

## **Managerial Economics NOTES (Session 1 t 10)**

### **SESSION 1 : Introduction to Managerial Economics – I**

#### **Introduction to Managerial Economics – I**

##### **What is Economics?**

Scarcity is a fundamental problem faced by all economies. Not enough resources are available to produce all of the goods and services to satisfy human wants.

According to Robbins, “**Economics is the science which studies human behavior as a relationship between ends and scarce means which have alternative uses.**”

According to Paul A. Samuelson, “**Economics is 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 amongst various people and groups of society**”.

The **scarcity of resources** cannot be eliminated; rather, choices must be made about how resources will be used. The answer to this problem is based on the **notion of efficiency**. **Efficiency** denotes the most effective use of a society's scarce resources in satisfying peoples' wants and needs. Economics is the study of this allocation of resources. The resources which are not scarce are called **free goods**. Resources which are scarce are called **economic goods**. An economy is a system which attempts to solve this basic economic problem.

Economics can be divided into two broad categories: micro economics and macro economics. **Micro Economics** is that branch of Economics in which the study of an individual economic unit is done. For instance, the study of a firm or an individual consumer.

**Macro economics** is the study of the economic system as a whole. It is related to issues such as determination of national income, savings, investment, employment at aggregate levels, tax collection, government expenditure, foreign trade, money supply etc.

##### **Managerial Economics:**

Managerial economics is the analysis of major management decisions using the tools of micro economics. Managerial economics applies many familiar concepts from economics—demand and cost, monopoly and competition, the allocation of resources, and economic trade-offs—to aid managers in making better decisions.

In the words of **T. J. Webster**, "Managerial economics is the synthesis of microeconomic theory and quantitative methods to find optimal solutions to managerial decision-making problems.”

According to **Prof. Evan J Douglas**, ‘Managerial economics’ is concerned with the application of economic principles and methodologies to the decision making process within the firm or organisation under the conditions of uncertainty”

### **Economic Choice and Opportunity Cost**

Since resources are limited, the economic agents have to make rational choices in all aspects of business. It is necessary to choose one alternative among various alternatives. Every time you make a choice about one alternative, you are also choosing to forego other alternatives. The cost of this choice is the benefit of the next best alternative foregone. This is called *opportunity cost*.

This choice implies sacrifice of other alternatives. Hence cost of this choice will be evaluated in terms of the sacrificed alternatives. Therefore, *opportunity cost is the highest valued benefit that must be sacrificed as a result of choosing alternative*.

### **Opportunity Cost and Time Value of Money**

The time value of money is the assumption that the value of money available now is more than the value of the same amount of money available in future due to the earning potential of the money. The opportunity cost of money is the difference between the values of one option that is given up for another option.

### **The three problems of economic organization**

Because of scarcity, an allocation decision must be made. The allocation decision is comprised of three separate choices:

- What** and how many goods and services should be produced?
- How** should these goods and services be produced?
- For whom** should these goods and services be produced?

### **Nature of Managerial Economics:**

- Managerial economics is concerned with the analysis of finding optimal solutions to decision making problems of businesses/ firms (**micro economic in nature**).
- Managerial economics describes, what is the observed economic phenomenon (**positive economics**) and prescribes what ought to be (**normative economics**)
- Managerial economics is based on strong economic concepts. (conceptual in nature)
- Managerial economics analyses the problems of the firms in the perspective of the economy as a whole ( macro in nature)

- It helps to find optimal solution to the business problems (**problem solving**)

### **Scope of Managerial Economics**

- Theory of demand and Demand Forecasting
- Pricing and Competitive strategy
- Production & cost analysis
- Resource allocation
- Profit analysis
- Capital or Investment analysis
- Strategic planning

### **Managerial Economics and other disciplines**

- **Managerial economics and Finance-** Managerial Economics uses statistical and mathematical modeling to help corporate finance managers make optimal decisions. Its most common application is capital budgeting where corporate executives need to make informed decisions on how to allocate financial resources to the various departments.
- **Managerial Economics and Marketing-** Managerial Economics helps marketing in two ways. First, as a basic discipline, providing tools and concepts of analysis and second, as an integrating area, providing its judgment on the optimum sales volume under the given cost function of a firm, market structure, and the objective function to be optimized.
- **Managerial Economics and Accounting:** Managerial economics and accounting are closely interrelated. A business manager needs a lot of accounting information data for logical analysis in decision-making and policy formulation at the level of firm. Management accounting provides this sort of data which managers need to solve some business problems accurately.

