Unit –I
Introduction to Managerial Economics

Programme Educational Objectives

- *Our program will create graduates who:*

- *1. Will be recognized as a creative and an enterprising team leader.*
- *2. Will be a flexible, adaptable and an ethical individual.*
- *3. Will have a holistic approach to problem solving in the dynamic business environment.*

Managerial Economics Course Outcomes

- CO1-Given the changes in the price of a commodity, substitute or complementary goods and services, consumers' income in addition to the changes in quantity demanded, the student manager will be able to establish the interrelationship between the independent variable and demand that would aid in decision making.
- CO2-Given a set of historical & current demand data the student manager will be able to estimate future demand for goods and services using survey and statistical techniques (such as Consumer survey, Sales force opinion, Expert opinion and Delphi technique; times series analysis and regression technique).
- CO3-Given the scale of inputs in a production scenario, the student manager will be able to comment on the output and categorize the reasons for economies and diseconomies of scale.

- CO4-Given the structural details of a market (Monopoly, Oligopoly, Monopolistic competition and Perfect competition) the student manager will be able to determine the price and output for a given market structure.

- CO5-Given the components of national income, the student managers will be able to ascertain the GDP, GNP, NDP & NNP at factor cost and market prices using the product, income and expenditure method and vice-versa.

- CO6-Given the components of monetary and fiscal policy, the student manager will be able to explain the impact of the same on the business activities.

Syllabus

- Definition
- Nature of Managerial Economics
- Scope of Managerial Economics
- Application of Economics to Business Decision
- Relationship with other areas in Economics Production Management, Marketing, Finance and Personnel, Operations research
- The role of managerial economist

Economics

- Science of economics is 200 years old.
- It was Adam smith who first defined economics

Economics

- Economics is a social science
- Its basic function is to study how people-individuals, households, firms and nations-maximize their gains from their limited resources and opportunities
- It is an optimizing behavior, selecting the best out of available options with the objective of maximizing gains from the given resources.
- Economics is thus a social science, which studies human behavior in relation to optimizing allocation of available resources to achieve the given ends.
- Economics is the study of scare resources that have alternative uses
- Basic Economic Problems
  - What to produce?
  - How to Produce?
  - For whom to produce?

Managerial Economics

- Managerial economics is economics applied to the analysis of business problems and decision making.
- Spencer and Siegelman: Managerial economics is “the integration of economic theory with business practice for the purpose of facilitating decision-making and forward planning by management”.

Managerial Economics

- The first and most important problems faced by business firms is the choice of a product to be produced or service to be provided.
- The second important problem is to decide by a firm about price and output of the product so as to maximize profits or to attain some other desired goal.

Emergence of Managerial Economics

Emergence of Managerial Economics as a separate course of management studies can be attributed to at least three factors:

- Growing complexity of business decision making process due to changing market conditions and business environment
- The increasing use of economic logic, concepts, theories and tools of economic analysis in the process of business decision making

Nature of Managerial Economics

- Managerial Economics is a Science
- Managerial Economics requires Art
- Managerial economics is helpful in optimum resource allocation
- Managerial Economics has components of micro and macro economics
- Managerial Economics is dynamic in nature

Scope of Managerial Economics

- The areas of business issues to which economic theories can be applied may be broadly divided into following two categories
- Microeconomics applied to operational or internal issues
- Macroeconomics applied to environmental or external issues

Operational or internal issues

1. Choice of business and the nature of product
2. Choice of size of firm
3. Choice of technology
4. Choice of price
5. How to promote sales
6. How to face price competition
7. How to decide on new investments
8. How to manage profit and capital
9. How to manage an inventory

Microeconomics deals with such questions handled by managers of business enterprises

Environmental or external issues

- The type of economic system in the country
- General trends in national income, employment, prices, savings and investment etc.
- Structure of and trends in the working of financial institutions
- Magnitude of and trends in foreign trade
- Trends in labor supply and strength of the capital market
- Government's economic policies
- Social factors like trade unions, consumer's associations, consumer cooperatives and producers' unions
- Political environment
- The degree of globalization of the economy

Scope

- Demand and Supply analysis
  - Forecasting of Demand, Consumer Behavior, Factors Influencing demand, Effect of income, habit and taste
- Production & Cost Analysis
  - Task of determining an optimal level of production where the average cost of production would be minimum, Variable and Fixed Factor in Short and Long Run
- Theory of Exchange or Theory of Price
  - Price determination under different types of market conditions, It involves the determination of prices under different market conditions, pricing methods, pricing policies, differential pricing, product line pricing and price forecasting.

