze and solve mechanical engineering problems.



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Program Outcomes (POs)

- PO1: Engineering Knowledge:** Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.
- PO2: Problem Analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)
- PO3: Design/Development of Solutions:** Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)
- PO4: Conduct Investigations of Complex Problems:** Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).
- PO5: Engineering Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)
- PO6: The Engineer and The World:** Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).
- PO7: Ethics:** Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)
- PO8: Individual and Collaborative Team work:** Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
- PO9: Communication:** Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences
- PO10: Project Management and Finance:** Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
- PO11: Life-Long Learning:** Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)



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S.NO	CONTENT	HOURS
1	Basic economic concepts- Meaning, nature and scope of economics, deductive vs inductive methods, static and dynamics, Economic problems: scarcity and choice, circular flow of economic activity, national income-concepts and measurement.	5
2	Demand and Supply analysis- Demand-types of demand, determinants of demand, demand function, elasticity of demand, demand forecasting –purpose, determinants and methods, Supply-determinants of supply, supply function, elasticity of supply.	5
3	Production and Cost analysis- Theory of production- production function, law of variable proportions, laws of returns to scale, production optimization, least cost combination of inputs, isoquants. Cost concepts- explicit and implicit cost, fixed and variable cost, opportunity cost, sunk costs, cost function, cost curves, cost and output decisions, cost estimation.	6
4	Market structure and pricing theory– Perfect competition, Monopoly, Monopolistic competition, Oligopoly.	5
5	Financial statement analysis- Balance sheet and related concepts, profit and loss statement and related concepts, financial ratio analysis, cash-flow analysis, funds- flow analysis, comparative financial statement, analysis and interpretation of financial statements, capital budgeting techniques.	5
		26

References:

- NPTEL Lectures, Prof Barnali Nag,IIT KHARGPUR.
- NPTEL Lectures, Prof Trupti Mishra, IIT MUMBAI.
- Coursera- Principles of Microeconomics, Introduction to Economics, Erasmus University Rotterdam
- Managerial Economics-CS Balra, National Publishing House, Jaipur
- A.R.Aryasri, Managerial Economics, Sultan Chand, 2009
- M. Kasi Reddy & Sarawathi, Managerial Economics and Financial Analysis, PHI, New Delhi, 2010.
- Financial Accounting-R.K Arora, Willey publication



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COURSE OUTCOME

Subject: Managerial Economics and Financial Accounting (MEFA)

Code: 3ME1-03

Managerial Economics and Financial Accounting(MEFA)

CO1: Understand key concepts of managerial economics for business decision-making and the impact of macroeconomic variables (inflation, GDP, interest rates) on managerial decisions.

CO2: Analyze demand and supply functions and apply techniques of demand forecasting for effective managerial decisions.

CO3: Evaluate production and cost functions to make short-term and long-term business decisions.

CO4: Apply pricing strategies under different market structures such as perfect competition, monopoly, and oligopoly.

CO5: Understand and apply the basic accounting principles, concepts, and standards in preparing financial statements.

CO6: Use financial analysis tools for evaluating business performance and accounting insights in strategic planning.

Course outcome

Course code	Course Name	Course outcome	Details
3ME1-03/02	MANAGERIAL ECONOMICS & FINANCIAL ACCOUNTING (MEFA)	CO1	Understand key concepts of managerial economics for business decision-making and the impact of macroeconomic variables (inflation, GDP, interest rates) on managerial decisions.
		CO2	Analyze demand and supply functions and apply techniques of demand forecasting for effective managerial decisions.
		CO3	Evaluate production and cost functions to make short-term and long-term business decisions
		CO4	Apply pricing strategies under different market structures such as perfect competition, monopoly, and oligopoly.
		CO5	Understand and apply the basic accounting principles, concepts, and standards in preparing financial statements
		CO6	Use financial analysis tools for evaluating business performance and accounting insights in strategic planning.



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CO-PO MAPPING

SUBJECT	CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
MEFA	CO1	1	1	1	1	1	2	1	3	1	1	3	3
	CO2	3	3	1	2	2	1	2	1	1	2	3	2
	CO3	3	3	1	2	1	1	2	2	1	2	3	2
	CO4	3	2	1	1	2	3	1	2	1	1	3	2
	CO5	3	1	1	1	2	2	1	1	1	1	3	3
	CO6	1	3	1	1	1	2	1	1	1	1	3	3

3: HIGH

2: MEDIUM

1: LOW

3ME1-03/ 4ME1-03 : Managerial Economics and Financial Accounting Credit- 2 Max. Marks : 100
(IA:20, ETE:80) 2L+0T+0P End Term Exam: 2 Hours

COURSE ASSESSMENT METHOD: Two midterm and one end term examination	
PRE-REQUISITES: Basic Understanding of economics	
COURSE OBJECTIVES:	
1.	To understand the basic concepts of economics
2.	To understand the relation between demand and supply
3.	To learn the concepts of production and cost analysis
4.	To understand financial statement analysis

Course Plan

Name of the Course: **Managerial Economics and Financial Accounting (MEFA)**

Code of the course: **3ME01-03**

Name of Faculty: **Dr. Fauzia Siddiqui**

Course Outcome

CO1: Understand key concepts of managerial economics for business decision-making and the impact of macroeconomic variables (inflation, GDP, interest rates) on managerial decisions.

CO2: Analyze demand and supply functions and apply techniques of demand forecasting for effective managerial decisions.

CO3: Evaluate production and cost functions to make short-term and long-term business decisions.

CO4: Apply pricing strategies under different market structures such as perfect competition, monopoly, and oligopoly.

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Course Plan (28 Lectures) –Managerial Economics and Financial Accounting(MEFA)						
Lecture No.	Unit	Topics Covered	CO Mapped	Specific Objectives	Expected Outcome	Primary Reference
1	Unit I	Introduction to Managerial Economics: Nature, Scope and Importance	CO1	Understand the role of economics in managerial decision-making	Explain the significance of managerial economics in business	Robbins, Coulter & DeCenzo (2020)
2	Unit I	Fundamental Economic Concepts: Opportunity Cost, Marginal Analysis	CO1	Learn basic economic principles used in management	Apply economic reasoning to business situations	Dominick Salvatore, Managerial Economics
3	Unit I	Demand, Supply and Market Equilibrium	CO2	Understand demand and supply relationships	Analyze market equilibrium conditions	Salvatore
4	Unit I	Elasticity of Demand and Managerial Applications	CO2	Study price, income and cross elasticity	Assess consumer responsiveness to market changes	Salvatore
5	Unit I	Introduction to Macroeconomics and Business Environment	CO1	Understand macroeconomic variables affecting firms	Relate economic indicators to business performance	Mankiw, Principles of Economics
6	Unit I	GDP, Inflation and Interest Rates	CO1	Analyze key macroeconomic indicators	Evaluate economic conditions for decision-making	Mankiw
7	Unit I	Impact of Monetary and Fiscal Policies on Business	CO1	Understand government interventions	Assess policy implications on firms	Mankiw
8	Unit II	Demand Analysis and Determinants of Demand	CO2	Identify factors affecting demand	Interpret market demand behavior	Salvatore
9	Unit II	Demand Forecasting:	CO2	Understand forecasting	Select appropriate	Salvatore



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		Meaning, Need and Methods		techniques	forecasting methods	
10	Unit II	Survey and Statistical Methods of Demand Forecasting	CO2	Apply forecasting tools	Develop demand estimates for planning	Salvatore
11	Unit II	Regression Analysis and Trend Projection	CO2	Learn quantitative forecasting techniques	Perform basic demand forecasting	Salvatore
12	Unit II	Supply Analysis and Determinants of Supply	CO2	Understand supply-side factors	Analyze producer responses to market conditions	Salvatore
13	Unit II	Applications of Demand and Supply Analysis	CO2	Integrate demand-supply concepts	Make informed market decisions	Salvatore
14	Unit III	Production Function: Concepts and Types	CO3	Understand input-output relationships	Explain production processes	Salvatore
15	Unit III	Law of Variable Proportions	CO3	Study short-run production behavior	Analyze productivity trends	Salvatore
16	Unit III	Economies and Diseconomies of Scale	CO3	Understand long-run production decisions	Evaluate scale-related efficiencies	Salvatore
17	Unit III	Cost Concepts and Cost Classification	CO3	Learn various cost measures	Differentiate cost types for decisions	Salvatore
18	Unit III	Short-Run Cost Analysis	CO3	Analyze short-run cost behavior	Compute and interpret cost curves	Salvatore
19	Unit III	Long-Run Cost Analysis	CO3	Understand long-term cost implications	Support strategic capacity decisions	Salvatore
20	Unit III	Break-Even Analysis and Cost Control	CO3	Apply cost-volume-profit relationships	Determine profitability thresholds	Salvatore
21	Unit IV	Market Structures: Perfect Competition	CO4	Understand characteristics of competitive markets	Analyze pricing under perfect competition	Salvatore



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22	Unit IV	Monopoly Market and Price Determination	CO4	Study monopoly pricing decisions	Evaluate monopoly behavior	Salvatore
23	Unit IV	Monopolistic Competition	CO4	Understand product differentiation strategies	Compare market structures	Salvatore
24	Unit IV	Oligopoly and Strategic Pricing	CO4	Examine interdependence among firms	Analyze oligopolistic pricing decisions	Salvatore
25	Unit IV	Pricing Strategies and Managerial Decisions	CO4	Apply various pricing techniques	Recommend suitable pricing policies	Salvatore
26	Unit V	Introduction to Financial Accounting and Accounting Principles	CO5	Understand accounting concepts and conventions	Explain accounting fundamentals	Robbins, Coulter & DeCenzo (2020)
27	Unit V	Accounting Standards and Double Entry System	CO5	Learn accounting procedures and standards	Record business transactions accurately	Financial Accounting – T.S. Grewal
28	Unit V	Preparation of Financial Statements: Trading, P&L and Balance Sheet	CO5	Develop skills in preparing financial statements	Prepare basic financial reports	T.S. Grewal
29	Unit V	Ratio Analysis and Financial Performance Evaluation	CO6	Apply financial analysis tools	Interpret business performance through ratios	I.M. Pandey, Financial Management
30	Unit V	Cash Flow Analysis and Strategic Use of Accounting Information	CO6	Use accounting information for strategic decisions	Evaluate organizational financial health	I.M. Pandey

Primary References

1. Fundamentals of Management – Stephen P. Robbins, Mary Coulter & David DeCenzo.
2. Managerial Economics.
3. Principles of Economics.
4. Double Entry Book Keeping.



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5. Financial Management.

UNIT-I

INTRODUCTION TO ECONOMICS

Economics is the branch of social science which deals with the philosophical approach that deals with production, distribution, exchange and consumption of various commodities in economic systems. Economics is a study of human activity both at individual and national level. It related to how scarce resources can be used to increase wealth and human welfare. The central focus of economics is on scarcity of resources and choices among their alternative uses. The resources or inputs available to produce goods are limited or scarce. Economics is a study of human activity both at individual and national level. The economists of early age treated economics merely as the science of wealth. Human beings are aimed for earning and spending money to satisfy our wants such as food, clothing, shelter and others. Activities in which earning of money and spending is involved is known as “Economic Activities”. **Adam smith known as father of Economics, during 18th century defined economics as study of nature and uses of national wealth.**

Two major factors are responsible for the emergence of economic problems. They are: i) the existence of unlimited human wants and ii) the scarcity of available resources. The numerous human wants are to be satisfied through the scarce resources available in nature. Economics deals with how the numerous human wants are to be satisfied with limited resources. Thus, the science of economics centers on wants - effort - satisfaction.

Economics is a Social Science: In primitive society, the connection between wants efforts and satisfaction is close and direct. But in modern Society things are not so simple and straight. Here man produces what he does not consume and consumes what he does not produce. When he produces more, he has to sell the excess quantity. Similarly, he has to buy a product which is not produced by him. Thus, the process of buying and selling which is called as Exchange comes in between wants efforts and satisfaction.

Thus, we can say that the subject-matter of Economics is

1. Consumption –the satisfaction of wants
2. Production- producing things, making an effort to satisfy wants.
3. Exchange-its mechanism, money, credit, banking etc.
4. Distribution-sharing of all that is produced in the country.

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

i)**Wealth Definition Adam smith (1723 - 1790):** in his book “An Inquiry into Nature and Causes of Wealth of Nations” (1776) defined economics as the science of wealth. He explained how a nation’s wealth is created. He considered that the individual in the society wants to promote only his own gain and in this, he is led by an “invisible hand” to promote the interests of the society though he has no real intention to promote the society’s interests. Criticism: Smith defined economics only in terms of wealth and not in terms of human welfare.



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- ii) **Ruskin and Carlyle:** condemned economics as a ‘dismal science’, as it taught selfishness which was against ethics. However, now, wealth is considered only to be a mean to end, the end being the human welfare. Hence, wealth definition was rejected and the emphasis was shifted from ‘wealth’ to ‘welfare’.
- iii) **Welfare Definition Alfred Marshall (1842 - 1924):** wrote a book “Principles of Economics” (1890) in which he defined “Political Economy” or Economics is a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of well-being”. The important features of Marshall’s definition are as follows: a) According to Marshall, economics is a study of mankind in the ordinary business of life, i.e., economic aspect of human life. b) Economics studies both individual and social actions aimed at promoting economic welfare of people. c) Marshall makes a distinction between two types of things, viz. material things and immaterial things.
- iv) **Welfare Definition Lionel Robbins:** published a book “An Essay on the Nature and Significance of Economic Science” in 1932. According to him, “economics is a science which studies human behavior as a relationship between ends and scarce means which have alternative uses”. The major features of Robbins’ definition are as follows: a) Ends refer to human wants. Human beings have unlimited number of wants. b) Resources or means, on the other hand, are limited or scarce in supply. There is scarcity of a commodity, if its demand is greater than its supply. In other words, the scarcity of a commodity is to be considered only in relation to its demand. c) The scarce means are capable of having alternative uses. Hence, anyone will choose the resource that will satisfy his particular want.
- v) **Robbins:** does not make any distinction between goods conducive to human welfare and goods that are not conducive to human welfare. In the production of rice and alcoholic drink, scarce resources are used. But the production of rice promotes human welfare while production of alcoholic drinks is not conducive to human welfare. However, Robbins concludes that economics is neutral between ends. b) In economics, we not only study the micro economic aspects like how resources are allocated and how price is determined, but we also study the macro- economic aspect like how national income is generated. But Robbins has reduced economics merely to theory of resource allocation. c) Robbins definition does not cover the theory of economic growth and development.
- vi) **Prof. Paul Samuelson:** defined economics as “the study of how men and society choose, with or without the use of money, to employ scarce productive resources which could have alternative uses, to produce various commodities over time, and distribute them for consumption, now and in the future among various people and groups of society”. The major implications of this definition are as follows: a) Samuelson has made his definition dynamic by including the element of time in it. Therefore, it covers the theory of economic growth. b) Samuelson stressed the problem of scarcity of means in relation to unlimited ends. Not only the means are scarce, but they could also be put to alternative uses. c) The definition covers various aspects like production, distribution and consumption. Of all the definitions discussed above, the ‘growth’ definition stated by Samuelson appears to be the most satisfactory.

MICROECONOMICS

Microeconomics studies the actions of individual consumers and firms; managerial economics is an applied specialty of this branch. Macroeconomics deals with the performance, structure, and behavior of an economy as a whole. Managerial economics applies microeconomic theories and techniques to management decisions. It is more limited in scope as compared to microeconomics. Macroeconomists study aggregate indicators such as GDP, unemployment rates to understand the functions of the whole economy.

The term “Micro” means small. The study of an individual consumer or a firm is called microeconomics (also called the *Theory of Firm*). Micro means “one millionth”. Microeconomics deals with behavior and problems of single individual and of micro-organization. Managerial economics has its roots in microeconomics and it deals with the micro or individual enterprises. It is concerned with the application of the concepts such as price theory, Law of Demand and theories of market structure and so on.



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Micro-economic theory takes the total quantity of resources as given and seeks to explain how they are assigned to the production of different goods. Allocation of resources determines what goods shall be produced and how they shall be produced. In a free market economy, the allocation of resources to the production of various goods depends upon the prices of the various goods and prices of the various resources or factors of production.

Importance of Micro Economics:

Micro Economics has both theoretical and practical importance. From the theoretical point of view, it explains the function of a free intense economics it tells as how consumer and producer take the decision for millions of goods and services to consume and produce. It tells us how goods and services distributed among them. It explains the determination of the relative prices of various goods and services. For Practical importance micro economics helps in the formulation of economics policies calculated to promote efficiency in production and welfare of the masses.

Limitation of Micro Economics: Micro Economics has some limitations A. It cannot give an idea of the functioning of the economy as whole. B. It assume fall employment which is rare phenomena, it is therefore, an unrealistic assumption.

MACROECONOMICS

The term “macro” means large. The study of aggregate or total level of economic activity in a country is called *macroeconomics*. It studies the flow of economics resources or factors of production (such as land, labor, capital, organization and technology) from the resource owner to the business firms and then from the business firms to the households. It deals with total aggregates, for instance, total national income total employment, output and total investment. It studies the interrelations among various aggregates and examines their nature and behavior, their determination and causes of fluctuations in the. It deals with the price level in general, instead of studying the prices of individual commodities. It is concerned with the level of employment in the economy.

KEY DIFFERENCES BETWEEN MICRO AND MACRO ECONOMICS

The points given below explain the difference between micro and macroeconomics in detail:

1. Microeconomics studies the particular market segment of the economy, whereas Macroeconomics studies the whole economy that covers several market segments.
2. Micro economics stresses on individual economic units. As against this, the focus of macroeconomics is on aggregate economic variables.
3. While microeconomics is applied to operational or internal issues, environmental and external issues are the concern of macroeconomics.
4. Microeconomics deals with an individual product, firm, household, industry, wages, prices, etc., while Macroeconomics deals with aggregates like national income, national output, price level, etc.
5. Microeconomics covers issues like how the price of a particular commodity will affect its quantity demanded and quantity supplied and vice versa while Macroeconomics covers major issues of an economy like unemployment, monetary/ fiscal policies, poverty, international trade, etc.
6. Microeconomics determines the price of a particular commodity along with the prices of complementary and the substitute goods, whereas the Macroeconomics is helpful in maintaining the general price level.