### **Managerial Economics vs Behaviourial Economics**

- **Managerial economics** assumes rationality, which means that people take all available information and make consistent and informed decisions that are in their best interest.

- **Behavioral economics** seeks to enrich our understanding of decision-making by integrating the insights of psychology into economics.

## **Managerial Economics NOTES (Session 1 t 10)**

### **SESSION 2: Introduction to Managerial Economics – II**

#### **What is an Economic System?**

As discussed in session 1, scarcity of resources results in three economic problems, namely, What to produce, how to produce it and for whom to produce. Solution to these basic problems lies in the economic systems.

An economic system is the combination of the various agencies and entities that provide the economic structure. It may involve production, allocation of economic inputs, distribution of economic outputs, households, financial institutions, firms, and the government.

#### **Types of Economic Systems**

- Free Market Economy, also known as capitalist economy
- Command Economy, also known as socialist economy
- Mixed economy

#### **1. Free Market Economy:**

In a free market economy, firms and households act in self-interest to determine how resources get allocated, what goods get produced and who buys the goods. Allocation of various resources takes place with the help of market mechanism. Price of various goods and services are determined with help of the forces of demand and supply.

There is no government intervention in a pure market economy. However, no truly free market economy exists in the world

#### **2. Command Economy:**

In a command economy, a large part of the economic system is controlled by a centralized power. Since the government is such a central feature of the economy, it is often involved in everything from planning to redistributing resources. A command economy is capable of creating a healthy supply of its resources, and it rewards its people with affordable prices. This capability also means that the government usually owns all the critical industries like utilities, aviation, and railroad.

#### **3. Mixed Economy:**

A mixed economy is a combination of market economy and command economy. In the most common types of mixed economies, the market is more or less free of government ownership except for a few key areas like transportation or sensitive industries like defense and railroad. To a certain extent, most countries have a mixed economic system. For example, India and France are mixed economies.

### **The invisible hand and perfect competition:**

The phrase invisible hand was introduced by **Adam Smith** in his book '*The Wealth of Nations*'. He assumed that an economy can work well in a free market scenario where everyone will work for his/her own interest. He explained that an economy will comparatively work and function well if the government will leave people alone to buy and sell freely among themselves. He suggested that if people were allowed to trade freely, self interested traders present in the market would compete with each other, leading markets towards the positive output with the help of an invisible hand. In a free market scenario where there are no regulations or restrictions imposed by the government, if someone charges less, the customer will buy from him. Therefore, you have to lower your price or offer something better than your competitor. Whenever enough people demand something, it will be supplied by the market and everyone will be happy. The seller end up getting the price and the buyer will get better goods at the desired price.

### **General and partial Equilibrium**

*Partial equilibrium analysis* focuses on explaining the determination of price and quantity in a given product or factor market when one market is viewed as independent of other markets. On the other hand, *general equilibrium analysis* deals with explaining simultaneous equilibrium in all markets when prices and quantities of all products and factors are considered as variables. Thus, in general equilibrium analysis inter-relationship among markets of all products and factors are explicitly taken into account.

### **Theory of firm:**

At its simplest level, a business enterprise represents a series of contractual relationships that specify the rights and responsibilities of various parties. People directly involved include customers, stockholders, management, employees and suppliers. Societies are also involved because businesses use scarce resources, pay taxes, provide employment opportunities, and produce much of society's material and service output. The model of business is called the *theory of the firm*.

### **Expected Value Maximization**

- Owner-managers maximize short-run profits.

- Primary goal is long-term expected value maximization.

The *value of the firm* is the **present value** of the firm's expected profits or cash flows, discounted back to the present at an appropriate interest rate.