Scope

- Theory of profit:
  - Profit is revenue minus cost, organization aims at maximizing profit. It depends on Demand of the product, Prices of the factors of production, Nature and degree of competition in the market, Price behavior under changing conditions
- Theory of Capital and Investment
  - Selection of a viable investment project, Efficient allocation of capital, Assessment of the efficiency of capital, Minimizing the possibility of under capitalization or overcapitalization.
- Environmental issues:
  - As covered in Macro economics

Role of Managerial Economist Problem of choice

- To solve the business decision problem is the task of a managerial economist
- A manager is faced with innumerable situations in which he has to make a choice.
- As a producer he has to decide about what to produce, how to produce, for whom to produce, how much to produce, where to produce, etc.
- As a buyer he has to decide about what to buy, how much to buy, where to buy, etc.
- As a seller he has to exercise his choice on what to sell, how much to sell, to whom to sell, where to sell, how much to retain as stock, etc.

Managerial Economist Example

- Consider a case of Maruti Udyog Ltd.
- Two alternative courses of action to meet the growing market demand for its products.
  - Internal expansion of productive capacity (Strategy S1)
  - Take over the premier auto ltd and use its capacity to increase output (Strategy S2)
- Objective of Maruti Udyog Ltd. is to maximize its profit
- The objective function for the above decision making problem can be stated as follows:
- Maximize profits (S1, S2)
- Under the decision rule
  - Choose S1 if profits from S1> profits from S2
  - Choose S2 if profits from S2> profits from S1

"Managerial Economics is the integration of economic theory with business practice for the purpose of facilitating decision – making and forward planning by manager". Explain and comment.

- Managerial economics is a science that deals with the application of various economic theories, principles, concepts and techniques to business management in order to solve business and management problems.
- It deals with the practical application of economic theory and methodology to decision-making problems faced by private, public and non-profit making organizations.

“Managerial Economics is the integration of economic theory with business practice for the purpose of facilitating decision – making and forward planning by manager”.

- Risk analysis: Various models are used to quantify risk and asymmetric information and to employ them in decision rules to manage risk.
- Production analysis: Microeconomic techniques are used to analyse production efficiency, optimum factor allocation, costs and economies of scale. They are also utilised to estimate the firm's cost function.
- Pricing analysis: Microeconomic techniques are employed to examine various pricing decisions. This involves transfer pricing, joint product pricing, price discrimination, price elasticity estimations and choice of the optimal pricing method.
- Capital budgeting: Investment theory is used to scrutinise a firm's capital purchasing decisions.

“Managerial Economics is the integration of economic theory with business practice for the purpose of facilitating decision – making and forward planning by manager”.

- Estimating economic relationships: Managerial economics estimates economic relationships between different business factors such as income, elasticity of demand, cost volume, profit analysis etc.
- Predicting relevant economic quantities: Managerial economics assists the management in predicting various economic quantities such as cost, profit, demand, capital, production, price etc.

"Managerial Economics is the integration of economic theory with business practice for the purpose of facilitating decision – making and forward planning by manager".

- Identify all the important factors that influence a firm:
- External: economic system of the country, business cycles, fluctuations in national income and national production, industrial policy of the government, trade and fiscal policy of the government, taxation policy, licensing policy, trends in foreign trade of the country, general industrial relation in the country and so on.
- Internal: These factors fall under the control of a firm. These factors are associated with business operation. Knowledge of these factors aids the management in making sound business decisions.