7. While analyzing any economy, micro economics takes a bottom-up approach, whereas the macroeconomics takes a top-down approach into consideration. **Basis For Comparison**

Microeconomics

Macroeconomics



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Meaning	The branch of economics that studies the behavior of an individual consumer, firm, family is known as Microeconomics.	The branch of economics that studies the behavior of the whole economy, (both national and international) is known as Macroeconomics.
Deals with Business Application	Individual economic variables Applied to operational or internal issues	Aggregate economic variables Environment and external issues
Scope	Covers various issues like demand, supply, product pricing, factor pricing, production, consumption, economic welfare, etc.	Covers various issues like, national income, general price level, distribution, employment, money etc.
Importance	Helpful in determining the prices of a product along with the prices of factors of production (land, labor, capital, entrepreneur etc.) within the economy.	Maintains stability in the general price level and resolves the major problems of the economy like inflation, deflation, unemployment and poverty as a whole.
Limitations	It is based on unrealistic assumptions, i.e. In microeconomics it is assumed that there is a full employment in the society which is not at all possible.	It has been analyzed that 'Fallacy of Composition' involves, which sometimes doesn't prove true because it is possible that what is true for aggregate may not be true for individuals too.



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UNIT-II

INTRODUCTION TO DEMAND AND SUPPLY

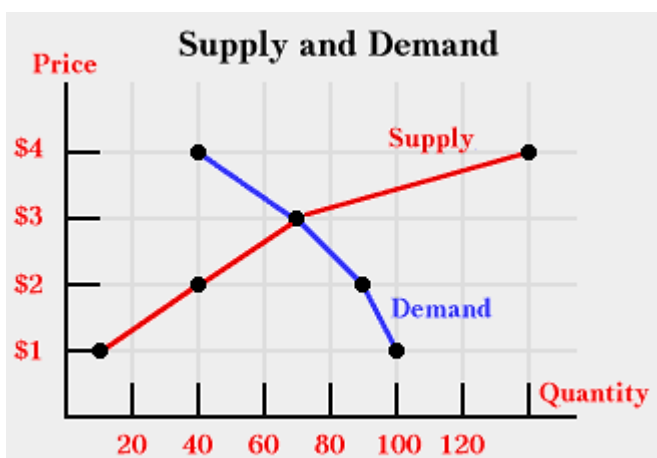
Demand is the rate at which consumers want to buy a product. Economic theory holds that demand consists of two factors: taste and ability to buy. Taste, which is the desire for a good, determines the willingness to buy the good at a specific price. Ability to buy means that to buy a good at specific price, an individual must possess sufficient wealth or income.

Demand for desire implies three things

- 1) Desire to acquire the commodity
- 2) Willingness to pay for commodity
- 3) Ability to pay for the commodity

Willingness and ability to supply goods determine the seller's actions. At higher prices, more of the commodity will be available to the buyers. This is because the suppliers will be able to maintain a profit despite the higher costs of production that may result from short-term expansion of their capability.

Demand is defined as the quantity (or amount) of a good or service people are willing and able to buy at different prices, while supply is defined as how much of a good or service is offered at each price. How do they interact to control the market? Buyers and sellers react in opposite ways to a change in price. When price increases, the willingness and ability of sellers to offer goods will increase, while the willingness and ability of buyers to purchase goods will decrease. To illustrate more clearly how the market works, we will look at the following example from the clothing industry. The same information can be shown with a graph. On the graph, the equilibrium price and quantity are indicated by the intersection of the supply and demand curves.





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What is demand and its types:

Demand in common parlance means the desire for an object. But in economics demand is something more than this.

According to Stonier and Hague, “Demand in economics means demand backed up by enough money to pay for the goods demanded”. This means that the demand becomes effective only if it is backed by the purchasing power in addition to this there must be willingness to buy a commodity. Thus demand in economics means the desire backed by the willingness to buy a commodity and the purchasing power to pay.

In the words of “Benham” “The demand for anything at a given price is the amount of it which will be bought per unit of time at that Price”. (Thus demand is always at a price for a definite quantity at a specified time.) Thus demand has three essentials – price, quantity demanded and time. Without these, demand has no significance in economics.

It deals with four aspects:

1. Consumption
2. Production
3. Exchange
4. Distribution

Factors Affecting Demand

There are factors on which the demand for a commodity depends. These factors are economic, social as well as political factors. The effect of all the factors on the amount demanded for the commodity is called Demand Function. These factors are as follows:

1. Price of the Commodity: The most important factor-affecting amount demanded is the price of the commodity. The amount of a commodity demanded at a particular price is more properly called price demand. The relation between price and demand is called the Law of Demand. It is not only the existing price but also the expected changes in price, which affect demand.

2. Income of the Consumer: The second most important factor influencing demand is consumer income. In fact, we can establish a relation between the consumer income and the demand at different levels of income, price and other things remaining the same. The demand for a normal commodity goes up when income rises and falls down when income falls. But in case of Giffen goods the relationship is the opposite.

3. Prices of related goods: The demand for a commodity is also affected by the changes in prices of the related goods also. Related goods can be of two types:

(i). **Substitutes** which can replace each other in use; for example, tea and coffee are substitutes. The change in price of a substitute has effect on a commodity's demand in the same direction in which price changes. The rise in price of coffee shall raise the demand for tea;

(ii). **Complementary** goods are those which are jointly demanded, such as pen and ink. In such cases complementary goods have opposite relationship between price of one commodity and the amount demanded for the other. If the price of pens goes up, their demand is less as a result of which the demand for ink is also less. The price and demand go in opposite direction. The effect of changes in price of a commodity on amounts demanded of related commodities is called Cross Demand.

4. Tastes of the Consumers: The amount demanded also depends on consumer's taste. Tastes include fashion, habit, customs, etc. A consumer's taste is also affected by advertisement. If the taste for a commodity goes up, its amount demanded is more even at the same price. This is called increase in demand. The opposite is called decrease in demand.

5. Wealth: The amount demanded of commodity is also affected by the amount of wealth as well as its distribution. The wealthier are the people; higher is the demand for normal commodities. If wealth is



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more equally distributed, the demand for necessities and comforts is more. On the other hand, if some people are rich, while the majorities are poor, the demand for luxuries is generally higher.

6. Population: Increase in population increases demand for necessities of life. The composition of population also affects demand. Composition of population means the proportion of young and old and children as well as the ratio of men to women. A change in composition of population has an effect on the nature of demand for different commodities.

7. Government Policy: Government policy affects the demands for commodities through taxation. Taxing a commodity increases its price and the demand goes down. Similarly, financial help from the government increases the demand for a commodity while lowering its price.

8. Expectations regarding the future: If consumers expect changes in price of commodity in future, they will change the demand at present even when the present price remains the same. Similarly, if consumers expect their incomes to rise in the near future they may increase the demand for a commodity just now.

9. Climate and weather: The climate of an area and the weather prevailing there has a decisive effect on consumer's demand. In cold areas woollen cloth is demanded. During hot

Summer days, ice is very much in demand. On a rainy day, ice cream is not so much demanded.

10. State of business: The level of demand for different commodities also depends upon the business conditions in the country. If the country is passing through boom conditions, there will be a marked increase in demand. On the other hand, the level of demand goes down during depression

DETERMINANTS OF DEMAND:

Determinants of demand are as follows

1. No. of buyers
2. Income
3. Normal Good
4. Inferior good

Among the many causal factors affecting demand, price is the most significant and the price- quantity relationship called as the Law of Demand is stated as follows: "The greater the amount to be sold, the smaller must be the price at which it is offered in order that it may find purchasers, or in other words, the amount demanded increases with a fall in price and diminishes with a rise in price" (Alfred Marshall). In simple words other things being equal, quantity demanded will be more at a lower price than at higher price. The law assumes that income, taste, fashion, prices of related goods, etc. remain the same in a given period. The law indicates the inverse relation between the price of a commodity and its quantity demanded in the market. However, it should be remembered that the law is only an indicative and not a quantitative statement. This means that it is not necessary that such variation in demand be proportionate to the change in price.

Definitions

1	"Law of Demand states that people will buy more at lower prices and buy less at higher prices, if other things remaining the same."- Prof. Samuelson.
2	The Law of Demand states that amount demanded increases with a fall in price and diminishes when price increases." - Prof. Marshall
3	"According to the law of demand, the quantity demanded varies inversely with price." – Ferguson



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4	Benham:- “Usually a larger quantity of commodity will demanded at lower price than a higher price”
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Characteristics of law of demand

- Inverse relationship between price and demand.
- Price is independent variable
- Demand is dependent variable on price of goods.

Assumptions

Every law will have limitation or exceptions. This law operates when the commodity's price changes and all other prices and conditions do not change. The main assumptions are

- Habits, tastes and fashions remain constant
- Money, income of the consumer does not change.
- Prices of other goods remain constant
- The commodity in question has no substitute
- The commodity is a normal good and has no prestige or status value.
- People do not expect changes in the prices.

DEMAND FUNCTION

The term „micro“ means small. The study of an individual consumer or a firm is called microeconomics (also called the *Theory of Firm*). Micro means „one millionth“. Microeconomics deals with behavior and problems of single individual and of micro organization. Managerial economics has its roots in microeconomics and it deals with the micro or individual enterprises. It is concerned with the application of the concepts such as price theory, Law of Demand and theories of market structure and so on.

Micro-economic theory takes the total quantity of resources as given and seeks to explain how they are assigned to the production of different goods. Allocation of resources determines what goods shall be produced and how they shall be produced. In a free market economy, the allocation of resources to the production of various goods depends upon the prices of the various goods and prices of the various resources or factors of production. Hence, micro-economics proceeds to analyse how the relative prices of goods and factors are determined in order to explain how the allocation of resources is determined. Therefore, the theory of product pricing and theory of factor pricing or the theory of distribution fall within the domain of micro-economics.



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Classification of Demand

1. Individual demand:-

A commodity or good demanded by a single person is called individual demand.

Individual Demand Schedule	
Price	Individual Quantity Demanded
1	4
2	3
3	2
4	1

Application: when the price is very high, a low-income buyer may not buy anything, though a high-income buyer may buy something. In such a case, we may distinguish between the demand of an individual buyer and that of the market which is the aggregate of individuals.

2. Market Demand

A demand for a particular product by all customers and added, is called market demand. (Total all individual demand is called as the market demand)

Table is the market demand schedule. This schedule, from the angle of simplification, is based on the assumption that there are two buyers, A and B for X commodity. By adding up their individual demand, the market demand schedule has been estimated:

Market demand Schedule				
Price of Commodity X (Rs.)	Demand of person A	Demand of person B	Market Demand Person (A+B+.....= market demand)	
1	4	5	4 + 5 =	9
2	3	4	3 + 4 =	7
3	2	3	2 + 3 =	5
4	1	2	1 + 2 =	3

Factors affecting market demand



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Market or aggregate demand is the summation of individual demand curves. In addition to the factors which can affect individual demand there are three factors that can affect market demand (cause the market demand curve to shift):

a change in the number of consumers,

a change in the distribution of tastes among consumers,

a change in the distribution of income among consumers with different tastes

3 Derive Demand

The increase in demand for one particular good causes increase in the demand for other good is called derived demand. Complementary goods are those goods which are jointly used to satisfy a want. In other words, complementary goods are those which are incomplete without each other.

These are things that go together, often used simultaneously. For example, pen and ink, Tennis rackets and tennis balls, cameras and film, etc.

For example, demand for coal leads to derived demand for mining, as coal must be mined for coal to be consumed.

Examples:

- Increasing demand for use computers in various fields will cause increase in demand for the operating systems like Microsoft windows products.
- Increase in the demand for automobiles like bikes, cars and large & heavy vehicle will cause increase in the demand for the fuel like petrol and diesel.
- Increase in the demand for the cellular phone will cause increase in the demand for the memory cards for the multimedia purpose.
- Increase in the demand for the education will cause increase in the demand for the text books for the various subjects.

5. **Cross Demand:** When the demand of one commodity is related with the price of other commodity is called cross demand. The commodity may be substitute or complementary. Substitute goods are those goods which can be used in case of each other. For example, tea and coffee, Coca-cola and Pepsi. In such case demand and price are positively related. This means if the price of one increased then the demand for other also increases and vice versa.

Cross elasticity demand:

There is a mutual relationship between change in price and quantity demanded of two related goods. Change in the price of one goods can cause change in the demand for the related good. For example, change in the price of tea ordinarily causes change in demand for coffee. Likewise, change in the price of cars causes change in demand for petrol. Mutual relationship between quantity demanded of a good due to change in the price of another goods can be measured by cross elasticity of demand.

ELASTICITY OF DEMAND:

Elasticity of Demand Elasticity of demand explains the relationship between a change in price and consequent change in amount demanded. “Marshall” introduced the concept of elasticity of demand.



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Elasticity of demand shows the extent of change in quantity demanded to a change in price. In the words of “Marshall”, “The elasticity of demand in a market is great or small according as the amount demanded increases much or little for a given fall in the price and diminishes much or little for a given rise in Price” Elastic demand: A small change in price may lead to a great change in quantity demanded. In this case, demand is elastic. In-elastic demand: If a big change in price is followed by a small change in demanded then the demand is “inelastic”.

Measurement of Elasticity of Demand A. Perfectly elastic demand: When small change in price leads to an infinitely large change in quantity demand, it is called perfectly or infinitely elastic demand. In this case $E = \infty$

The demand curve DD1 is horizontal straight line. It shows the at “OP” price any amount is demand and if price increases, the consumer will not purchase the commodity. **B. Perfectly Inelastic Demand** In this case, even a large change in price fails to bring about a change in quantity demanded.

When price increases from „OP“ to „OP“, the quantity demanded remains the same. In other words the response of demand to a change in Price is nil. In this case „E“=0. **C. Relatively elastic demand:**

Demand changes more than proportionately to a change in price. I.e. a small change in price loads to a very big change in the quantity demanded. In this case $E > 1$. This demand curve will be flatter.

When price falls from „OP“ to „OP“, amount demanded increase from “OQ” to “OQ1” which is larger than the change in price. **D. Relatively in-elastic demand.** Quantity demanded changes less than proportional to a change in price. A large change in price leads to small change in amount demanded. Here $E < 1$. Demanded curve will be steeper.

When price falls from “OP” to „OP1 amount demanded increases from OQ to OQ1, which is smaller than the change in price. **E. Unit elasticity of demand:** The change in demand is exactly equal to the change in price. When both are equal $E=1$ and elasticity is said to be unitary.

When price falls from „OP“ to „OP1“ quantity demanded increases from „OP“ to „OP1“, quantity demanded increases from „OQ“ to „OQ1“. Thus a change in price has resulted in an equal change in quantity demanded so price elasticity of demand is equal to unity.

Types of Elasticity of Demand

1. Price Elasticity of Demand:

2. Income Elasticity of Demand:

DEGREES OF PRICE ELASTICITY

Different commodities have different price elasticities. Some commodities have more elastic demand while others have relative elastic demand. Basically, the price elasticity of demand ranges from zero to infinity. It can be equal to zero, less than one, greater than one and equal to unity.

According to **Dr. Marshall** : "The elasticity or responsiveness of demand in a market is great or small according as the amount demanded increases much or little for a given fall in price and diminishes much or little for a given rise in price."

However, some particular values of elasticity of demand have been explained as under ;

Types of Price Elasticity of Demand:-

1. Perfectly elastic demand.
2. Perfectly inelastic demand.
3. Relatively elastic demand.
4. Relatively inelastic demand.
5. Unitary inelastic demand.



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MEASUREMENT OF PRICE ELASTICITY OF DEMAND

There are five methods to measure the price elasticity of demand.

1. Total Expenditure Method.
2. Proportionate Method.
3. Point Elasticity of Demand.
4. Arc Elasticity of Demand.
5. Revenue Method.

Total Expenditure Method

Dr. Marshall has evolved the total expenditure method to measure the price elasticity of demand. According to this method, elasticity of demand can be measured by considering the change in price and the subsequent change in the total quantity of goods purchased and the total amount of money spent on it.

Proportionate Method

This method is also associated with the name of Dr. Marshall. According to this method, "price elasticity of demand is the ratio of percentage change in the amount demanded to the percentage change in price of the commodity." It is also known as the Percentage Method, Flux Method, Ratio Method, and Arithmetic Method.

$E_d = \frac{\text{Proportionate change in Quantity Demanded}}{\text{proportionate change in price}}$

Arc Elasticity of Demand

- According to Prof. Baumol: "Arc elasticity is a measure of the average responsiveness to price change exhibited by a demand curve over some finite stretch of the curve".
- According to Leftwich : "When elasticity is computed between two separate points on a demand curve, the concept is called Arc elasticity."

Demand Forecasting

Introduction: The information about the future is essential for both new firms and those planning to expand the scale of their production. Demand forecasting refers to an estimate of future demand for the product. It is an „objective assessment of the future course of demand”. In recent times, forecasting plays an important role in business decision-making. Demand forecasting has an important influence on production planning. It is essential for a firm to produce the required quantities at the right time. It is essential to distinguish between forecasts of demand and forecasts of sales. Sales forecast is important for estimating revenue cash requirements and expenses. Demand forecasts relate to production, inventory control, timing, reliability of forecast etc. However, there is not much difference between these two terms.