### **Profit Measurement:**

#### ***Business/Accounting Versus Economic Profit***

- **Business/Accounting profit** reflects explicit costs and revenues.
- **Economic profit** reflects explicit + implicit costs and revenues. (implicit costs are measured in terms of opportunity costs)

## **Managerial Economics NOTES (Session 1 t 10)**

### **SESSION 3: Economic Role of Government**

#### **Objectives**

**To discuss the economic role of the government**

#### **Outcome**

After studying this topic, you will be able to:

**Appreciate the economic role of government**

#### **1.Introduction**

The economic role of government in economies is influenced by the economic system of the country. Economists, however, identify six major functions of governments in market economies.

Governments provide the legal and social framework, maintain competition, provide public goods and services, redistribute income, correct for externalities, and stabilize the economy.

Over time, as our society and economy have changed, government activities within each of these functions have expanded.

#### **1.1Economic Role of the government**

- **Maintaining Legal and Social Framework:** Create laws and provide courts, provide information and services to help economy function better, establish a monetary system, define and enforce property rights.

- **Maintaining Competition:** Create and enforce antitrust laws; regulate natural monopolies.
- **Providing Public Goods and Services:** Provide goods and services that markets are unable or unwilling to provide, such as national defence.
- **Redistributing Income:** Higher income tax rates for rich than for poor, provide social security, and aid to dependent children, Medicare, Medical aid.
- **Correcting for Externalities:** Taxes to reduce negative externalities, such as environmental pollution; subsidies to encourage positive externalities, such as education. Externalities exist when some of the costs or benefits associated with the production or consumption of a product "spill over" to third parties other than the direct producer or consumer of the product.
- **Stabilizing the Economy:** Use government budgets (Fiscal Policy) and/or the money supply (Monetary Policy) to promote economic growth, control inflation, and reduce unemployment in the economy.

**Activity: Identity the economic system in your Country and list down the economic role of the government accordingly**

#### *Suggested Readings*

- <https://www.jstor.org/stable/23484155?seq=1>
- *News regarding all these responsibilities*

## **SESSION 4: Supply and Demand Analysis**

### **Demand Analysis**

#### **2.Introduction**

##### **2.1 Meaning of Demand**

Demand conveys wider meaning. In economic sense it is more than the desire to have a good or service. It is a want supported by affordability, willingness to purchase the product and service at the given price, per unit of time. **Example:** If a person is willing to buy 50 notebooks at a price of Rs.20 each at a given point of time, it is termed as demand for the notebook.

##### **2.2 Types of Demand**

On the basis of certain factors demand can be classified as:

1. **Direct and Derived Demand:** The product which are demanded by the consumer for direct consumption is categorised as direct demand. Whereas the product which are demanded for consumption by virtue of some other product is known as derived demand.

**Example:** The demand for thread is direct demand whereas the demand for labour is indirect demand which arises by virtue of demand for making shirt

2. **Joint Demand:** The demand for products demanded jointly demanded by the consumer is called joint demand.

**Example:** The demand for Car and fuel comes under the category of joint demand. As the fuel is demanded to run a car.

3. **Composite demand:** The products and services demanded for multiple uses is called composite demand.

**Example:** The demand of milk for drinking, for making sweetmeats, for setting curd, for making cheese

4. **Individual Demand:** The demand of an individual consumer/household at a given price and at a particular period of time is known as individual demand.

5. **Market demand:** The aggregate demand of all the consumers present in the market at the given price and over a period of time connotes market demand.

**Example:** The demand of apples by consumer A in the market is Individual demand. Whereas the demand for apples by consumer A+B+C....in the market is called market demand.

### 2.3 Determinants of Demand

**Price of good X:** The demand for good x is inversely related to the price of good x i.e. if the price of good x rises its demand will fall.

**Income of the Consumer:** As income rises, consumers buy more of normal goods (positive Effect) and less of inferior goods (negative effect).

**Example:** Consumer buy 5 units of wheat and 10 units of bajra when his income is Rs.20, When his income increases 30, he starts buying more 8 units of wheat and 11 units of bajra (As bajra is inferior good and wheat is normal good)

**Price of Related Goods:** There is direct relationship between price and demand for substitute goods. and direct relationship between price and demand among complementary goods.