Utility

Utility

- From commodity angle, Utility is the want satisfying property of a commodity.
- From consumer’s point of view, utility is the psychological feeling of satisfaction, pleasure, happiness or well being, which a consumer derives from the consumption, possession or the use of a commodity.
- Commodity can be a good or a service.
- Food, cloth, water, house etc. possess power to satisfy human wants and therefore they have utility.
- If want does not exist, then the commodity don’t have the utility

Features of Utility

- Utility always decreases
- Utility is form specific
- Utility is person specific
- Utility is place specific
- Utility is time specific
- Utility depends on intensity of need
- Utility can not be measured
- Utility and usefulness are different

Utility Approaches

- Cardinal Approach
- Ordinal Approach

Law of Diminishing Marginal Utility

- Initial Utility
- Total utility = TUx = u1+u2+u3+u4
- Zero utility
- Negative utility
- Marginal utility = MUx = $TU_n - TU_{n-1}$
- Marginal Utility = Change in total utility/ change in consumption

Law of Diminishing Marginal Utility

Assumptions

- The unit of consumer good must be a standard one, a cup of tea, a bottle of cold drink
- The consumer taste or preference must remain the same during the period of consumption
- There must be continuity in consumption, no break should be observed, or it will be of very short duration
- The mental condition of consumer must remain normal during the period of consumption

Law of Diminishing Marginal Utility

- This law states that as the quantity consumed of a commodity goes on increasing, the utility derived from each successive unit goes on diminishing, consumption of all other commodities remaining the same.
- In simple words, when a person consumes more and more units of a commodity per unit of time, e.g., ice cream, keeping the consumption of all other commodities constant, the utility which he derives from each successive cup of ice cream goes on diminishing. This law applies to all kinds of consumer goods-durable and non durable, sooner or later.

Total and Marginal Utility Schedule

Units of Ice cream (X)	Total Utility (TUx)	Marginal Utility (MUx)
1	25	25
2	45	20
3	60	15
4	70	10
5	75	5
6	75	0
7	70	-5
8	60	-10

Law of Diminishing Marginal Utility

- The total utility goes on increasing in the early stage but the marginal utility goes on falling right from the beginning
- Where total utility is constant, marginal utility becomes zero
- When total utility declines, the marginal utility becomes negative

Limitations or Exception to the Law

- Dissimilar units (taste, size, type)
- Very small units
- Too long interval
- Rare collections
- Abnormal persons (state of mind)
- Change in income, habits and taste
- Money
- Melodious Music

Practical Implications of law

- To understand the consumer behavior
- This is basis for the law of demand
- To determine the price
- Law serves as a guide to promote sales by reducing price
- It is useful to the government to form the taxation policy and welfare policy

Law of equi-marginal utility

- Law of equi-marginal utility
- Law of substitution
- Law of consumption
- Law of maximum satisfaction
- Law of economy
- 2nd Law of HH Gassen (1st being Law of diminishing marginal utility)

Law of equi-marginal utility

Assumptions

- The marginal utilities of the different commodities are independent of each other and diminish with more and more purchases
- The consumer has a limited amount of income to spend
- The utility is cardinally measurable
- The marginal utility of money remains constant as the consumer purchases more or less of a commodity
- The utilities of different goods are independent, that is the goods are neither complements nor substitutes for one another

Law of equi-marginal utility

- Law states that all consumers want to achieve maximum satisfaction with limited resources
- The principle of equi marginal utility states that to get maximum utility from the expenditure of his limited income, the consumer purchases such amount of each commodity that the last unit of money spent on each of them gives him the same marginal utility.

Schedule for Equi-Marginal Utility

Pant	MUx (Utility of each pant)	Shirt	MUy (Utility of each Shirt)
1st Pant	10	1st Shirt	9
2nd Pant	9	2nd Shirt	8
3rd Pant	8	3rd Shirt	7
4th Pant	7	4th Shirt	6
5th Pant	6	5th Shirt	5