Types of demand Forecasting: Based on the time span and planning requirements of business firms, demand forecasting can be classified in to

1. Short-term demand forecasting and
2. Long – term demand forecasting.

1. Short-term demand forecasting: Short-term demand forecasting is



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DEMAND FORECASTING–PURPOSE/ DETERMINANTS:

The information about the future is essential for both new firms and those planning to expand the scale of their production. Demand forecasting refers to an estimate of future demand for the product. It is an „objective assessment of the future course of demand”. In recent times, forecasting plays an important role in business decision-making. Demand forecasting has an important influence on production planning. It is essential for a firm to produce the required quantities at the right time. It is essential to distinguish between forecasts of demand and forecasts of sales. Sales forecast is important for estimating revenue cash requirements and expenses. Demand forecasts relate to production, inventory control, timing, reliability of forecast etc. However, there is not much difference between these two terms.

Types of demand Forecasting: Based on the time span and planning requirements of business firms, demand forecasting can be classified in to

1. Short-term demand forecasting and
2. Long – term demand forecasting.

1. Short-term demand forecasting: Short-term demand forecasting is limited to short periods, usually for one year. It relates to policies regarding sales, purchase, price and finances. It refers to existing production capacity of the firm. Short-term forecasting is essential for formulating a suitable price policy. If the business people expect of rise in the prices of raw materials of shortages, they may buy early. This price forecasting helps in sale policy formulation. Production may be undertaken based on expected sales and not on actual sales. Further, demand forecasting assists in financial forecasting also. Prior information about production and sales is essential to provide additional funds on reasonable terms.

2. Long – term forecasting: In long-term forecasting, the businessmen should now about the long-term demand for the product. Planning of a new plant or expansion of an existing unit depends on long-term demand.

The various factors that influence demand forecasting are explained as follows:

i. Types of Goods:

Affect the demand forecasting process to a larger extent. Goods can be producer’s goods, consumer goods, or services. Apart from this, goods can be established and new goods. Established goods are those goods which already exist in the market, whereas new goods are those which are yet to be introduced in the market.

Information regarding the demand, substitutes and level of competition of goods is known only in case of established goods. On the other hand, it is difficult to forecast demand for the new goods. Therefore, forecasting is different for different types of goods.

ii. Competition Level:

Influence the process of demand forecasting. In a highly competitive market, demand for products also depends on the number of competitors existing in the market. Moreover, in a highly competitive market, there is always a risk of new entrants. In such a case, demand forecasting becomes difficult and challenging.

iii. Price of Goods:

Acts as a major factor that influences the demand forecasting process. The demand forecasts of organizations are highly affected by change in their pricing policies. In such a scenario, it is difficult to estimate the exact demand of products.

iv. Level of Technology:

Constitutes an important factor in obtaining reliable demand forecasts. If there is a rapid change in technology, the existing technology or products may become obsolete. For example, there is a high decline in the demand of floppy disks with the introduction of compact disks (CDs) and pen drives for saving data in computer. In such a case, it is difficult to forecast demand for existing products in future.



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v. Economic Viewpoint:

Play a crucial role in obtaining demand forecasts. For example, if there is a positive development in an economy, such as globalization and high level of investment, the demand forecasts of organizations would also be positive.

DEMAND FORECASTING–METHODS

Methods of Forecasting

Several methods are employed for forecasting demand. All these methods can be grouped under survey method and statistical method. Survey methods and statistical methods are further subdivided in to different categories.

1. Survey Method:

Under this method, information about the desires of the consumer and opinion of experts are collected by interviewing them. Survey method can be divided into four types viz., Opinion survey method; expert opinion; Delphi method and consumers interview methods.

a. Opinion survey method:

This method is also known as sales-force composite method (or) collective opinion method. Under this method, the company asks its salesman to submit estimate of future sales in their respective territories. Since the forecasts of the salesmen are biased due to their optimistic or pessimistic attitude ignorance about economic developments etc. these estimates are consolidated, reviewed and adjusted by the top executives. In case of wide differences, an average is struck to make the forecasts realistic.

This method is more useful and appropriate because the salesmen are more knowledgeable. They can be an important source of information. They are cooperative. The implementation within unbiased or their bias can be corrected.

B. Expert opinion method: Apart from salesmen and consumers, distributors or outside experts may also be used for forecasting. In the United States of America, the automobile companies get sales estimates directly from their dealers. Firms in advanced countries make use of outside experts for estimating future demand. Various public and private agencies all periodic forecasts of short or long term business conditions. Apart from salesmen and consumers, distributors or outside experts may also be used for forecasting. In the United States of America, the automobile companies get sales estimates directly from their dealers. Firms in advanced countries make use of outside experts for estimating future demand. Various public and private agencies all periodic forecasts of short or long term business conditions.

C. Delphi Method:

A variant of the survey method is Delphi method. It is a sophisticated method to arrive at a consensus. Under this method, a panel is selected to give suggestions to solve the problems in hand. Both internal and external experts can be the members of the panel. Panel members are kept apart from each other and express their views in an anonymous manner. There is also a coordinator who acts as an intermediary among the panelists. He prepares the questionnaire and sends it to the panelist. At the end of each round, he prepares a summary report. On the basis of the summary report the panel members have to give suggestions. This method has been used in the area of technological forecasting. It has proved more popular in forecasting. It has provided more popular in forecasting non-economic rather than economic variables.

D. Consumers interview method:

In this method the consumers are contacted personally to know about their plans and preference regarding the consumption of the product. A list of all potential buyers would be drawn and each buyer will be approached and asked how much he plans to buy the listed product in future. He would be asked the proportion in which he intends to buy. This method seems to be the most ideal method for forecasting demand.

2. Statistical Methods:



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Statistical method is used for long run forecasting. In this method, statistical and mathematical techniques are used to forecast demand. This method relies on past data.

a. Time series analysis or trend projection methods:

A well-established firm would have accumulated data. These data are analyzed to determine the nature of existing trend. Then, this trend is projected into the future and the results are used as the basis for forecast. This is called as time series analysis. This data can be presented either in a tabular form or a graph. In the time series past data of sales are used to forecast future.

b. Barometric Technique:

Simple trend projections are not capable of forecasting turning points. Under Barometric method, present events are used to predict the directions of change in future. This is done with the help of economics and statistical indicators. Those are (1) Construction Contracts awarded for building materials (2) Personal income (3) Agricultural Income. (4) Employment (5) Gross national income (6) Industrial Production (7) Bank Deposits etc.

c. Regression and correlation method:

Regression and correlation are used for forecasting demand. Based on past data the future data trend is forecasted. If the functional relationship is analyzed with the independent variable it is simple correlation. When there are several independent variables it is multiple correlation. In correlation we analyze the nature of relation between the variables while in regression; the extent of relation between the variables is analyzed. The results are expressed in mathematical form. Therefore, it is called as econometric model building. The main advantage of this method is that it provides the values of the independent variables from within the model itself.

DEMAND FORECASTING

The activity of estimating the quantity of a product or service that consumers will purchase. Demand forecasting involves techniques including both informal methods, such as educated guesses, and quantitative methods, such as the use of historical sales data or current data from test markets. Demand forecasting may be used in making pricing decisions, in assessing future capacity requirements, or in making decisions on whether to enter a new market. According

1	Cundiff and Still , " <i>Demand Forecasting is an estimate of Demand during a specified period. Which estimate is tied to a proposed marketing plan and which assumes a particular set of uncontrollable and competitive forces.</i> "
2	Prof. Philip Kotler . The company (sales) forecast is the expected level of company sales based on a chosen marketing plan and assumed marketing environment"
3	Evan J. Douglas , " <i>Demand forecasting may be defined as the process of finding values for demand in future time periods.</i> "

The cost should be controlled by producing correct level of goods in the firm and also according to the demand for those goods in the market. For the estimation of demand, demand forecasting is to be done by the firm.



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- Forecasting = estimation of future situations.
- Forecasting reduces or minimizes the uncertainty.
- By forecasting effective decisions can be taken for tomorrow.
- Demand forecasting is based on the determinants of the demand.
- Demand for goods increases and gives sales.
- Sales are the primary source of the income for a firm.

STEPS INVOLVED IN DEMAND FORECASTING

1. Identification of business objectives:

In the first stage we should know what is the aim of forecasting? What we get or know from the forecasting? Estimation of factors like quantity and composition of demand for goods, price to be quoted, sales planning and inventory control etc., are done in the first stage.

2. Determining the nature of goods under consideration:

Different category of goods has their own distinctive demand. Example capital goods, consumer durables and non-durables goods in which category our goods fall we should estimate.

3. Selecting a proper method of forecasting:

There are different methods for demand forecasting. Which is best suited method that we should select for doing demand forecasting?

4. Interpretation of results:

The forecasting which is done by the managerial economist should be interpreted in detailed manner. That means it should be easy to understand by the top management.

Demand Forecasting Techniques

To invest money and others factors in business; we require a reasonable accurate forecast of demand. Starting with qualitative methods like survey of collective opinions, buyers' intention, Delphi approach and its variant, a number of quantitative methods are used for computing demand forecasts as detailed below:

Opinion polling method

a) Collective opinion Survey:

Sales personnel are closest to the customers and have an intimate feel of the market. Thus they are most suited to assess consumer's reaction to company's products. Here each salesperson makes an estimate of the expected sales in their area, territory, state and/or region, These estimates are collated, reviewed and revised. Taking in to account product design, features and price is decided and made. Thus, "collective opinion survey forms the basis of market Analysis and demand forecasting.

Although this method is simple, direct, first hand and most acceptable, it suffers from following



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weaknesses

1. demand estimates by individual salespersons to obtain total demand of the country may be risky as each person has knowledge about a small portion of market only
2. Salesperson may not prepare the demand estimation with the seriousness and care
3. limited experience in their employment, salesperson may not have the required knowledge and experience

b) Survey of Customers Intention

Another method of demand forecasting is to carry out a survey of what consumers prefer and intend to buy. If the product is sold to a few large industrial buyers, survey would involve interviewing them. If it is a consumer durable product, a sample survey is carried out about what they are planning or intending to buy. It is not easy to query all consumers through direct contact or through printed questionnaire by mail. These surveys serve useful purpose in establishing relationships between

- a) Demand and price
- b) Demand and income of consumers
- c) Demand and expenditure on advertisement etc.

This method is preferred when bulk of the sales made to institutions and industrial buyers and only a few of them have to be contacted. Disadvantages are. Survey method is not useful for households - interviewing them is not only difficult but also expensive. They are not able to give precise idea about their intentions particularly when alternative products are available in the market.

c) Delphi Method

The Delphi technique was developed at RAND Corporation in the 1950s. Delphi method is a group (members) process and aims at achieving a `single opinion of the members on the subject. Herein experts in the field of marketing research and **demand forecasting** are engaged in

- analyzing economic conditions
- carrying out sample surveys of market
- conducting opinion polls

Based on the above, demand forecast is worked out in following steps:

1. Administrator sends out a set of questions in writing to all the experts on the panel, who are requested to write back a brief predication.
2. Written predictions of experts are collected and combined, edited and summarized together by the administrator.
3. Based on the summary, administrator designs a new set of questions and gives them to the same experts who answer back again in writing.
4. Administrator repeats the process of collecting, combining, editing and summarizing the responses.
5. Steps 3 and 4 are repeated by the administrator to experts with diverse backgrounds until they come to one single opinion.



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If there is divergence of opinions and hence conclusions, administrator has to sort it out through mutual discussions. Administrator has to have the necessary experience and background as he plays a key role in designing structured 'questionnaires and synthesizing the data.

Statistical methods

- **Trend projection method**

This technique assumes that whatever past years demand pattern will be continued in the future also. Basing on the historical data that means previous year's data is used to predict the demand for the future. In this trend projection method, previous year's data is presented on the graph and future demand is estimated.

- **Regression Analysis**

Past data is used to establish a functional relationship between two variables. For Example, demand for consumer goods has a relationship with income of Individuals and family; demand for tractors is linked to the agriculture income and demand for cement, bricks etc. are dependent upon value of construction contracts at any time. Forecasters collect data and build relationship through co-relation and regression analysis of variables.

- **Econometric Models**

Econometric models are more complex and comprehensive as this model uses mathematical and statistical tools to forecast demand. This model takes various factors which affect the demand. For example, demand for passenger transport is not only dependent upon the population of the city, geographical area, industrial units, their location etc. It is not easy to locate one single economic indicator for determining the demand forecast of a product. Invariably, a multi-factor situation applies Econometric Models, although complex, are being increasingly used for market analysis and demand forecasts.

- **Simple Average Method**

Among the quantitative techniques for demand analysis, simple Average Method is the first one that comes to one's mind. Herein, we take simple average of all past periods - simple monthly average of all consumption figures collected every month for the last twelve months or simple quarterly average of consumption figures collected for several quarters in the immediate past. Thus,

Sum of Demands of all periods =

$$= \frac{\text{Simple Average}}{\text{Number of periods}}$$



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Year	Sales in lakhs
2005	2
2006	2.2
2007	2.3
2008	2.2
2009	2.3
2010	?

$$\frac{2 + 2.2 + 2.3 + 2.2 + 2.3}{5} = 2.2 \text{ average sales expected in 2010}$$

DETERMINANTS OF SUPPLY

When price changes, quantity supplied will change. That is a movement along the same supply curve. When factors other than price changes, supply curve will shift. Here are some determinants of the supply curve.

1. Production cost:

Since most private companies' goal is profit maximization. Higher production cost will lower profit, thus hinder supply. Factors affecting production cost are: input prices, wage rate, government regulation and taxes, etc.

	Cost of production depends on the factors like
1	Price of raw materials
2	Rents and interest on capital
3	Cost of machinery
4	Payments to human resources (wages and salaries)
5	Transportation charges

If cost of production is high normally supply will be low

2. Technology:

Technological improvements help reduce production cost and increase profit, thus stimulate higher supply. Use of latest technology decreases the cost of production and increases the production capacity which increases supply of goods.

3. Number of sellers:

More sellers in the market increase the market supply. Supply depends upon the below said factors. These factors should not arise if they arise; they affect the supply directly or indirectly.



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1	whether conditions
2	Floods
3	Wars
4	Epidemics (unexpected situations)

4. Expectation for future prices:

If producers expect future price to be higher, they will try to hold on to their inventories and offer the products to the buyers in the future, thus they can capture the higher price.

The relationship between price and quantity supplied is usually a positive relationship. A rise in price is associated with a rise in quantity supplied.

LAW OF SUPPLY FUNCTION

<u>1</u>	Dooley. "The law of supply states that other things being equal the higher the price, the greater the quantity supplied or the lower the price, the smaller the quantity supplied."
<u>2</u>	to Lipsey , "The law of supply states that other things being equal, the quantity of any commodity that firms will produce and offer for sale is positively related to the commodity's own price, rising when price rises and falling when price

As the price of good increases, suppliers will attempt to maximize profits by increasing the quantity of the product sold.

Prices of pens	Quantity supplied
10	100
11	150
12	200
13	250

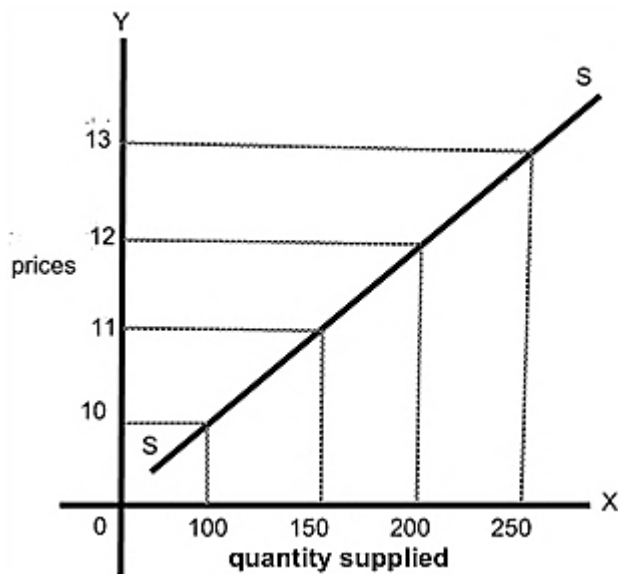


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SUPPLY FUNCTION

The supply function is the mathematical expression of the relationship between supply and those factors that affect the willingness and ability of a supplier to offer goods for sale

$$SX = f(PX ,PF ,O,.....T , t, s)$$

SX = Supply of goods

PX = Price

PF = Factor input employed (used) for production.

- ☐ Raw material
- ☐ Human resources
- ☐ Machinery

O = Factors outside economic sphere.

T = Technology.

t = Taxes.

S = Subsidies

There is a functional (direct) relationship between price and supply.



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ELASTICITY OF SUPPLY

The Price Elasticity of Supply measures the rate of response of quantity demanded due to a price change. If you've already read Elasticity of Demand and understand it, you may want to just skim this section, as the calculations are similar.

Definitions

1	to Lipsey , "Elasticity of supply is the ratio of percentage change in quantity supplied over the percentage change in price."
---	---

Price elasticity of supply measures the relationship between change in quantity supplied and a change in price. The formula for price elasticity of supply is:

$$PES = \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in price}} \text{ or } \frac{\Delta Q}{\Delta P} \times \frac{P_1}{Q_1}$$

- ΔQ = change in the demand. (difference in demand)
- ΔP = change in the price. (difference in the price)
- P_1 = initial price. (first price/ old price)
- Q_1 = initial demand. (first demand/ old demand)

The value of elasticity of supply is **positive**, because an increase in price is likely to increase the quantity supplied to the market and vice versa.

Five Types of Elasticities of Supply:

1. **Unit Elastic Supply:** When change in price of X brings about exactly proportionate change in its quantity supplied then supply is unit elastic i.e. elasticity of supply is equal to one, e.g. if price rises by 10% and supply expands by 10% then, change in the quantity supplied the supply is relatively inelastic or elasticity of supply is less than one.