Schedule for Equi-Marginal Utility

<table>
<tr><th colspan="3">Possible Combination of Pant and Shirt, that can be purchased by an Individual</th></tr>
<tr><td>1st Combination</td><td>5 + 0</td><td rowspan="6">Income of an individual is just 5000 and the price of each of pant and shirt is Rs. 1000. That means the individual can purchase 5 pant and shirt in total. That’s why in each combination there are total 5 shirt and pant (including both).</td></tr>
<tr><td>2nd Combination</td><td>4 + 1</td></tr>
<tr><td>3rd Combination</td><td>3 + 2</td></tr>
<tr><td>4th Combination</td><td>2 + 3</td></tr>
<tr><td>5th Combination</td><td>1 + 4</td></tr>
<tr><td>6th</td><td>0 + 5</td></tr>
</table>

Schedule for Equi-Marginal Utility

Combination	Pant and Shirt in the Combination	Utility for each group
1st	5 + 0	40 + 0 = 40
2nd	4 + 1	34 + 9 = 43
3rd	3 + 2	27 + 17 = 44
4th	2 + 3	19 + 24 = 43
5th	1 + 4	10 + 30

One more example: Marginal Utility of Goods X and Y

Units	MUx (Utils)	MUy (Utils)
1	20	24
2	18	21
3	16	18
4	14	15
5	12	9
6	10	3

Marginal Utility of Money Expenditure

Units	MUx / Px	MUy / Py
1	10	8
2	9	7
3	8	6
4	7	5
5	6	3
6	5	1

Law of equi-marginal utility

Limitations or Exception to the law

- Ignorance may prevent the individual to make rational use of money or to understand the measure of utility. His satisfaction may not be the maximum, because the marginal utilities from his expenditure can not be equalized due to ignorance.
- Inefficient organization or incapable individual may not be able divert expenditure to more profitable channels from the less profitable one.
- A consumer may be in the strong clutches of customs, or is inclined to be a slave of a fashion.
- Frequent changes in prices of different goods render the observance of the law very difficult.

Law of equi-marginal utility

Practical importance

- Utilizing the law for Consumption, every individual will try to spend his income in a manner which yields him the greatest satisfaction
- To get maximum profit, the producer will use most economical combination of factors of production
- A person will continue to exchange his commodity with that of another till their marginal utilities are equal
- Government too is guided by this law in doing public expenditure. Through this law government can focus on maximum welfare of the society.
- When a commodity becomes scare and its prices soars high, we substitute for it things which are les scare.

Ordinal Approach: Indifference Curve

- The basic tool of Hicks-Allen ordinal utility analysis of demand is the indifference curve which represents al those combination f goods which give same satisfaction to the consumer.
- In other words, all combination of two goods lying on a consumer’s indifference curve are equally desirable to or equally preferred by him.
- Indifference schedule

Good X	Good Y
1	12
2	8
3	5
4	3
5	2

Indifference Curve

Marginal rate of substitution (MRS)

- The rate at which the consumer is prepared to exchange goods X and Y is known as marginal rate of substitution
- In other words, marginal rate of substitution of X fro Y represents the amount of Y which the consume has t o give up for the gain of one additional unit of X so that his level of satisfaction re
- Ir

Combinatio n	Good X	Good Y	MRS
A	1	12	4
B	2	8	3
C	3	5	2
D	4	3	1
E	5	2	

Indifference Curve

Properties

- Higher indifference curve giver higher satisfaction
- Indifference curve slope negatively or slope downwards from left to right
- Indifference curve is convex to the point of origin
- No two indifference curve can intersect each other
- Indifference curve do not touch the horizontal or vertical axis

Indifference Curve

Advantages

- More realistic than Marshall approach of cardinal
- It makes fewer assumptions as compared to Marshalls law of diminishing marginal utility
- **Criticism**
- Individual do not have perfect knowledge of scale of preference
- It tells nothing new, just concept of diminishing marginal utility is replaced by marginal rate of substitution

Theory of Demand

For Curves please refer class notes

An Effective Need

- Effective need entails that there should be a need supported by the capacity and readiness to shell out. Hence, there are three basics of an effective need:
- The individual should have a need to acquire a specific product.
- He should have sufficient funds to pay for that product.
- He should be willing to part with these resources for that commodity.