$Es = \frac{\% \text{ change in Quantity Supplied of X}}{\% \text{ change in price of X}}$
--

2. **Relatively Elastic Supply:** When change in price brings about more than proportionate change in the quantity supplied, then supply is relatively elastic or elasticity of supply is greater than one.

3. **Perfectly Inelastic Supply:** When a change in price has no effect on the quantity supplied then



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supply is perfectly inelastic or the elasticity of supply is zero.

4. **Perfectly Elastic Supply:** When a negligible change in price brings about an infinite change in the quantity supplied, then supply is said to be perfectly elastic or elasticity of supply is infinity.

All the five types of Elasticities of supply can be shown by different slopes of the supply curve. Fig. (1) Shows the supply is unit elastic because change in price from OP to OP1 brings about exactly proportionate change in the quantity supplied of commodity X viz., from OM to OM1. In this case $E_s = 1$.

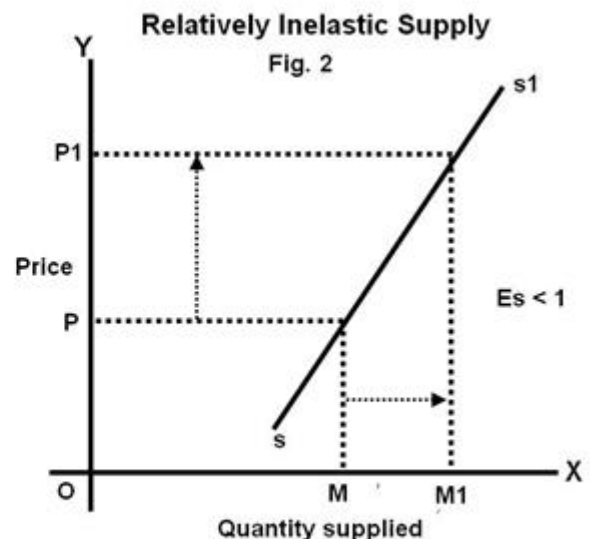
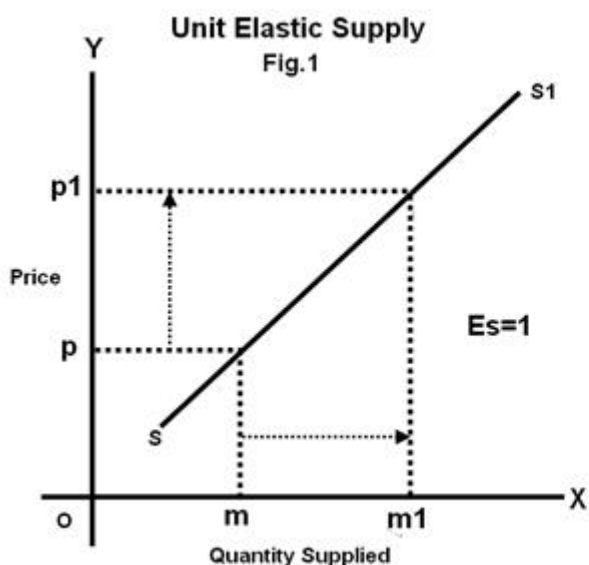


Fig (2) shows that supply is relatively inelastic because change in price of from OP to OP1 brings about less than proportionate change in quantity supplied of X. in this case $E_s < 1$.

Fig (3) shows that supply is relatively elastic because change in price of X from OP to OP1 brings about more than proportionate change in quantity supplied of X. in this case $E_s > 1$.

Fig (4) shows that supply is perfectly inelastic because change in price of X from OP to OP1 has absolutely no effect on quantity supplied of X. in this case $E_s = 0$. Thus, if the supply curve is vertical, i.e. parallel to Y-axis it represents perfectly inelastic supply.

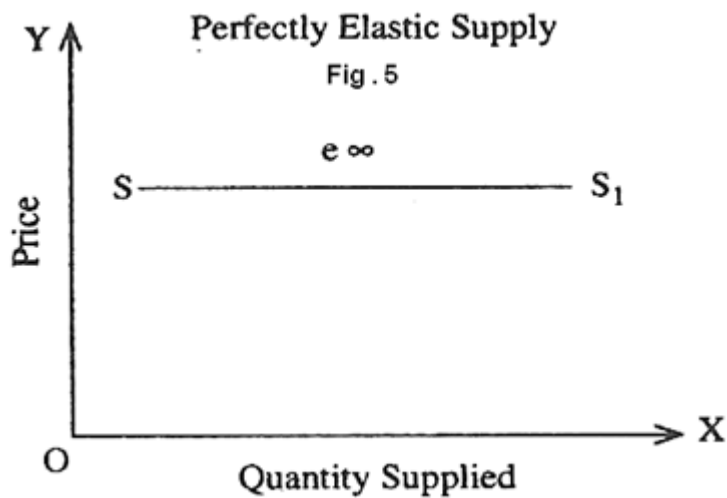
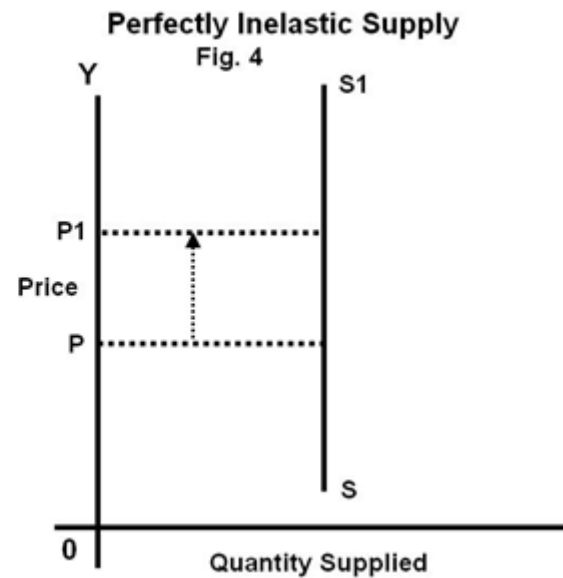
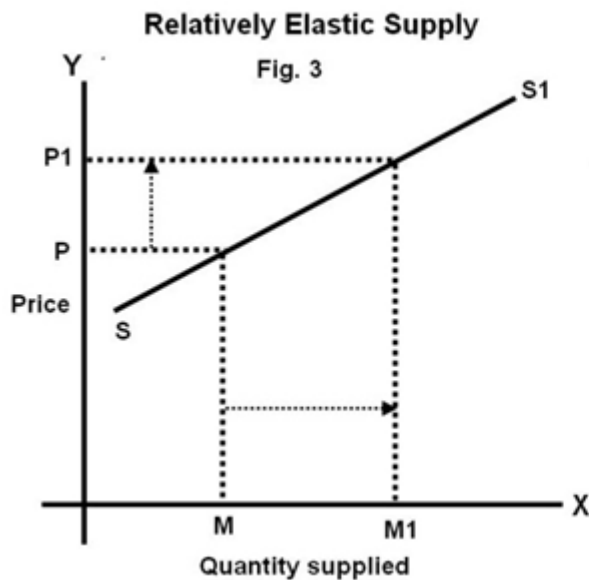


Fig (5) shows that supply is perfectly elastic because a small change in price of X brings about infinite change in supply. Thus, if the supply curve is horizontal or parallel to X- axis it represents perfectly elastic supply.

Hence, the five different types of elasticities of supply can be shown by five different slopes of supply curve.



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UNIT-III

THEORY OF PRODUCTION FUNCTION

PRODUCTION ANALYSIS

In the ordinary language, the term "production" means rising of crops or making of a physical goods in factories. Marshall is right to say, *"Man does not produce physical (material) goods; but when it is said that he produces material goods, in fact, he only creates the utility. Even the scientists also agree that "Matter can neither be created nor destroyed."* Thus, in Economics, the word *"production"* is used to imply creation or increasing the utility of a good so that its value is increased.

Sno.	Definitions	Scientist
1	<i>"Production may be defined as the creation of utilities".</i>	Anatol Murad
2	<i>"Production is the process that creates utility in goods.</i>	A.H. Smith
3	<i>"Production is the creation of value in a commodity."</i>	Thomas
4	<i>"Production is the creation of economic utility "</i>	Ely
5	<i>"Production means an increase in the value of a commodity."</i>	Nicholson
6	<i>"Production is any activity which adds to the value of a nation's supply of goods and services. "</i>	M.J.Uimer
7	<i>"Production may be defined as the process by which inputs may be transformed into output"</i>	Robert Awh

The production function expresses a functional relationship between physical inputs and physical outputs of a firm at any particular time period. The output is thus a function of inputs. Mathematically production function can be written as

$$Q = f(A, B, C, D)$$

Where "Q" stands for the quantity of output and A, B, C, D are various input factors such as land, labour, capital and organization. Here output is the function of inputs. Hence output becomes the dependent variable and inputs are the independent variables.

The above function does not state by how much the output of "Q" changes as a consequence of change of variable inputs. In order to express the quantitative relationship between inputs and output, Production function has been expressed in a precise mathematical equation i.e.

$$Y = a + b(x)$$

Which shows that there is a constant relationship between applications of input (the only factor input 'X' in this case) and the amount of output (y) produced.

Production analysis plays a pivotal role in managerial economics. It is concerned with the supply side of the market. It deals with physical terms of the product produced in a business firm. Decision like location



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of the production unit; the amount of products to be produced; the scale of production and the extent of product-mix can be taken through production analysis. The production function with one variable input is otherwise known as *the law of variable proportions*. The production function with all variable inputs is otherwise known as *the laws of returns to scale*. The production function with two variable inputs is otherwise known as *production function through isoquants*. The main aspects dealt with under production analysis are: production functions, returns to scale, isoquants, economies and diseconomies of scale.

FACTOR OF PRODUCTION

When most people think of fundamental tasks of a firm, they think first of production. Economists describe this task with the production function, an abstract way of discussing how the firm gets output from its inputs. It describes, in mathematical terms, the technology available to the firm. For the production of wheat, you require land, workers, tractor, tube well, seeds, pesticides, favorable climatic conditions and fertilizer, etc. All these are called the means of production or inputs. With the help of these, we get the output or production.

Sno.	Definition	Scientist
1	<i>"The sources of services which enter into the process of production are called factors of production. The factors are broadly classified as land, labour, capital, organisation and enterprise"</i>	M J Ulmer
2	<i>"In a sense, only nature and man are the two sources of production-"</i> Benham has rightly remarked, <i>"Factors of production are neither two nor four but millions."</i>	Dr Marshall
3	<i>"The production function is the Technical relationship telling the maximum amount of output capable of being produced by each and every set of specified inputs. It is defined for a given set of technical knowledge."</i>	Mr Samuelson
4	<i>"the production function is the name given to the relationship between the rates of input of productive services and the rate of output of product. It is the economist's summary of technical knowledge."</i>	Mr Stigler

But according to modern economists and for the sake of simplicity, there are four factors of production namely: (i) land (ii) labor (iii) capital (iv) organization and enterprise. Modern economists call all these factors as Input or resources, as under;

1. **Land:** Land is that factor of production which is freely available from nature. In it, not only on the surface of soil is included, but also all other free gifts of the nature below the surface and above the surface are included; for example, forests, minerals, fertility of soil, water, etc. According to Marshall, "Land means *the material and the forces which nature gives freely for man's aid, in land and water, in air, light and heat.*" Land is also called a natural resource.

2. **Labor:** Labor is a human factor of production. In it all those mental and physical activities of man are included which are performed in order to earn money. The services of a carpenter, black-smith, weaver, teacher, lawyer and doctor, etc., are called labor.



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3. **Capital:** Capital is that man-made factor of production which is used for more production. Factors like machines, tools, raw materials, buildings, railways, factories, etc., are called capital. The saving of a man when invested to earn will also be called capital.

Production is the transformation of inputs into outputs. Inputs are the factors of production -- land, labor, and capital -- plus raw materials and business services. The transformation of inputs into outputs is determined by the technology in use. Limited quantities of inputs will yield only limited quantities of outputs. The relationship between the quantities of inputs and the maximum quantities of outputs produced is called the "production function. "But how do these outputs change when the input quantities vary? Let's take a look at an example of a production function. In general, we would allow for varying amounts of land, labor and capital. However, in this example, labor will be the only input, for the sake of simplicity.

In a general mathematical form, a production function can be expressed as:

production function $Q = f(LB, L, K, M, T, t)$

- Q =output/quantity
- LB = Land & Buildings.
- L = Labor.
- K = capital.
- M = raw material.
- t = time.

IMPORTANCE OF PRODUCTION FUNCTION:

Micro Economics has both theoretical and practical importance. From the theoretical point of view, it explains the function of a free intense economics it tells as how consumer and producer take the decision for millions of goods and services to consume and produce. It tells us how goods and services distributed among them. It explains the determination of the relative prices of various goods and services. For Practical importance micro economics helps in the formulation of economics policies calculated to promote efficiency in production and welfare of the masses. In professor Lerner's words Micro Economics theory facilities the understanding of what would be a hopelessly complicated confusion of billions of facts by constructing simplified model of behaviors.

LAWS OF RETURNS: Production analysis in economics theory considers two types of input-output relationships.

1. When quantities of certain inputs, are fixed and others are variable and
2. When all inputs are variable.

These two types of relationships have been explained in the form of laws.

i) Law of variable proportions

ii) Law of returns to scale

I. Law of variable proportions:

The law of variable proportions which is a new name given to old classical concept of "Law of



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diminishing returns has played a vital role in the modern economics theory. Assume that a firm's production function consists of fixed quantities of all inputs (land, equipment, etc.) except labour which is a variable input when the firm expands output by employing more and more labour it alters the proportion between fixed and the variable inputs. The law can be stated as follows:

“When total output or production of a commodity is increased by adding units of a variable input while the quantities of other inputs are held constant, the increase in total production becomes after some point, smaller and smaller”.

“If equal increments of one input are added, the inputs of other production services being held constant, beyond a certain point the resulting increments of product will decrease i.e. the marginal product will diminish”. (**G. Stigler**)

“As the proportion of one factor in a combination of factors is increased, after a point, first the marginal and then the average product of that factor will diminish”. (**F. Benham**)

The law of variable proportions refers to the behaviour of output as the quantity of one Factor is increased Keeping the quantity of other factors fixed and further it states that the marginal product and average product will eventually decline. This law states three types of productivity an input factor – Total, average and marginal physical productivity.

Assumptions of the Law: The law is based upon the following assumptions:

- i) The state of technology remains constant. If there is any improvement in technology, the average and marginal output will not decrease but increase.
- ii) Only one factor of input is made variable and other factors are kept constant. This law does not apply to those cases where the factors must be used in rigidly fixed proportions.
- iii) All units of the variable factors are homogenous.

— Eminent Economist **Samuelson** says, “The law states that an increase in some inputs relative to other fixed input will, in a given state of technology, cause total output to increase; but after a point the extra output resulting from the same addition of extra inputs is likely to become less and less.”

ASSUMPTIONS: The law has following main assumptions:

- (1) One of the factors is variable while all other factors are fixed.
- (2) All units of the variable factor are homogeneous.
- (3) There is no change in the technique of production.

This law of variable proportion shows the input and output relationship with **one variable factor**. e.g. labour.



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Illustration:

Number of labour	Total output or total returns (acres)
0	0
1	2
2	6
3	9
4	10
5	10
6	9

Solution:

From the above given data, we should find out the average production and the marginal production.

$$\text{average product} = \frac{\text{total output}}{\text{number of labour}}$$

marginal product = difference between total product by increase in labour.

Number of labour {a}	Total output or total returns (acres) {b}	Average output or average returns in (acres) {b/a =}	Marginal output or marginal returns [additional output]
0	0	0	0
1	2	2	2
2	6	3	4
3	9	3	3
4	10	2.5	1
5	10	2	0
6	9	1.5	-1

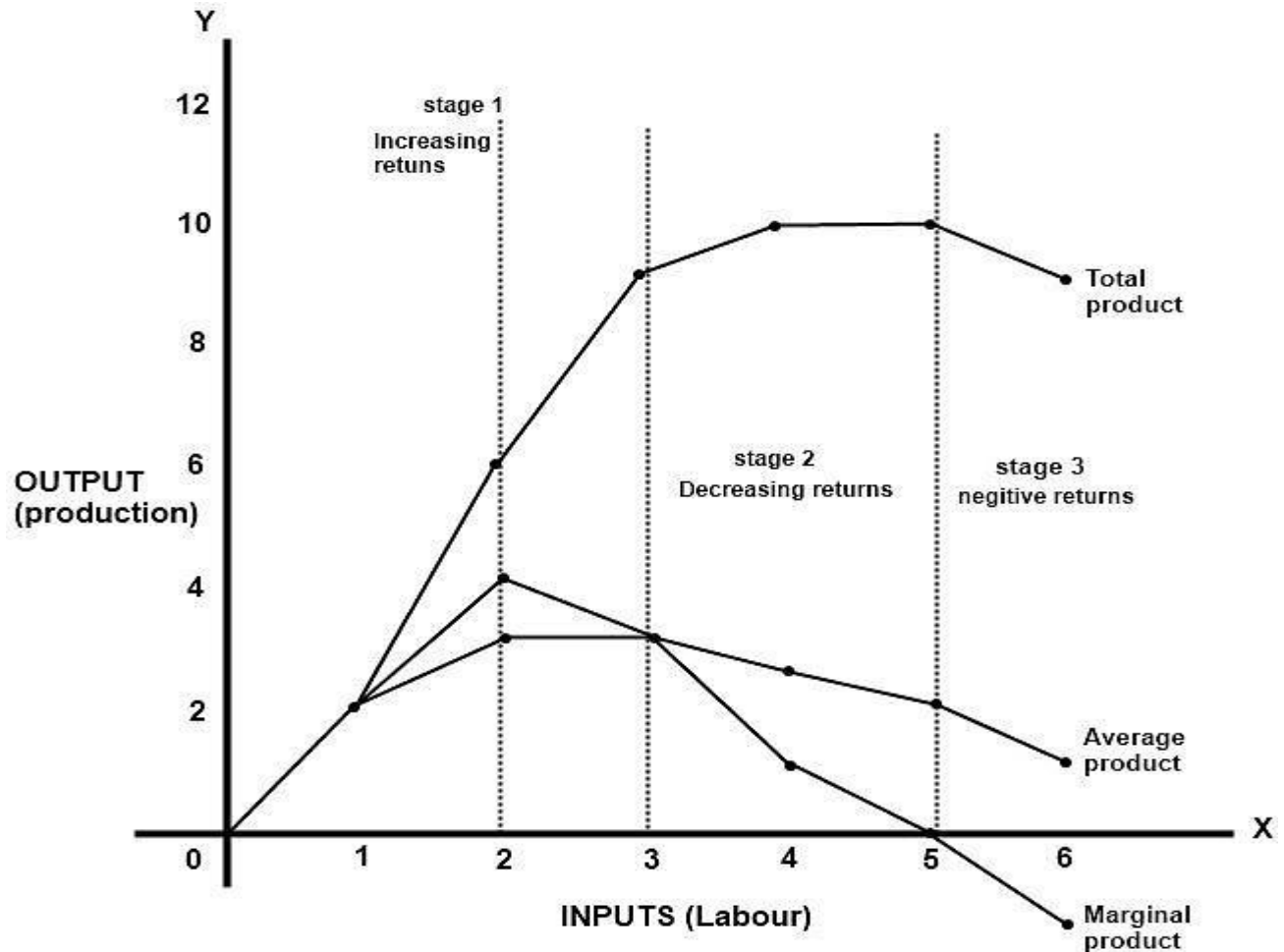


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3 stages of the production with Graph analysis:

(Stage 1): The maximum value of the marginal product is at 4 and maximum value of the average product relating to the marginal product Column is 3. This is intersection point where the maximum 6 units of production can be done by employing 2 labours. Up to this point it is called as increasing returns stage.

(Stage 2): when we employee more than 2 labours ie. 3 labours total production is raising but the marginal production is falling down from 4 to 3 and average product is nearly same. So this stage is stated as decreasing returns to the production.

(Stage 3): at 6 labours employed the marginal production is -1 units and the curve is cutting the X axis and moving down to the negative position. Hence this stage is stated as the negative returns in the production.

Constant Returns to Scale

Law of Constant Returns to Scale When the scope for division of labour gets restricted, the rate of increase in output remains constant, the law of constant returns to scale is said to operate. This law states that the rate of increase/decrease in volume of output is same to that of rate of increase/decrease in inputs.

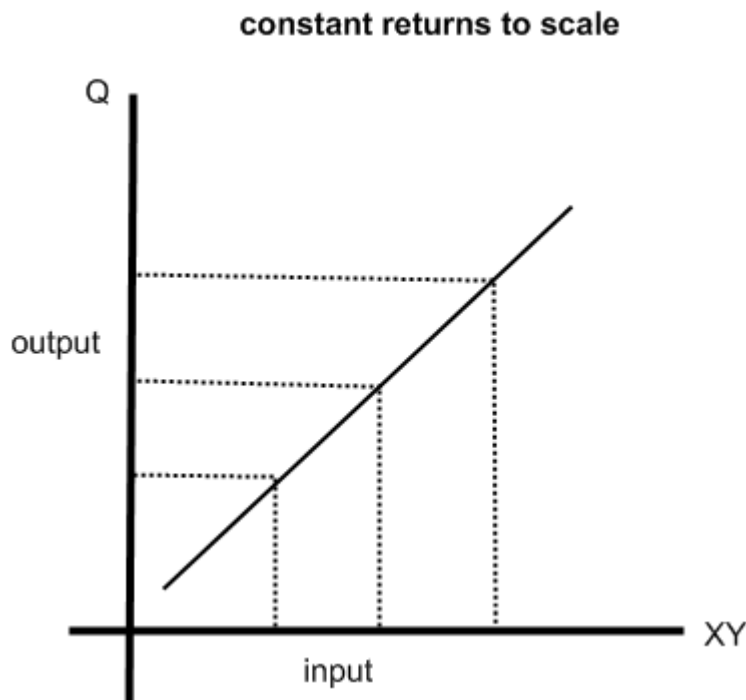


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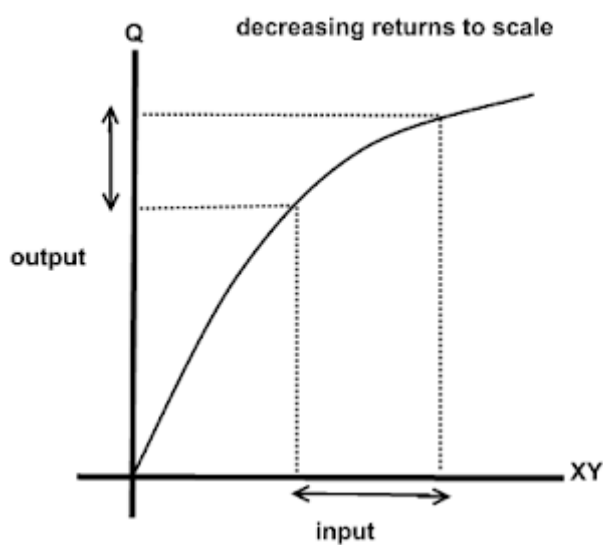
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Law of Decreasing Returns to Scale Where the proportionate increase in the inputs does not lead to equivalent increase in output, the output increases at a decreasing rate, the law of decreasing returns to scale is said to operate. This results in higher average cost per unit. If the output (production) increases than the proportionality with input increases, we have decreasing returns to scale



All factors of production (land, labor and capital) have been doubled. There is 100 percent increase in the factors of production whereas output has increased from 10 units to 15 units, which is less than double.



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There is an increase in output by 50%. It means increase in all inputs leads to a less than proportional increase in the output of the firm. Here diminishing returns to scale are operating. Diminishing returns to scale is achieved in those activities involving natural resources such as growing agricultural products. These laws can be illustrated with an example of agricultural land. Take one acre of land. If you till the land well with adequate bags of fertilizers and sow good quality seeds, the volume of output increases. The following table illustrates further:

<i>Capital (in units)</i>	<i>labour (in units)</i>	<i>Percentage of Increase in both both inputs</i>	<i>Output (in units)</i>	<i>Percentage of Increase in output</i>	<i>Laws applicable</i>
1	3	-----	-----	-----	
2	6	100	120	140	Law of increasing returns to scale
4	12	100	240	100	Law of constant returns to scale
8	24	100	360		Law of decreasing returns to scale

From the above table, it is clear that with 1 unit of capital and 3 units of labour, the firm produces 50 units of output. When the inputs are doubled two units of capital and six units of labour, the output has gone up to 120 units. (From 50 units to 120 units). Thus, when inputs are increased by 100 percent, the output has increased by 140 percent. That is, output has increased by more than double. This is governed by **Law of Increasing Returns to Scale**.

When the inputs are further doubled that is to 4 units of capital and 12 units of labour, the output has gone up to 240 units, (from 120 units to 240 units). Thus, when inputs are increased by 100 per cent, the output has increased by 100 per cent. That is, output also has doubled. This is governed by **Law of Constant Returns to Scale**.

When the inputs are further doubled, that is, to 8 units of capital and 24 units of labour, the output has gone up to 360 units, (from 240 units to 360 units). Thus, when input are increased by 100 per cent, the has increased only by 50 per cent. This is governed by **Law of Decreasing Returns to Scale**.

PRODUCTION OPTIMIZATION

Production Optimization refers to the various activities of measuring, analyzing, modelling, prioritizing and implementing actions to enhance productivity of a field: reservoir/well/surface. Production Optimization is a fundamental practice to ensure recovery of developed reserves while maximizing returns. Production Optimization activities include:

ECONOMIES OF SCALE

Economies of scale arise when the **cost per unit falls as output increases**. Economies of scale are the



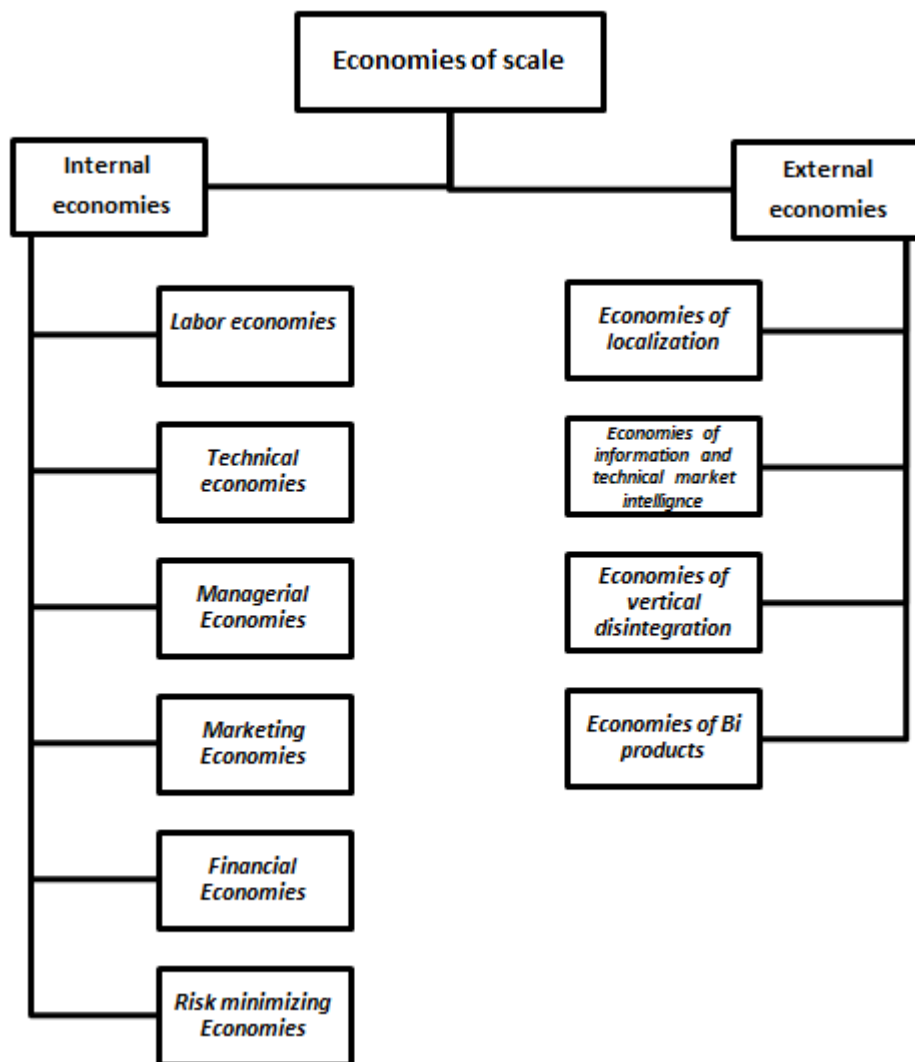
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main advantage of increasing the scale of production and becoming 'big'. When we produce in large quantities generally the production cost reduces. It is the general principle everybody knows. Reduction in the cost of production, when output (production) is increased is called as **economies of scale**. Large scale of production is economical than small scale of production. Increase in returns to scale (reduction of cost by producing more goods) are caused by real economies, which are classified under



INTERNAL ECONOMIES: This happens when better use is made in factors of production within the firm and by increasing output the factors in the internal economies are as follows.

1. labour economies:

Increase in the scale of production of a firm result into many economies of labor, like specialization. Enlarged scale of production allows division of labor and specialization with the result of an improvement in the skills. *Specialization means to perform just one task repeatedly which makes the labor highly efficient in its performance.* This adds to the productivity and efficiency of the labor. Adam Smith illustrated this point with an example. A laborer, all alone can make just 20 pins in a day. But when he divides the work of pin-making into different parts and each part is entrusted to a different laborer then



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2400 pins are made in a day. This is the marvel of division of labor which apart from increasing the skills of labor force, results in (i) Time Saving which is lost in shifting the worker from one job to another (ii) Promotion of New Inventions and (iii) Automation of Production Process. All these increase the productivity of labour and reduces costs.

2. Technical economies:

a) Economies of superior technique

If firm is big it can use high technology (automated machinery) and it can produce high quality goods and cost can be also reduced. Normally small firm cannot use high technology.

b) Economies of increased dimensions:

This is purely mechanical advantage

- A big ship is more economical than small ship for transportation
- Double Decker is more economical than single Decker for traveling.
- A big or small lorry needs single driver, it better to choose big lorry transportation to reduce cost rather than choosing two small Lorries With two drivers.

c) Economies of linked process: Arranging production process in a correct sequence/order can lead to make Production continuous. Complete production process should be at one place only.

d) Economies of Power: Uses of Large Machines are more economical than using small machines. Eg: 10 small machines produce 10,000 units. Whereas one big machinery produces 10,000 units. Here choosing one big machinery is economical than choosing 10 small machines, because power consumed by 10 small machines is more than one big machinery.

e) Economies of continuation: Production process should be continuous so that the usage of Raw material and other input can be utilized in properly and in efficient manner. Wastage can be reduced.

3. Managerial Economies:

As a firm grows, there is greater potential for managers to specialize in particular tasks (e.g. marketing, human resource management, finance). Specialist managers are likely to be more efficient as they possess a high level of expertise, experience and qualifications compared to one person in a smaller firm trying to perform all of these roles.

4. Marketing Economies:

If a firm purchase high volume of raw material from the suppliers it cost less, than purchasing small volumes. Employing purchasing expert in the firm to purchase required raw material for the production prevents wastage of excess raw material and it also reduces cost.

5. Financial Economies:



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Many small businesses find it hard to obtain finance and when they do obtain it, the cost of the finance is often quite high. This is because small businesses are perceived as being riskier than larger businesses that have developed a good track record. Larger firms therefore find it easier to find potential lenders and to raise money at lower interest rates.

Big firm has good advantage in financial matters like

1. Money borrowing (Recognized firms can get money easily from money lenders)
2. Low rate of interest
3. Can easily raise capital (by issuing shares)

6. Risk minimizing Economies: Producing different types of products by one company has good scope in market rather than producing single variety. Eg: HLL Company produces different types of soaps.

EXTERNAL ECONOMIES: In the words of **Cairn cross**, "*External economies are those which are shared in by a number of firms or industries when the scale of production in any industry or group of industries increases. They are not monopolised by a single firm when it grows in size, but are conferred on it when some other firms grow larger.*" External economies of scale occur when a firm benefits from lower unit costs as a result of the whole industry growing in size. The main types are:

These Economies related to external factors

1. Economies of localization: All firms should be localized to have economies. Different production department should be located at one place. This gives advantage in transportation and in timely labor utilization in production.

2. Economies of information and technical market intelligence: Industry enjoys research advantage, when Management can get whatever the information they want with in short time when firms allocated at one place.

3. Economies of vertical integration: Some industries rather than producing spare parts by themselves, they are purchasing from outside companies. This happens when company feels that buying of parts is cheaper than they produce by themselves.

(Make or Buy decision)

- E.g.: TATA Company purchased gear box for cars from kinetic Company
- E.g.: Mahindra cars purchasing engine from Renault Company.

4. Economies of Bi products: The firm using one raw material for manufacturing different other products can give more returns (profits) to the firm.

Eg: Amul India , Company producing different food products from milk.

ISOQUANTS:

Production function using 2 variable inputs is explained with the help of



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the *Isoquants*. Details about isoquants are explained below

In economics, an isoquant (derived from quantity and the Greek word iso [equal] and Latin word *quantus* meaning '*quantity*'). The isoquant therefore called as the "*Equal Product Curve*" or can be named as the "*indifference curve*"

As isoquant curve can be defined as the locus of points representing various combinations of two inputs capital and labor yielding the same output. In economics, an isoquant is a contour line drawn through the set of points at which the same quantity of output is produced while changing the quantities of two or more inputs.

Sno.	Definition	Scientist
1	"An isoquant is a curve showing all possible combinations of inputs physically capable of producing a given level of output"	Ferguson
2	"An isoquant curve may be defined as a curve showing the possible combinations of two variable factors that can be used to produce the same total product"	Peterson

The term Isoquant or Iso-product is composed of 'iso' implying equal and 'quant' implying quantity or product or output. Thus it means equal quantity or equal output. Different factors are needed to produce goods. These factors may be substituted for one another. For example 100 watches may be produced with 90 units of capital and 10 units of labour. The same number of watches (100 units) may also be produced with such combinations as 60 units of capital and 20 units of labour or with 40 units of capital and 30 units of labour. If different combinations of two factors yielding equal amount of total output are diagrammatically presented in the form of a curve, then such a curve is called on Isoquant or Iso-product curve. Thus, isoquant curve is that curve which shows the different possible combinations of two factor inputs yielding the same amount of output. Isoquant curves are also known as Equal product or Iso-product or Production Indifference Curves. Isoquant curve is called production indifference curve since it is an extension of indifference curve analysis from the theory of consumption to the theory of production. An isoquant shows that if the firm have ability to substitute between the two different inputs (labour and machines) in order to produce the same level of output

If the distance between isoquants increases (curve shifting upward) output increases. Example q 1000 to q 1500 shift in the curve shows increase in the quantity produced where q = quantity produced.