Demand

- **Specific Units:**
- Demand of Umbrella is 10,000
- **A Specific Price:**
- Demand of Umbrella is 10,000 at a price of Rs. 100 each.
- **A Specific Time:**
- Demand of Umbrella during rain is 10,000 at the price of Rs. 100 each.
- **A Specific Place:**
- Demand of Umbrella during rain at Nagpur is 10,000 at the price of Rs. 100 each.

Kinds of Demand

- Price demand
- Income demand
- Cross demand

Law of demand

- "The demand for a commodity increases with a fall in its price and decreases with a rise in its price, *other things remaining the same*".
- Price and demand of a commodity are inversely related, provided all other things remain unchanged

Assumptions of the Law of Demand

- Income level should remain constant
- Tastes of the buyer should not alter
- Prices of other goods should remain constant
- No new substitutes for the commodity
- Price rise in future should not be expected
- Advertising expenditure should remain the same

Demand Schedule

Price per Cup of Tea (Rs.)	No. of Cups of Tea Demand per Consumer per Day	Symbols representing per Price-Quantity Combination
8	2	A
7	3	B
6	4	C
5	5	D
4	6	E
3	7	F
2	8	G

Why does the demand curve slope downwards

- The downward slope of the demand curve reads the law of demand i.e. the quantity of a commodity demanded per unit of time increases as its price falls and vice versa.
- New Buyers
- Existing buyers
- Income effect
- Substitution effect
- Increase in uses

Exceptions to the Law of Demand

- The law of demand does not apply to the following cases:
- Apprehensions about the future price
- Status goods/ Veblen effect
- Giffen paradox
- Upward sloping demand curve in case of status goods and giffen goods

Limitations to the Law of Demand

- Income of the individual rises
- Increase in savings
- Taste of the consumer changes
- Use of commodity increases
- Expectation of the consumers

Demand

- Joint Demand
  - Several products demanded for a common purpose
- Direct Demand
  - Demand for a ultimate object
- Derived Demand
  - Demand derived from direct demand
- Composite Demand
  - Can be put to several uses
- Individual Demand
  - Demand from a customer
- Market Demand
  - Aggregate of demands from number of customers

Types of Goods

- **Substitute (competitive goods)**
  - Substitutes means either this or that
  - Tea-coffee, vegetable ghee-pure ghee, ink pen-fountain pen, wheat-rice
  - Rise in price of A leads to rise in demand of B and vice versa
- **Complements**
  - Complements are required together
  - Horse-carriage, tea powder-sugar-milk, bread-butter, pen-paper
  - Rise in price of A leads to fall in demand of both A & B and
  - Fall in price of A leads to rise in demand of both A & B

Effect of goods under change in income

- **Essential consumer goods**
  - Demand rises to certain limit with rise in income, Basic needs, food grains, vegetable oil, cooking fuel, minimum clothing and housing
- **Inferior goods**
  - Bajara is inferior to Rice and Wheat, travelling by bus is inferior to taxi, kerosene is inferior to cooking gas
- **Normal goods**
  - Demand rises with rise in income, automobiles, household furniture
- **Luxurious goods**
  - If income rises beyond a certain limit then demand of luxurious goods rises, upper class rail and air travel, luxury cars, decoration of buildings, prestigious schools

Determinants of Demand

Factors influencing demand for a commodity

- Change in fashion
- Change in weather
- Change in quantity of money in circulation
- Change in population
- Change in wealth distribution
- Change in real income
- Change in habits, taste and customs
- Technical progress
- Discovery of cheap substitute
- Advertisement
- Demonstration effect

Shift in the demand curve

- When demand because of change in factors other than prices
- Rightward shift
- Leftward shift

Movement along the demand curve

- Law of demand relates to simply extension and contraction of demand
- Movement along the demand curves occurs due to change in prices
- Extension
- Contraction

Elasticity of Demand

For Methods of Measuring Elasticity of Demand including Formulas and Problems, please refer class notes

Elasticity of Demand

- Concept of Elasticity of demand
- its implication in business scenario
- types of elasticity
- measurememnt techniques

Elasticity of Demand

- What is elasticity of demand?
  - Sensitiveness or responsiveness of demand to the change in price