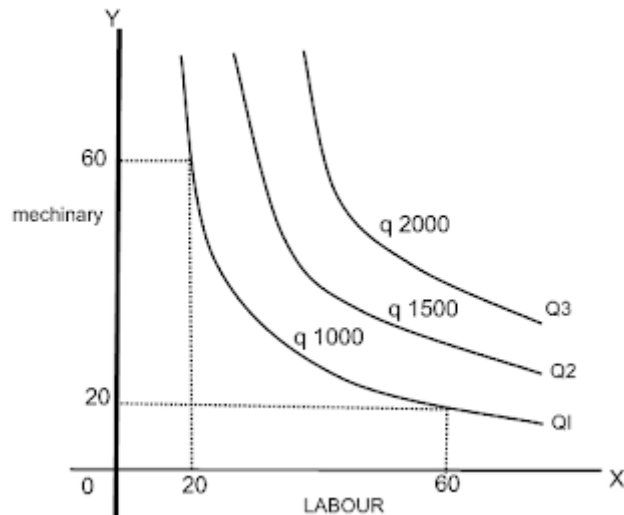


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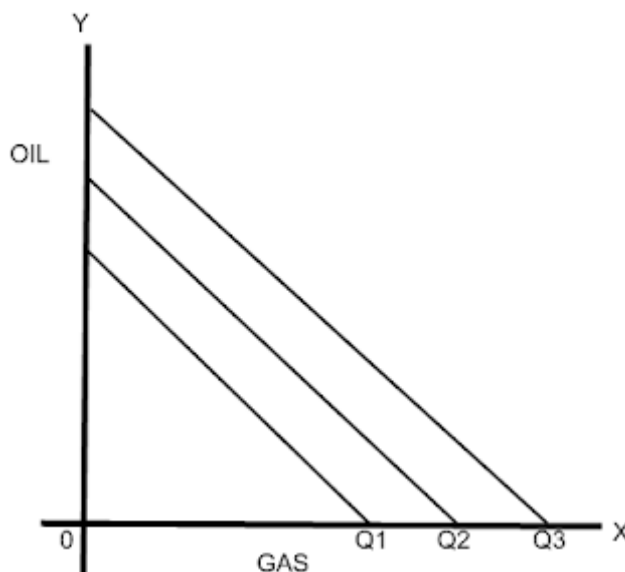
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By the isoquant curve we came to know that if we want to produce certain quantity of good ($q=1000$) ie 1000 goods, we can employee more labour and we can use less machinery. In the same way for the same output that is ($q=1000$) we can use more number of machinery and we can employee less number of labour in the firm for production of same quantity. Here according to the budget and the financial position of the firm the producer can switch between the alternative production systems.

Eg: for producing 1000 goods we can use 60 machines and 20 labours. OR we can use 20 machines and 60 labours for same production.



Linear isoquants

This liner isoquant is drawn if there is a perfect substitutability in the inputs of production. For example, Power plant equipped to burn either oil or gas, various



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amounts of electric power can be produced by burning gas only or oil only. Gas and oil are perfect substitutes here. Hence isoquants are straight lines.

UNIT-IV

MARKET STRUCTURE

Market is a place where buyer and seller meet, goods and services are offered for the sale and transfer of ownership occurs. A market may be also defined as the demand made by a certain group of potential buyers for a good or service. The former one is a narrow concept and later one, a broader concept. Economists describe a market as a collection of buyers and sellers who transact over a particular product or product class (the housing market, the clothing market, the grain market etc.). For business purpose we define a market as people or organizations with wants (needs) to satisfy, money to spend, and the willingness to spend it. Broadly, market represents the structure and nature of buyers and sellers for a commodity/service and the process by which the price of the commodity or service is established. In this sense, we are referring to the structure of competition and the process of price determination for a commodity or service. The determination of price for a commodity or service depends upon the structure of the market for that commodity or service (i.e., competitive structure of the market). Hence the understanding on the market structure and the nature of competition are a pre-requisite in price determination. Prof. Jevons defines market a place where commodities are sold. But the word is used to mean anybody of persons who are in intimate business relations and carry-on extensive transactions in any commodity. Thus the term market in Economics is used to mean not to any particular market place where goods are bought and sold, but the whole region where buyers and sellers are in free intercourse with one another and the price of the same goods tends to be in equilibrium easily and quickly. Market, therefore, is classified into local, regional, national and international, depending upon the nature of the commodity bought and sold.

Different Market Structures

Market structure describes the competitive environment in the market for any good or service. A market consists of all firms and individuals who are willing and able to buy or sell a particular product. This includes firms and individuals currently engaged in buying and selling a particular product, as well as potential entrants. The determination of price is affected by the competitive structure of the market. This is because the firm operates in a market and not in isolation. In making decisions concerning economic variables it is affected, as are all institutions in society by its environment.

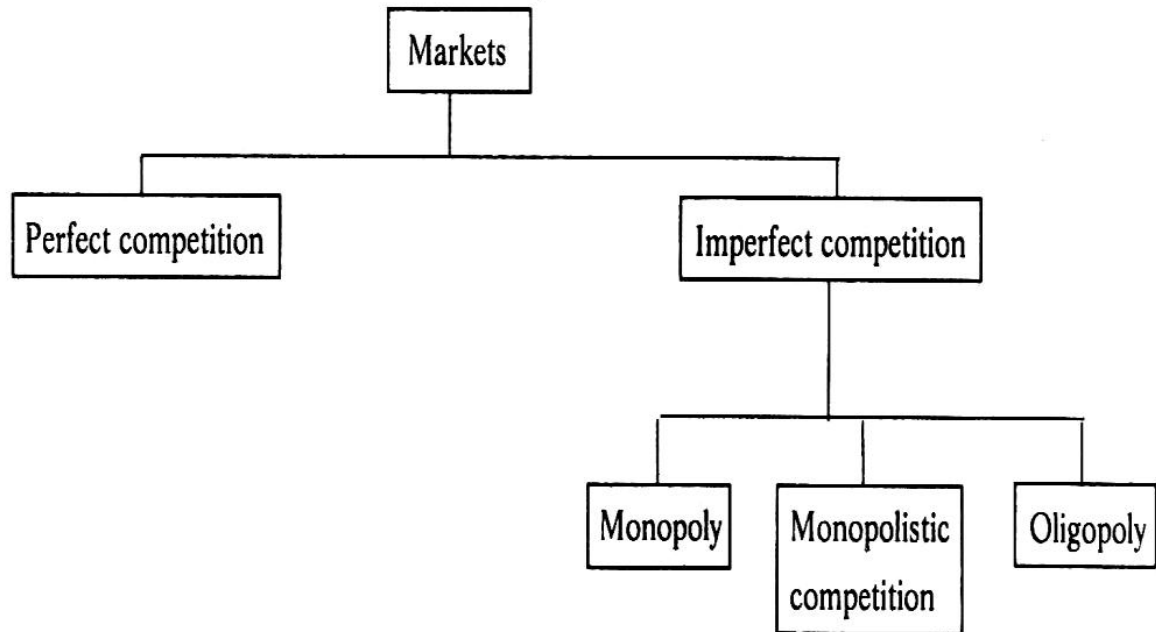


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PERFECT COMPETITION

Perfect competition refers to a market structure where competition among the sellers and buyers prevails in its most perfect form. In a perfectly competitive market, a single market price prevails for the commodity, which is determined by the forces of total demand and total supply in the market.

Characteristics of Perfect Competition

The following features characterize a perfectly competitive market:

- 1. A large number of buyers and sellers:** The number of buyers and sellers is large and the share of each one of them in the market is so small that none has any influence on the market price.
- 2. Homogeneous product:** The product of each seller is totally undifferentiated from those of the others.
- 3. Free entry and exit:** Any buyer and seller is free to enter or leave the market of the commodity.
- 4. Perfect knowledge:** All buyers and sellers have perfect knowledge about the market for the commodity.
- 5. Indifference:** No buyer has a preference to buy from a particular seller and no seller to sell to a particular buyer.
- 6. Non-existence of transport costs:** Perfectly competitive market also assumes the non-existence of transport costs.
- 7. Perfect mobility of factors of production:** Factors of production must be in a position to move freely into or out of industry and from one firm to the other.

Under such a market no single buyer or seller plays a significant role in price determination. On the other hand all of them jointly determine the price. The price is determined in the industry, which is composed of all the buyers and seller for the commodity. The demand curve facing the industry is the sum of all consumers' demands at various prices. The industry supply curve is the sum of all sellers' supplies at various prices.

Perfect Competition



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Perfect competition is defined as a market form where all sellers are selling homogeneous Product at a uniform price. Perfect competition is said to prevail when the following conditions are found in any market:

1. There is large number of firms producing and selling the product.
2. The product sold by all firms is homogeneous.
3. The buyers and sellers have complete information regarding the price of the product.
4. The firms enjoy perfect freedom whether to produce the product or not. Or there is free entry or exit of firms into industry.
5. Factors of production are perfectly mobile.

Characteristics of Perfect Competition

Perfect competition is said to prevail when the above conditions exist in any market. The characteristics of perfect competition are as follows:

1. Large Number of Firms

In perfect competition there is large number of firms in the industry producing the identical product. The position of a single firm is insignificant. When there is large number of firms producing and selling the product, a single firm cannot influence over the price of the product in any way. It has to simply follow what other firms are charging the price for the product. The output of a single firm constitutes a negligible part of the total industrial output.

2. Homogeneous Product

The firms under perfect competition produce homogeneous products. The products produced by them are exactly identical. The products produced by firms are perfect substitutes. Since the Product is homogeneous, the firms cannot sell it at differentiated prices.

3. Perfect Knowledge

Under perfect competition all buyers and sellers are fully aware of the ruling price in the market. Since the buyers are fully aware of the price, no one seller can sell at a higher price. If the seller tries to sell the product at a higher price than that of the ruling price, then the buyers will shift to other sellers.

4. Free Entry and Free Exit

The free entry & free exit of firms is an important feature of perfect competition. What it means, is that there should not be any restrictions, legal or governmental, for firms either to start production or to close down production. If all firms are making normal profit, there will not be any inducement for new firms to come into production. If some firms are making supernormal profits, this will act as an inducement for new firms to enter into this field of production. If firms fail to earn normal profit even in the long run, they stop production.

5. Firm and Industry

The term “Industry” refers to group of firms engaged in the production of a specific commodity. An industry comprises of firms producing homogeneous good. They are perfect substitutes. When firms producing similar commodity are grouped together, it becomes an industry. In other words all firms producing identical commodity are together called and industry.

6. Price and Output Determination

All firms in an industry have an important objective of maximizing profit. Maximizing profit is regarded as a rational behaviour of an entrepreneur. It is an important matter to understand what constitutes maximum profit. The entrepreneurial income is classified into two parts. Firstly he gets wages for his managerial function. This is included in the average cost constituent of the firm. There is another item called the surplus. The surplus is the difference between total revenue and the total cost. This is his residual income. This residual income is the profits of entrepreneurship.

Price and Output Determination in Perfect Competition



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Under perfect competition, the individual firms are unable to influence the price. They have to simply take the price as given and take up production. The price of a product in perfect competition is determined on the basis of market demand and market supply. Demand curve for a product is derived on the basis of both Marshallian utility analysis and the new indifference curve technique. Demand curve slopes left to right downwards indicating the inverse relationship between the price and the quantity of the product. The supply for the product is determined by price and the availability of factor inputs. Assuming the inputs for productions of commodities are favourable and the supply of the product depends upon the price. The supply curve slopes left to right upward indicating direct relationship between the price and quantity supplied. Thus, it has now been established that the market equilibrium price is determined by the forces of demand and supply. It is not the demand of a single buyer and the supply of a single seller that go to determine the price of the product, but the demand of all buyers of a product taken together (i.e. industry's demand curve) and the supply of all firms selling the product taken together (i.e. supply curve of the industry) determine the price of the product. The industry's supply curve shows the various quantities of a good which will be supplied at different prices. Thus the price is determined at the intersection of industry's demand curve and industry's supply curve. At that price the quantity demanded is equal to quantity supplied and this price is then called the equilibrium price. The following table shows the process of price determination under perfect competition.

MONOPOLY

The word monopoly is made up of two syllables, Mono and poly. Mono means single while poly implies selling. Thus monopoly is a form of market organization in which there is only one seller of the commodity. There are no close substitutes for the commodity sold by the seller. Pure monopoly is a market situation in which a single firm sells a product for which there is no good substitute.

Features of monopoly

The following are the features of monopoly.

- 1. Single person or a firm:** A single person or a firm controls the total supply of the commodity. There will be no competition for monopoly firm. The monopolist firm is the only firm in the whole industry.
- 2. No close substitute:** The goods sold by the monopolist shall not have closely competition substitutes. Even if price of monopoly product increase people will not go in for substitute. For example: If the price of electric bulb increase slightly, consumer will not go in for kerosene lamp.
- 3. Large number of Buyers:** Under monopoly, there may be a large number of buyers in the market who compete among themselves.
- 4. Price Maker:** Since the monopolist controls the whole supply of a commodity, he is a price-maker, and then he can alter the price.
- 5. Supply and Price:** The monopolist can fix either the supply or the price. He cannot fix both. If he charges a very high price, he can sell a small amount. If he wants to sell more, he has to charge a low price. He cannot sell as much as he wishes for any price he pleases.
- 6. Downward Sloping Demand Curve:** The demand curve (average revenue curve) of monopolist slopes downward from left to right. It means that he can sell more only by lowering price.

Types of Monopoly

Monopoly may be classified into various types. The different types of monopolies are explained below:

- 1. Legal Monopoly:** If monopoly arises on account of legal support or as a matter of legal privilege, it is called Legal Monopoly. Ex. Patent rights, special brands, trade means, copyright etc.
- 2. Voluntary Monopoly:** To get the advantages of monopoly some private firms come together voluntarily to control the supply of a commodity. These are called voluntary monopolies. Generally, these



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monopolies arise with industrial combinations. These voluntary monopolies are of three kinds (a) cartel (b) trust (c) holding company. It may be called artificial monopoly.

3. Government Monopoly: Sometimes the government will take the responsibility of supplying a commodity and avoid private interference. Ex. Water, electricity. These monopolies, created to satisfy social wants, are formed on social considerations. These are also called Social Monopolies.

4. Private Monopoly: If the total supply of a good is produced by a single private person or firm, it is called private monopoly. Hindustan Lever Ltd. Is having the monopoly power to produce Lux Soap.

5. Limited Monopoly: if the monopolist is having limited power in fixing the price of his product, it is called as „Limited Monopoly“. It may be due to the fear of distant substitutes or government intervention or the entry of rivals firms.

6. Unlimited Monopoly: If the monopolist is having unlimited power in fixing the price of his good or service, it is called unlimited monopoly. Ex. A doctor in a village.

7. Single Price Monopoly: When the monopolist charges same price for all units of his product, it is called single price monopoly. Ex. Tata Company charges the same price to all the Tata Indica Cars of the same model.

8. Discriminating Monopoly: When a Monopolist charges different prices to different consumers for the same product, it is called discriminating monopoly. A doctor may take Rs.20 from a rich man and only Rs.2 from a poor man for the same treatment.

9. Natural Monopoly: Sometimes monopoly may arise due to scarcity of natural resources. Nature provides raw materials only in some places. The owner of the place will become monopolist. For Ex. Diamond mine in South Africa.

MONOPOLISTIC COMPETITION

Perfect competition and pure monopoly are rare phenomena in the real world. Instead, almost every market seems to exhibit characteristics of both perfect competition and monopoly. Hence in the real world it is the state of imperfect competition lying between these two extreme limits that work. Edward. H. Chamberlain developed the theory of monopolistic competition, which presents a more realistic picture of the actual market structure and the nature of competition.

Characteristics of Monopolistic Competition

The important characteristics of monopolistic competition are:

1.Existence of Many firms: Industry consists of a large number of sellers, each one of whom does not feel dependent upon others. Every firm acts independently without bothering about the reactions of its rivals. The size is so large that an individual firm has only a relatively small part in the total market, so that each firm has very limited control over the price of the product. As the number is relatively large it is difficult for these firms to determine its price- output policies without considering the possible reactions of the rival firms. A monopolistically competitive firm follows an independent price policy.

2. Product Differentiation: Product differentiation means that products are different in some ways, but not altogether so. The products are not identical but the same time they will not be entirely different from each other. IT really means that there are various monopolist firms competing with each other. An example of monopolistic competition and product differentiation is the toothpaste produced by various firms. The product of each firm is different from that of its rivals in one or more respects. Different toothpastes like Colgate, Close-up, Forehans, Cibaca, etc., provide an example of monopolistic competition. These products are relatively close substitute for each other but not perfect substitutes.



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Consumers have definite preferences for the particular varieties or brands of products offered for sale by various sellers. Advertisement, packing, trademarks, brand names etc. help differentiation of products even if they are physically identical.

3. Large Number of Buyers: There are large number buyers in the market. But the buyers have their own brand preferences. So the sellers are able to exercise a certain degree of monopoly over them. Each seller has to plan various incentive schemes to retain the customers who patronize his products.

4. Free Entry and Exist of Firms: As in the perfect competition, in the monopolistic competition too, there is freedom of entry and exit. That is, there is no barrier as found under monopoly.

5. Selling costs: Since the products are close substitute much effort is needed to retain the existing consumers and to create new demand. So each firm has to spend a lot on selling cost, which includes cost on advertising and other sale promotion activities.

6. Imperfect Knowledge: Imperfect knowledge about the product leads to monopolistic competition. If the buyers are fully aware of the quality of the product they cannot be influenced much by advertisement or other sales promotion techniques. But in the business world we can see that though the quality of certain products is the same, effective advertisement and sales promotion techniques make certain brands monopolistic. For examples, effective dealer service backed by advertisement-helped popularization of some brands through the quality of almost all the cement available in the market remains the same.

7. The Group: Under perfect competition the term industry refers to all collection of firms producing a homogenous product. But under monopolistic competition the products of various firms are not identical though they are close substitutes. Prof. Chamberlin called the collection of firms producing close substitute products as a group.

Price – Output Determination under Monopolistic Competition

Since under monopolistic competition different firms produce different varieties of products, different prices for them will be determined in the market depending upon the demand and cost conditions. Each firm will set the price and output of its own product. Here also the profit will be maximized when marginal revenue is equal to marginal cost.

OLIGOPOLY

The term oligopoly is derived from two Greek words, oligos meaning a few, and pollen meaning to sell. Oligopoly is the form of imperfect competition where there are a few firms in the market, producing either a homogeneous product or producing products, which are close but not perfect substitute of each other.

Characteristics of Oligopoly

There are some special characteristics found in Oligopoly. They are:

- There are a few sellers in the market supplying either homogeneous products or differentiated products.
- The firms have degree of interdependence in decision making regarding what output to be produce and what price to be determined.
- The firms have a high degree of cross elasticities of demand for their products, so there is always a fear of rivals in the industry.
- There is heavy advertising in Oligopoly. Prof. Baumol says that it is under Oligopoly that advertising comes fully into its own. Under oligopoly, advertisement becomes a life and death matter. Where a firm which fails to keep up with the advertising budget of its competitors, may find its customers drifting away to the products of the rivals.



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- There is group behaviour in Oligopoly. What it means is, that firms behave in a manner of inter-dependence.

Another important feature of oligopoly is the determinateness of the demand curve. Under perfect competition in individual demand curve given and definite. The demand curve is perfectly elastic under perfect competition. The situation under oligopoly is quite different, because of interdependence of the firms in it. Under oligopoly, firms cannot assume that its rivals will keep their price unchanged, when it makes changes in its own price. As a result of this, the demand curve facing the oligopoly firms loses its definiteness and determinateness.

Characteristics of Oligopoly

The main features of oligopoly are:

1. Few Firms: There are only a few firms in the industry. Each firm contributes a sizeable share of the total market. Any decision taken by one firm influence the actions of other firms in the industry. The various firms in the industry compete with each other.

2. Interdependence: As there are only very few firms, any steps taken by one firm to increase sales, by reducing price or by changing product design or by increasing advertisement expenditure will naturally affect the sales of other firms in the industry. An immediate retaliatory action can be anticipated from the other firms in the industry every time when one firm takes such a decision. He has to take this into account when he takes decisions. So the decisions of all the firms in the industry are interdependent.

3. Indeterminate Demand Curve: The interdependence of the firms makes their demand curve indeterminate. When one firm reduces price other firms also will make a cut in their prices. So he firm cannot be certain about the demand for its product. Thus the demand curve facing an oligopolistic firm loses its definiteness and thus is indeterminate as it constantly changes due to the reactions of the rival firms.

4. Advertising and selling costs: Advertising plays a greater role in the oligopoly market when compared to other market systems. According to Prof. William J. Banumol “it is only oligopoly that advertising comes fully into its own”. A huge expenditure on advertising and sales promotion techniques is needed both to retain the present market share and to increase it. So Banumol concludes “under oligopoly, advertising can become a life-and-death matter where a firm which fails to keep up with the advertising budget of its competitors may find its customers drifting off to rival products.”

5. Price Rigidity: In the oligopoly market price remain rigid. If one firm reduced price it is with the intention of attracting the customers of other firms in the industry. In order to retain their consumer's they will also reduce price. Thus the pricing decision of one firm results in a loss to all the firms in the industry. If one firm increases price. Other firms will remain silent there by allowing that firm to lost its customers. Hence, no firm will be ready to change the prevailing price. It causes price rigidity in the oligopoly market.

OTHER MARKET STRUCTURES

Duopoly

Duopoly refers to a market situation in which there are only two sellers. As there are only two sellers any decision taken by one seller will have reaction from the other E.g. Coca-Cola and Pepsi. Usually these two sellers may agree to co-operate each other and share the market equally between them, So that they can avoid harmful competition.

The duopoly price, in the long run, may be a monopoly price or competitive price, or it may settle at any level between the monopoly price and competitive price. In the short period, duopoly price may even fall below the level competitive price with the both the firms earning less than even the normal price.

Monopsony



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Mrs. Joan Robinson was the first writer to use the term Monopsony to refer to market, which there is a single buyer. Monopsony is a single buyer or a purchasing agency, which buys the 45



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show, or nearly whole of a commodity or service produced. It may be created when all consumers of a commodity are organized together and/or when only one consumer requires that commodity which no one else requires.

Bilateral Monopoly

A bilateral monopoly is a market situation in which a single seller (Monopoly) faces a single buyer (Monopsony). It is a market of monopoly-monoposy.

Oligopsony

Oligopsony is a market situation in which there will be a few buyers and many sellers. As the sellers are more and buyers are few, the price of product will be comparatively low but not as low as under monopoly.

PRICING THEORY

The micro – economic principle of profit maximization suggests pricing by the marginal analysis. That is by equating MR to MC. However the pricing methods followed by the firms in practice around the world rarely follow this procedure. This is for two reasons; uncertainty with regard to demand and cost function and the deviation from the objective of short run profit maximization.

It was seen that there is no unique theory of firm behavior. While profit certainly on important variable for which every firm cares. Maximization of short – run profit is not a popular objective of a firm today. At the most firms seek maximum profit in the long run. If so the problem is dynamic and its solution requires accurate knowledge of demand and cost conditions over time. Which is impossible to come by?

In view of these problems economic prices are a rare phenomenon. Instead, firms set prices for their products through several alternative means. The important pricing methods followed in practice are shown in the chart.

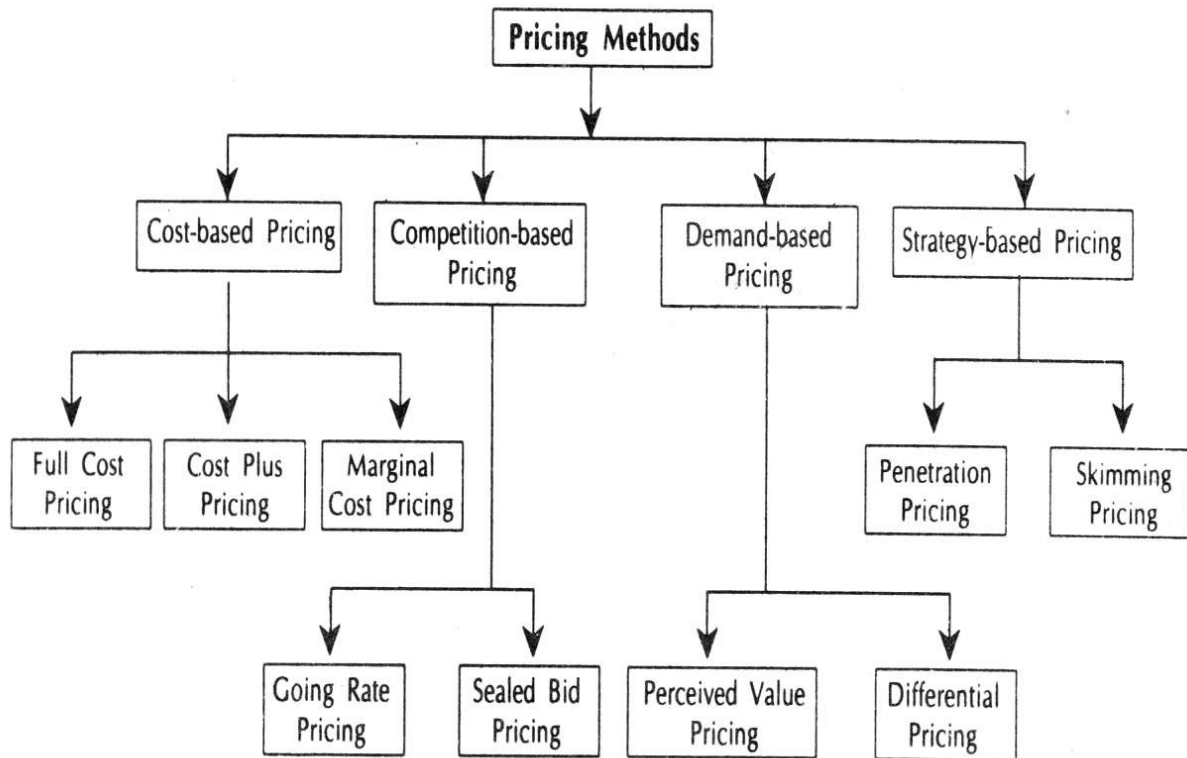


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Pricing Methods

There are four important methods of pricing:

1. Cost plus or full cost pricing
2. Going rate policy
3. Pricing for a rate of return
4. Administered prices

1. Cost plus Pricing

Cost plus pricing is a most commonly adopted method. Under this method cost of a product is estimated and a margin of some kind of profit is added on the basis of which the pricing is determined. Empirical evidences have shown that a majority of the business firms usually set prices for their products on the basis of cost plus a fair profit percentage. Briefly, thus:

Cost plus pricing = Cost + Fair Profit.

Cost: In cost plus pricing in practice, cost refers to full allocated cost. According to Joel Dean, there are, however, three difference concepts of the cost component used in the formula of cost pricing:

- Actual cost;
- Expected cost; and
- Standard cost.

Actual cost refers to historical cost for the latest available period. It covers wage bills, raw materials costs, and overhead charges at the then current output rate. Expected cost means a forecast for the pricing period on the basis of expected prices, output rates and productivity.

Standard Cost refers to a normal cost determination at some normal rate of output at a given level of capacity utilization and productivity at a normal level. In practice, usually, the cost base is determined from engineering estimates plus cost experience, historical data and projections.

Fair Profit: By fair profit is usually meant a fixed percentage of profit mark-up. It



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is arbitrarily determined. Typically, it is determined at 10 per cent in many cases. However, fair profit mark-up differs from industry and among different firms in the same line of production. These variations are due to many factors, such as:

- Differences in turnover rate,
- Differences in risks,
- Differences in competitive intensity; and
- Differences in traditions or customary fixation of profit margin in different businesses

Apparently, the “fair profit” in cost plus principal in practical business is fundamentally different from the concept of „normal profit“ in economic analysis. In practical however, cost-plus pricing method is regarded as are, more suitable when the producers are uncertain about the market demand for their products and would prefer stability when rivals“ price strategies is unknown.

Shortcomings of the Cost plus Pricing Methods

The following are the major drawbacks of the Cost plus Pricing:

- It completely ignores consumers preference and demand.
- It has thus one sided approach. It takes only costs and firm’s profit margin into account
- It does not take account of the effect of competition.
- It ignores rival’s reaction in prescribing a price for the firm’s product.
- It over stresses the precision of allocated costs. In practice, however, cost allocation lacks precision.
- Its concept of full cost may not be relevant for the pricing decision.
- It ignores the significance of incremental costs in pricing decision.
- It thus solely considers conventional accounting system, and ignores economic tools altogether.

2. Rate of Return Pricing

Another method is that the firms determine the average profit mark-up on costs necessary to produce a desired rate of return on its investment. Under the rate of return pricing policy, price is determined along a planned rate of return on investment.

3. Going Rate Pricing

The going rate pricing is opposite of full cost, or cost-plus pricing. The going rate pricing is not just the phenomenon of perfect competition. It is usually happening in oligopoly and monopolistic competition. The going rate pricing policy means that though the firm has the power to fix up its own price for the product, it will not do so, but instead it tries to adjust its own price policy in time with the general pricing structure prevailing in the industry or market.

The going rate pricing is adopted when - Costs are difficult to measure; and the firm wants to avoid tension of price rivalry in the market; or when there is price leadership of a dominant firm in the market.

4. Administered Price

The term administered prices was introduced by Keynes for the prices charged by a monopolist and therefore, determined by considerations other than marginal cost. A monopolist being a price-maker consciously administers the price of his product. He plays a personal part by restricting the output to establish higher price for the product. Unlike competitive prices, thus, administered prices are not determined by the impersonal play of market forces.

Objectives of Pricing

Pricing is not an end in itself. Pricing is a means to an end. Therefore, the firm must explicitly lay down its pricing objectives. The firm’s overall objectives serve as guiding principle to pricing. Thus, firm’s business objectives are normally spelled out as the objectives of its price policy. Empirical evidences reflect that theoretical goal of profit maximization is rarely taken in practice by the business firms in their price policy. The following are the commonly adopted major pricing objectives of a business firm.

Survival: Basically, in these days of monopolistic competition or dynamic changes and business uncertainties, a firm is always interested in its continued survival first. For the sake of assuring continued



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existence, generally, a firm is ready to tolerate all kinds of upheaval in product lines, organizational and even personnel changes.

Rate of Growth and Sales Maximizations. A firm may be interested in setting a price policy which will permit a rapid expansion of the firm's business and its sales maximization.

Market Shares. By adopting a price policy the firm may wish to capture a larger share in the market and acquire a dominating leadership position. In oligopoly market, this is quite common.

Target Return on Investment. The firms may have a predetermined target return of their investment, say 10 per cent, for instance.

Preventing Competition. In pricing its product, the firm may keep an eye on rival's entry. So, it may fix up the price such that would prevent competition.

Making Money. Some firms are interested in making fast buck taking their monopoly advantage into account and try to sell their goods at premium. Thus, pricing objective may be of making money.

Service Motive. A firm may set pricing policy such as to serve the community and improve its welfare.

Regular Income. Some firms are interested in maintaining regular flow of income, so would set their price policy accordingly.

Price Stabilisation. The firms may be generally interested in keeping their prices stable within certain range over a period of time, irrespective of marginal changes in demand and costs.

However, the survival of the firm is always the underlying objective in pricing. In practice, thus, the following interrelated pricing objectives are commonly held:

- To fulfill a goal rate of return on investment;
- To seek the anticipated rate of growth;
- To improve the market share;
- To stabilise prices and profit margins for the regular flow of income.

Factors Involved In Pricing Policy

The executive's problem of private pricing policy involves many considerations and right advice from the professional business economist. The following are the important factors deserving special attention in determination of a pricing policy of any firm.

- Costs
- Demand and Consumer psychology;
- Competition;
- Profit; and
- Government policy.

Costs

Costs are an important element in price determination. Cost data serve as the base. Price has to be along cost. If price is below the cost of production, it would mean losses. Thus, cost analysis is important. Along the total costs, average and marginal costs are to be determined. For business decisions in the short run, direct or variable costs have greater relevance. The firms seek to cover full allocated costs. Economy in cost is also important for setting a lower price for the product. A high cost of production obviously calls for a higher price.

Demand

In pricing policy, demand can never be overlooked. Rather, demand is more important for the effective sales. Demand for a firm's product depends on consumer's preferences. So, the consumer psychology is very important. Through appropriate advertising and sales campaign consumer's psychology can be influenced and their preferences may be altered, thus, demand can be manipulated. A low or high price policy is to be set in view of the elasticity of demand. If

demand for the product is highly inelastic, then only rising price policy would be a paying proposition to the businessman. If consumers anticipate a further price cut, then the price cut policy will result in increasing the sale only marginally in the short run. But, if they feel that the price cut is final, it



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will definitely improve the sale to a greater extent.

Competition

The nature of pricing policy largely depends on the degree of competition prevailing in the market. Under perfect competition, there is a uniquely determined ruling price in the market; also the firm has no scope to design its own price policy. Under monopoly, oligopoly or monopolistic competition, the firm can determine its own price policy.

Profits

In determining price policy, profit consideration is also significant. In practice, however, rarely there is a goal of profit maximization. Usually, pricing policy is based on the goal of obtaining a reasonable profit.

Government Policy

Pricing policy of a firm is also affected by the government policy. If the government resorts to price control, the firm has to adopt the price as per the formula and ceiling prescribed by the Government, then there is little scope to pursue its own pricing. For instance, in India we have drug price control, etc.

Government Intervention and Pricing

Government in most countries today plays an important role in product pricing. In this section, government interventions in pricing are discussed with special reference to India. At the outset, we shall elaborate the type of price controls prevalent in India, and then go on their rationale, consequences and formulations.

UNIT-V

ACCOUNTING

INTRODUCTION

Every trader generally starts business for purpose of earning profit. While establishing business, he brings own capital, borrows money from relatives, friends, outsiders or financial institutions. Then he purchases machinery, plant, furniture, raw materials and other assets. He starts buying and selling of goods, paying for salaries, rent and other expenses, depositing and withdrawing cash from bank. Like this he undertakes innumerable transactions in business. Observe the following transactions of small trader for one week during the month of July, 1998.

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According to G.A. Lee the accounting system has two stages.

1. The making of routine records in the prescribed form and according to set rules of all events which affect the financial state of the organization; and



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2. The summarization from time to time of the information contained in the records, its presentation in a significant form to interested parties and its interpretation as an aid to decision making by these parties.

First stage is called Book-Keeping and the second one is accounting.

Book – Keeping: Book – Keeping involves the chronological recording of financial transactions in a set of books in a systematic manner.

Accounting: Accounting is concerned with the maintenance of accounts giving stress to the design of the system of records, the preparation of reports based on the recorded date and the interpretation of the reports.

Distinction between Book – Keeping and Accountancy

Thus, the terms, book-keeping and accounting are very closely related, through there is a subtle difference as mentioned below.

1. Object: The object of book-keeping is to prepare original books of Accounts. It is restricted to journal, subsidiary book and ledge accounts only. On the other hand, the main object of accounting is to record analyze and interpret the business transactions. 79

2. Level of Work: Book-keeping is restricted to level of work. Clerical work is mainly involved in it. Accountancy on the other hand, is concerned with all level of management.

3. Principles of Accountancy: In Book-keeping Accounting concepts and conventions will be followed by all without any difference. On the other hand, various firms follow various methods of reporting and interpretation in accounting.

Final Result: In Book-Keeping it is not possible to know the final result of business every year,

Meaning of Accounting

Thus, book-keeping is an art of recording the business transactions in the books of original entry and the ledges. Accountancy begins where Book-keeping ends. Accountancy means the compilation of accounts in such a way that one is in a position to know the state of affairs of the business. The work of an accountant is to analyze, interpret and review the accounts and draw conclusion with a view to guide the management in chalking out the future policy of the business.