- What are the types of elasticity of demand?
  - Price Elasticity of demand
  - Income Elasticity of demand
  - Cross Elasticity of demand

Determinants of Elasticity

Factors affecting elasticity of demand

- Nature of the commodity:- Necessary, Luxury
- Existence of substitute
- Complementary good
- Habits
- Proportion of income spend
- Urgency
- Durability of a commodity
- Possibility of postponement
- Influence of habits and customs
- Ranges of price
- Several uses

- Necessary items
  - Demand will be less elastic or inelastic
  - E.g. food grains, salt
- Luxury items
  - It is necessary to refer to the class of people
  - Demand is more elastic

- Existence of Substitute
- Demand is elastic
- E.g. Tea-coffee, pure ghee-vegetable ghee
- Several uses
- Demand is elastic

Price Elasticity of Demand for Selected products in US

Commodity	Price Elasticity of Demand	Commodity	Price Elasticity of Demand
Tomatoes	04.6	Alcohol	0.92
Restaurant meals	1.63	Movies	0.87
Glassware	1.34	Foreign Air Travel	0.77
Taxi Service	1.24	Footwear	0.70
Cable Service	1.19	Auto Repair	0.36
Furniture	1.01	Medical Insurance	0.31
Housing	1.00	Fuel	0.14
		Food	0.00

Determinants of price elasticity of demand

Following are the main factors which influence or determine the price elasticity of demand

- The availability of substitute
- Nature of commodity
- The proportion of consumers income spent on commodity
- The number of uses of a commodity
- Complementarity between goods
- Time and elasticity

Availability of substitute

- If substitute of product A is available in the form of B then, the demand of product B will increase with rise in prices of A
- Rise in the prices of coca cola will result into rise in the demand of pepsi cola. So, demand of coca cola is price elastic.
- Closer the substitute, greater will be the elasticity.
- Toothpaste, soaps are available in different brands, each of them being the close substitute of the other.
- Whichever is cheaper among them, its demand will rise and fall in that of the other.
- There is no substitute to salt, demand is inelastic or elasticity is less.

Nature of commodity

- Commodities can be grouped as luxury, comfort and necessities.
- Demand for luxury goods(e.g. high price refrigerators, TV sets, cars) is comparatively more elastic than the demand for necessities and comfort because it purchase can be postpone under price rise.
- On the other hand, consumption of necessary goods like sugar, clothes and vegetables cannot be postponed hence inelastic demand.
- While comfort goods have elasticity in between that of necessities and luxury items.
- Durable items will have more elasticity of demand than perishable items. Old durable items will be repaired and used like washing machine, refrigerator etc. instead of buying a new one with higher price.

Proportion of consumers income spent

- Allocation of budget on items of household consumption will decide whether the demand of a product is elastic or inelastic.
- On salt there is very less monthly expenditure, so its demand is relatively inelastic in nature. The other examples can be matches, books, toothpastes etc.
- Rise in prices of it will not affect the monthly budget.
- On clothing there is comparatively more expenditure per month, so its demand is relatively elastic in nature.

Number of uses of a commodity

- Greater the uses of a commodity, greater will be the price elasticity of demand.
- As price of milk rise, its use will be limited to consumption by kids and sick person and preparing tea. But if price decrease, then number of dishes and items can be prepared from milk by the consumers. Curd, ghee, cheese and sweets etc. can be prepared from milk.
- Thus, degree of use of a commodity makes the demand elastic and inelastic in nature.

Complementarity between goods

- Complementary goods are less price sensitive.
- Even if oil price increase, it's demand will be inelastic in nature, as it is needed in less quantity to operate a vehicle along with fuel.
- Coffee and milk

Time and elasticity

- In the long run, substitute can be designed and developed. Enterprise will gather the resources and develop the substitute. So, demands tends to be more elastic in the long run.
- While in the short run substitute can not be designed and developed. So, in the short run, demands tends to be inelastic.

Price elasticity of demand- Marketing point of view

- If customers are loyal then demand is inelastic
- If product or service is differentiated or unique one, like visiting Eifel tower with paying an entry fee. Then the demand is relatively inelastic in nature.
- Breadth of products and services at a garage available for automobiles. The demand of various products over here will be inelastic in nature.
- If payer and user are different. Like in case of toy purchaser and it’s user are different. The demand is inelastic in nature.

Significance of Price Elasticity of Demand

- Determination of price policy
- Price discrimination
- Shifting of tax burden
- Taxation and subsidy policy
- Importance in international trade
- Importance in the determination of factor prices
- Determination of sale policy for supermarkets
- Effect of use of machine on employment
- Public utilities
- Explanation of paradox of poverty
- Output decision

Determination of Price Policy

- Knowledge of elasticity of demand may help the businessman to make a decision whether to cut or increase the price of his product.
- In general, for items which have inelastic demand, the producer will fix a higher price and items whose demand is elastic the businessman will fix a lower price.
- Which means for fixing the price of a product or service, a businessman has to consider the price elasticity of demand.

Price discrimination

- Price discrimination refers to act of selling the technically same products at different prices to different section of consumers or to consumers in different sub-markets
- Those consumers whose demand is inelastic can be charged a higher price than those with more elastic demand

Shifting of tax burden

- To what extent a producer can shift the burden of indirect tax to the buyers by increasing price of his product depends upon the degree of elasticity of demand
- If the demand is inelastic the larger part of the indirect tax can be shifted upon buyers by increasing price.
- On the other hand if the demand is elastic then the burden of tax will be more on producer

Taxation and subsidy policy

- The government can impose higher taxes on a commodity whose demand is inelastic and thus collect more revenue.
- In case of a commodity with elastic demand, high tax rates may fail to bring in the required revenue for the government.

Importance in international trade

- A country will benefit from international trade when: It does the imports of products whose demand is elastic. And it does the exports of products whose demand is inelastic.
- It fixes lower price for exports items whose demand is price elastic and high price for those exports whose demand is inelastic.

Importance in the determination of factors prices

- Factors with an inelastic demand can always command a higher price as compared to a factor with relatively elastic demand.
- This helps the trade unions in knowing that where they can easily get the wage rate increased. Bargaining capacity of trade unions depend upon elasticity of demand for workers services.

Determination of sale policy for super markets

- Super market is a market where in a variety of goods are sold by a single organization. These items are generally of mass consumption.
- Therefore, the organization is supposed to sell commodities at lower prices than charged by shopkeepers in the other bazars.
- Thus, the policy adopted is to charge a slightly lower price for items whose demand is relatively elastic and the costs are thus recovered by increased sales.

Effect of use of machines on employment

- Trade unions think that use of machinery reduces the demand for labor. Demand of labor basically depends upon the elasticity of demand of a product.
- Use of machine may reduce the cost of production and price of that product. If the demand is elastic then, it will increase the demand significantly.
- As a result of increase in demand, the production will also increase and further the more workers will be employed. If demand of product is inelastic then use of machinery will result into unemployment.
- More machines more labors, less machines less labors

Public utilities

- The public utility enterprises decide their price policy on the basis of elasticity of demand. A suitable price policy for public utility enterprises is to charge from consumers according to their elasticity of demand for public utility.
- Demand for public utility such as electricity, water supply, post and telegraph, public transportation etc. is generally inelastic in nature.
- Government may never wish to hand over above services to the private sectors, as its demand is inelastic, private may charge more and exploit public.

Explanation of paradox of poverty

- Exceptionally good harvest (high agriculture output) brings poverty to the farmers and this situation is called paradox of poverty.
- The demand of most of the farm product is inelastic in nature. As a result of high agriculture produce, the prices will fall sharply and even if farmers sell more, they will not earn more.
- So, there is need of regulation and control of farm product prices. Government will fix minimum price.
- Thus, concept of elasticity of demand helps in forming agriculture policies.

Output decisions

- The elasticity of demand helps the businessman to decide about production.
- A businessman chooses the optimum product-mix on the basis of elasticity of demand for various products.
- The products having more elastic demand are preferred by the businessman. The sale of such products can be increased with a little reduction in their prices.
- If the producer having limited facilities of production and the product is inelastic in nature then he can earn more by rising prices, which result into rise in income.