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Definition of Accounting:

Smith and Ashburne: “Accounting is a means of measuring and reporting the results of economic activities.”

R.N. Anthony: “Accounting system is a means of collecting summarizing, analyzing and reporting in monetary terms, the information about the business.

American Institute of Certified Public Accountants (AICPA): “The art of recording, classifying and summarizing in a significant manner and in terms of money transactions and events, which are in part at least, of a financial character and interpreting the results thereof.”

Thus, accounting is an art of identifying, recording, summarizing and interpreting business transactions of financial nature. Hence accounting is the Language of Business.

Branches of Accounting:

The important branches of accounting are:

Financial Accounting: The purpose of Accounting is to ascertain the financial results i.e. profit or loss in the operations during a specific period. It is also aimed at knowing the financial position, i.e. assets, liabilities and equity position at the end of the period. It also provides other relevant information to the management as a basic for decision-making for planning and controlling the operations of the business.

Cost Accounting: The purpose of this branch of accounting is to ascertain the cost of a product / operation / project and the costs incurred for carrying out various activities. It also assist the management in controlling the costs. The necessary data and information are gathered from financial and other sources.

Management Accounting: Its aim to assist the management in taking correct policy decision and to evaluate the impact of its decisions and actions. The data required for this purpose are drawn from accounting and cost-accounting.

Inflation Accounting: It is concerned with the adjustment in the values of assets and of profit in light of changes in the price level. In a way it is concerned with the overcoming of limitations that arise in financial statements on account of the cost assumption (i.e. recording of the assets at their historical or original cost) and the assumption of stable monetary unit. 80



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Human Resource Accounting: It is a branch of accounting which seeks to report and emphasize the importance of human resources in a company's earning process and total assets. It is concerned with the process of identifying and measuring data about human resources and communicating this information to interested parties. In simple words, it is accounting for people as organizational resources.

FUNCTIONS OF AN ACCOUNTANT

The job of an accountant involves the following types of accounting works:

- 1. Designing Work:** It includes the designing of the accounting system, basis for identification and classification of financial transactions and events, forms, methods, procedures, etc.
- 2. Recording Work:** The financial transactions are identified, classified and recorded in appropriate books of accounts according to principles. This is "Book Keeping". The recording of transactions tends to be mechanical and repetitive.
- 3. Summarizing Work:** The recorded transactions are summarized into significant form according to generally accepted accounting principles. The work includes the preparation of profit and loss account, balance sheet. This phase is called „preparation of final accounts“
- 4. Analysis and Interpretation Work:** The financial statements are analysed by using ratio analysis, break-even analysis, funds flow and cash flow analysis.
- 5. Reporting Work:** The summarized statements along with analysis and interpretation are communicated to the interested parties or whoever has the right to receive them. For Ex. Share holders. In addition, the accounting departments have to prepare and send regular reports so as to assist the management in decision making. This is „Reporting“.
- 6. Preparation of Budget:** The management must be able to reasonably estimate the future requirements and opportunities. As an aid to this process, the accountant has to prepare budgets, like cash budget, capital budget, purchase budget, sales budget etc. this is „Budgeting“.
- 7. Taxation Work:** The accountant has to prepare various statements and returns pertaining to income-tax, sales-tax, excise or customs duties etc., and file the returns with the authorities concerned.



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8. Auditing: It involves a critical review and verification of the books of accounts statements and reports with a view to verifying their accuracy. This is „Auditing“

This is what the accountant or the accounting department does. A person may be placed in any part of Accounting Department or MIS (Management Information System) Department or in small organization; the same person may have to attend to all this work.

USERS OF ACCOUNTING INFORMATION

Different categories of users need different kinds of information for making decisions. The users of accounting can be divided in two board groups (1). Internal users and (2). External users.

Internal Users: 81

Managers: These are the persons who manage the business, i.e. management at he top, middle and lower levels. Their requirements of information are different because they make different types of decisions.

Accounting reports are important to managers for evaluating the results of their decisions. In additions to external financial statements, managers need detailed internal reports either branch division or department or product-wise. Accounting reports for managers are prepared much more frequently than external reports.

Accounting information also helps the managers in appraising the performance of subordinates. As such Accounting is termed as “ the eyes and ears of management.”

External Users:

1. Investors: Those who are interested in buying the shares of company are naturally interested in the financial statements to know how safe the investment already made is and how safe the proposed investments will be.

2. Creditors: Lenders are interested to know whether their load, principal and interest, will be paid when due. Suppliers and other creditors are also interested to know the ability of the firm to pay their dues in time.



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3. Workers: In our country, workers are entitled to payment of bonus which depends on the size of profit earned. Hence, they would like to be satisfied that the bonus being paid to them is correct. This knowledge also helps them in conducting negotiations for wages.

4. Customers: They are also concerned with the stability and profitability of the enterprise. They may be interested in knowing the financial strength of the company to rent it for further decisions relating to purchase of goods.

5. Government: Governments all over the world are using financial statements for compiling statistics concerning business which, in turn, helps in compiling national accounts. The financial statements are useful for tax authorities for calculating taxes.

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The role of accounting has changed from that of a mere record keeping during the 1st decade of 20th century to the present stage, which it is accepted as an information system and decision making activity. The following are the advantages of accounting.

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ACCOUNTING

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- 3. Provides control over assets:** Book-keeping provides information regarding cash in hand, cash at bank, stock of goods, accounts receivables from various parties and the amounts invested in various other assets. As the trader knows the values of the assets he will have control over them.
- 4. Provides the required information:** Interested parties such as owners, lenders, creditors etc., get necessary information at frequent intervals.
- 5. Comparative study:** One can compare the present performance of the organization with that of its past. This enables the managers to draw useful conclusion and make proper decisions.
- 6. Less Scope for fraud or theft:** It is difficult to conceal fraud or theft etc., because of the balancing of the books of accounts periodically. As the work is divided among many persons, there will be check and counter check.
- 7. Tax matters:** Properly maintained book-keeping records will help in the settlement of all tax matters with the tax authorities.
- 8. Ascertaining Value of Business:** The accounting records will help in ascertaining the correct value of the business. This helps in the event of sale or purchase of a business.
- 9. Documentary evidence:** Accounting records can also be used as an evidence in the court to substantiate the claim of the business. These records are based on documentary proof. Every entry is supported by authentic vouchers. As such, Courts accept these records as evidence.



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10. Helpful to management: Accounting is useful to the management in various ways. It enables the management to assess the achievement of its performance. The weakness of the business can be identified and corrective measures can be applied to remove them with the help of accounting.

LIMITATIONS OF ACCOUNTING

The following are the limitations of accounting.

1. Does not record all events: Only the transactions of a financial character will be recorded under book-keeping. So it does not reveal a complete picture about the quality of human resources, location advantage, business contacts etc.

2. Does not reflect current values: The data available under book-keeping is historical in nature. So they do not reflect current values. For instance, we record the value of stock at cost price or market price, whichever is less. In case of, building, machinery etc., we adopt historical cost as the basis. In fact, the current values of buildings, plant and machinery may be much more than what is recorded in the balance sheet.

3. Estimates based on Personal Judgment: The estimate used for determining the values of various items may not be correct. For example, debtors are estimated in terms of collectability, inventories are based on marketability, and fixed assets are based on useful working life. These estimates are based on personal judgment and hence sometimes may not be correct.

4. Inadequate information on costs and Profits: Book-keeping only provides information about the overall profitability of the business. No information is given about the cost and profitability of different activities of products or divisions.

BASIC ACCOUNTING CONCEPTS

Accounting is a system evolved to achieve a set of objectives. In order to achieve the goals, we need a set of rules or guidelines. These guidelines are termed here as “BASIC ACCOUNTING CONCEPTS”. The term concept means an idea or thought. Basic accounting concepts are the fundamental ideas or basic assumptions underlying the theory and practice of FINANCIAL ACCOUNTING. These concepts help in bringing about uniformity in the practice of accounting. In accountancy following concepts are quite popular.



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1. BUSINESS ENTITY CONCEPT: In this concept “Business is treated as separate from the proprietor”. All the Transactions recorded in the book of Business and not in the books of proprietor. The proprietor is also treated as a creditor for the Business.

2. GOING CONCERN CONCEPT: This concept relates with the long life of Business. The assumption is that business will continue to exist for unlimited period unless it is dissolved due to some reasons or the other.

3. MONEY MEASUREMENT CONCEPT: In this concept “Only those transactions are recorded in accounting which can be expressed in terms of money, those transactions which cannot be expressed in terms of money are not recorded in the books of accounting”.

4. COST CONCEPT: According to this concept, an asset is recorded at its cost in the books of account. i.e., price, which is paid at the time of acquiring it. In balance sheet, these assets appear not at cost price every year, but depreciation is deducted and they appear at the amount, which is cost, less classification.

5. ACCOUNTING PERIOD CONCEPT: every Businessman wants to know the result of his investment and efforts after a certain period. Usually one-year period is regarded as an ideal for this purpose. This period is called Accounting Period. It depends on the nature of the business and object of the proprietor of business.

6. DUAL ASPECT CONCEPT: According to this concept “Every business transactions has two aspects”, one is the receiving benefit aspect another one is giving benefit aspect. The receiving benefit aspect is termed as “DEBIT”, where as giving benefit aspect is termed as “CREDIT”. Therefore, for every debit, there will be corresponding credit.

7. MATCHING COST CONCEPT: According to this concept “The expenses incurred during an accounting period, e.g., if revenue is recognized on all goods sold during a period, cost of those goods sold should also be charged to that period.

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Accounting is based on some customs or usages. Naturally accountants are here to adopt that usage or custom. They are termed as convert conventions in accounting. The following are some of the important accounting conventions.

1. FULL DISCLOSURE: According to this convention accounting reports should disclose fully and fairly the information. They purport to represent. They should be prepared honestly and sufficiently disclose information which is if material interest to proprietors, present and potential creditors and investors. The companies ACT, 1956 makes it compulsory to provide all the information in the prescribed form.

2. MATERIALITY: Under this convention the trader records important factor about the commercial activities. In the form of financial statements if any unimportant information is to be given for the sake of clarity it will be given as footnotes.

3. CONSISTENCY: It means that accounting method adopted should not be changed from year to year. It means that there should be consistent in the methods or principles followed. Or else the results of a year cannot be conveniently compared with that of another.

4. CONSERVATISM: This convention warns the trader not to take unrealized income in to account. That is why the practice of valuing stock at cost or market price, whichever is lower is in vague. This is the policy of “playing safe”; it takes in to consideration all prospective losses but leaves all prospective profits.

KEY WORDS IN BOOK-KEEPING

1. TRANSACTIONS: Any sale or purchase of goods of services is called the transaction.

Transactions are two types.

[a]. cash transaction: cash transaction is one where cash receipt or payment is involved in the exchange.

[b]. Credit transaction: Credit transaction will not have cash, either received or paid, for something given or received respectively.

2. GOODS: Fill those things which a firm purchases for resale are called goods.



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3. PURCHASES: Purchases means purchase of goods, unless it is stated otherwise it also represents the Goods purchased.

4. SALES: Sales means sale of goods, unless it is stated otherwise it also represents these goods sold.

5. EXPENSES: Payments for the purchase of goods as services are known as expenses.

6. REVENUE: Revenue is the amount realized or receivable from the sale of goods or services.

7. ASSETS: The valuable things owned by the business are known as assets. These are the properties owned by the business. 85

8. LIABILITIES: Liabilities are the obligations or debts payable by the enterprise in future in the term of money or goods.

9. DEBTORS: Debtors means a person who owes money to the trader.

10. CREDITORS: A creditor is a person to whom something is owned by the business.

11. DRAWINGS: cash or goods withdrawn by the proprietor from the Business for his personal or Household is termed to as “drawing”.

12. RESERVE: An amount set aside out of profits or other surplus and designed to meet contingencies.

13. ACCOUNT: A summarized statements of transactions relating to a particular person, thing, Expense or income.

14. DISCOUNT: There are two types of discounts..

i. Cash discount: An allowable made to encourage frame payment or before the expiration of the period allowed for credit.

ii. Trade discount: A deduction from the gross or catalogue price allowed to traders who buys them for resale.

CLASSIFICATION OF BUSINESS TRANSACTIONS

All business transactions are classified into three categories:



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1. Those relating to persons
2. Those relating to property(Assets)
3. Those relating to income & expenses

Thus, three classes of accounts are maintained for recording all business transactions. They are:

1. Personal accounts

2. Real accounts

3. Nominal accounts

1. Personal Accounts: Accounts which are transactions with persons are called “Personal Accounts” .

A separate account is kept on the name of each person for recording the benefits received from, or given to the person in the course of dealings with him.

E.g.: Krishna’s A/C, Gopal’s A/C, SBI A/C, Nagarjuna Finance Ltd.A/C, ObulReddy & Sons A/C , HMT Ltd. A/C, Capital A/C, Drawings A/C etc.

2. Real Accounts: The accounts relating to properties or assets are known as “Real Accounts” .Every business needs assets such as machinery, furniture etc, for running its activities .A separate account is maintained for each asset owned by the business.

E.g.: cash A/C, furniture A/C, building A/C, machinery A/C etc. 86

3. Nominal Accounts: *Accounts* relating to expenses, losses, incomes and gains are known as “Nominal Accounts”. A separate account is maintained for each item of expenses, losses, income or gain.

E.g.: Salaries A/C, stationery A/C, wages A/C, postage A/C, commission A/C, interest A/C, purchases A/C, rent A/C, discount A/C, commission received A/C, interest received A/C, rent received A/C, discount received A/C.

Before recording a transaction, it is necessary to find out which of the accounts is to be debited and which is to be credited. The following three different rules have been laid down for the three classes of accounts....



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1. Personal Accounts: The account of the person receiving benefit (receiver) is to be debited and the account of the person giving the benefit (given) is to be credited.

Rule: “Debit---The Receiver

Credit---The Giver”

2. Real Accounts: When an asset is coming into the business, account of that asset is to be debited .When an asset is going out of the business; the account of that asset is to be credited.

Rule: “Debit---What comes in

Credit---What goes out”

3. Nominal Accounts: When an expense is incurred or loss encountered, the account representing the expense or loss is to be debited. When any income is earned or gain made, the account representing the income of gain is to be credited.

Rule: “Debit---All expenses and losses

Credit---All incomes and gains”

JOURNAL

The first step in accounting therefore is the record of all the transactions in the books of original entry viz., Journal and then posting into ledges.

JOURNAL: The word Journal is derived from the Latin word „journ“ which means a day. Therefore, journal means a „day Book“ in day-to-day business transactions are recorded in chronological order.

Journal is treated as the book of original entry or first entry or prime entry. All the business transactions are recorded in this book before they are posted in the ledges. The journal is a complete and chronological (in order of dates) record of business transactions. It is recorded in a

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systematic manner. The process of recording a transaction in the journal is called “JOURNALISING”. The entries made in the book are called “Journal Entries”.



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3. Provides control over assets: Book-keeping provides information regarding cash in hand, cash at bank, stock of goods, accounts receivables from various parties and the amounts invested in various other assets. As the trader knows the values of the assets he will have control over them.

4. Provides the required information: Interested parties such as owners, lenders, creditors etc., get necessary information at frequent intervals.

5. Comparative study: One can compare the present performance of the organization with that of its past. This enables the managers to draw useful conclusion and make proper decisions.

6. Less Scope for fraud or theft: It is difficult to conceal fraud or theft etc., because of the balancing of the books of accounts periodically. As the work is divided among many persons, there will be check and counter check.

7. Tax matters: Properly maintained book-keeping records will help in the settlement of all tax matters with the tax authorities.



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8. Ascertaining Value of Business: The accounting records will help in ascertaining the correct value of the business. This helps in the event of sale or purchase of a business.

9. Documentary evidence: Accounting records can also be used as an evidence in the court to substantiate the claim of the business. These records are based on documentary proof. Every entry is supported by authentic vouchers. As such, Courts accept these records as evidence.

10. Helpful to management: Accounting is useful to the management in various ways. It enables the management to assess the achievement of its performance. The weakness of the business can be identified and corrective measures can be applied to remove them with the helps accounting.

LIMITATIONS OF ACCOUNTING

The following are the limitations of accounting.

1. Does not record all events: Only the transactions of a financial character will be recorded under book-keeping. So it does not reveal a complete picture about the quality of human resources, location advantage, business contacts etc.

2. Does not reflect current values: The data available under book-keeping is historical in nature. So they do not reflect current values. For instance, we record the value of stock at cost price or market price, whichever is less. In case of, building, machinery etc., we adopt historical cost as the basis. In fact, the current values of buildings, plant and machinery may be much more than what is recorded in the balance sheet.

3. Estimates based on Personal Judgment: The estimate used for determining the values of various items may not be correct. For example, debtors are estimated in terms of collectability, inventories are based on marketability, and fixed assets are based on useful working life. These estimates are based on personal judgment and hence sometimes may not be correct.

4. Inadequate information on costs and Profits: Book-keeping only provides information about the overall profitability of the business. No information is given about the cost and profitability of different activities of products or divisions.



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BASIC ACCOUNTING CONCEPTS

Accounting is a system evolved to achieve a set of objectives. In order to achieve the goals, we need a set of rules or guidelines. These guidelines are termed here as “BASIC ACCOUNTING CONCEPTS”. The term concept means an idea or thought. Basic accounting concepts are the fundamental ideas or basic assumptions underlying the theory and practice of FINANCIAL ACCOUNTING. These concepts help in bringing about uniformity in the practice of accounting. In accountancy following concepts are quite popular.

- 1. BUSINESS ENTITY CONCEPT:** In this concept “Business is treated as separate from the proprietor”. All the Transactions recorded in the book of Business and not in the books of proprietor. The proprietor is also treated as a creditor for the Business.
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E.g.: cash A/C, furniture A/C, building A/C, machinery A/C etc. 86



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