Cross elasticity of demand

- It is the measure of responsiveness of demand for commodity to the changes in the price of its substitutes and complementary goods.
- In case of substitute like tea and coffee, as the price of tea rise, the demand of coffee will rise, so there demand has positive elasticity of demand.
- In case of complements like electricity to electrical gadgets, petrol to automobiles, butter to bread, sugar and milk to tea, as the price of one rise the demand of other decrease, so there is negative elasticity of demand.

Income elasticity of demand

- The responsiveness of demand to the changes in income is known as income elasticity of demand.
- There is positive relationship between quantity of goods demanded and income of the individual.
- People would like to have more of a superior substitute if there income rises.
- With rise in income, people will like to travel by air than rail; would like to consume more of rice and wheat as compared to previous consumption of inferior food grains.
- Means as the income rise people will move from inferior to more superior goods.

Demand Forecasting

Why demand forecasting?

- Planning and scheduling production
- Acquiring inputs
- Making provision for finances
- Formulating pricing strategy
- Planning advertisement

Steps

- Specifying the objective
- Determining the time perspective
- Making choice of method
- Collection of data
- Estimation and interpretation of results

Methods of Demand Forecasting

- Qualitative Methods or Survey Methods
  - Consumer Survey
  - Expert Opinion
  - Market experiments

- Quantitative Methods or Statistical Methods
  - Time Series Analysis
  - Regression Analysis

Consumer Survey

- Complete enumeration method
  - Future purchase & plan
  - Questionnaire or interview
  - Suitable for concentration
  - Not suitable for dispersed consumers
  - Unreliable as consumer may not know their actual demand

Consumer Survey

- Sample survey method
  - When consumer population is large
  - Sampling is used to select the respondent
  - Simple, less costly, less time
  - Generally used by the firm in case of new product or in case of certain changes in a product
  - Use of statistics for arriving at the final forecast
  - Formula for calculating the probable demand

$$Dp = (H.Ad)\frac{Hr}{Hs}$$

Dp = probable demand forecast

H = census number of households from the relevant market

Hs = number of household sampled and surveyed

Hr = number of household reporting demand for the product

Ad = average expected consumption by the reporting household

Consumer Survey

- End use method
  - Generally followed by the industrial consumer
  - Consumption of industrial goods

Sales force survey

- Some managers feels that consumers often do not know, how much they will need in future
- So, they feel sales force, the best people to forecast the demand more accurately
- Sales force is in close contact with the retailers, distributors; so their forecast will be more rational.
- The responses of various salesman, sales executive, sales representative are aggregated to arrive at total forecasted demand
- Cheap and easy method
- It will give self motivation to sales force to select their future sales target

Opinion poll method

- Expert opinion method
- Delphi technique
- Market experiments

Expert opinion method

- Opinions of people who are supposed to posses the knowledge of the market
- Sales head of a company
- Marketing consulting firms
- Investment analyst

Delphi technique

- It is more develop form of expert opinion method.
- It is used to consolidate the divergent expert opinions
- It is used to arrived at a compromised single estimate of future demand
- Review and adjustment of figures from all the experts from the panel
- Delphi technique is used to cross check the information available on sales forecast

Market experiments

- Business firm will generally use this method whenever there is any kind of change in the price, advertising expenditure or firm want to launch a new product.
- Market experiments can be conducted in the following way : Test marketing and controlled experiments

Market experiments

- Test marketing
  - Geographic area in the form of town, city, district is selected. E.g. Nagpur is test market for many companies
  - Response to Change in packaging, change in the price, advertising expenditure or firm want to launch a new product can be judged
  - It is based on actual consumer behavior and not only on the intention like that of consumer survey
  - Costly method, competitor may take advantage of test marketing experiment

Market experiments

- Controlled Experiments
  - Useful to test the demand of existing product or its version or for a new product
  - In this method a sample of representative consumers are selected from the target market
  - These people are invited to the stores or retail outlets to buy the products
  - These people will be given fixed amount of money to make the purchases
  - Consumer response and the observation will be noted down for further analysis and to arrive at final forecast