**Example:** When the price of coke increases the demand for Pepsi increases (Substitute goods) whereas when the price of butter increases the demand for bread falls.

**Expectations of consumers:** If due to some unconventional reason the consumer start expecting the rise in price of the good in future he starts buying in present even at higher prices. Example: In case of covid-19 consumer start feeling that the supply of goods may fall in future they start purchasing the goods on higher price. However, this relationship is majorly governed by psychology of the people, so that is why nothing is certain in this case.

**Taste and Preferences:** The taste and preference are again a psychological factor, so there is uncertainty of the consumer with regard to price.

## **2.4 Law of Demand**

In the words of **Marshall**, *“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.”*

### **2.4.3 Reasons for Downward sloping of Demand Curve**

1. Income Effect
2. Substitution Effect
3. Law of Diminishing marginal utility
4. Change in number of Consumers
5. Multiple use of commodity

### **2.4.4 Exceptions to Law of Demand**

Till now we have seen that there is inverse relationship between price and demand of product. But there are certain exceptions to this rule i.e. in some of the cases the demand and price moves in the same direction. The exceptions are:

**1. Giffen Goods:** Named after the economist, Robert Giffen (1837-1910), Giffen good is a commodity that is unexpectedly consumed more as its price increases. Thus, it is an exception to the law of demand. In case of Giffen goods, the income effect dominates over the substitution effect.

**2. Articles of distinction/Veblen goods:** Named after economist, Thorstein Veblen, these are the commodities which satisfy the desire of rich class. As the demonstration effect is more than its use that is why it is an exception to the Law of demand. For e.g. Diamonds, Designer Apparels etc.

**3. Consumer Ignorance:** Consumer ignorance is another exception to law of demand the consumer purchase more at the high price this happens as sometimes the consumer is biased that costly product is quality product.

4. Situation of Crisis: The situation of crisis individuals negates the law of demand. For example, during Covid-19 people start hoarding the groceries as they feared that the things would not be available during crisis.

#### **2.4.5 Shift and Movement Along the Demand Curve**

In economics one cannot use the change in quantity demanded and change in demand as one and the same as both the acronyms carry different meanings. Change in quantity demanded refers to change in the quantity purchased due to rise or fall in product prices while other factors are constant. On the other hand, change in demand refers to increase or decrease in demand for a product due to various determinants of demand other than price. Change in quantity demanded can be measured by the movement along the demand curve, while change in demand is measured by shifts in demand curve. The terms, change in quantity demanded refers to **expansion or contraction of demand**, while change in demand means **increase or decrease in demand**.

The exception to law of demand causes the shift in demand curve to left or right (also known as increase or decrease in demand curve). The change in prices causes the movement along the demand curve (also known as contraction or expansion) of demand curve.

**Law of Supply: The relationship between price and quantity supplied is usually a positive relationship. A rise in price is associated with a rise in quantity supplied.**

#### **Definitions**

— In the words of **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.*"

— According 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 falls.*"

Determinants of supply: Innumerable factors and circumstances could affect a seller's willingness or ability to produce and sell a good. Some of the more common factors are:

### 1. cost factor of production

- price of raw materials
- rents and interest on capital
- cost of machinery
- payments to human resources (wages and salaries)
- transportation charges

If cost of production is high normally supply will be low

### 2. state of technology

Use of latest technology decreases the cost of production and increases the production capacity which increases supply of goods.

### 3. factors outside the economic sphere

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

- Whether conditions
- Floods
- Wars
- Epidemics (unexpected situations)

### 4. tax and subsidy

If tax subsidy (charge less tax) is given by the government the production cost decreased. If that is not there production cost raises. Finally the production will be low and effects to decrease in supply.

## SESSION 5: Elasticity of Demand and Supply

### Elasticity of Demand and Supply

#### Elasticity in General:

*Elasticity of demand* is a measure of the relationship between quantity demanded and another variable, such as price or income, which affects the quantity demanded.

*Elasticity of supply* is a measure of the relationship between quantity supplied and another variable, such as price or income, which affects the quantity supplied.

The different elasticities are: Price elasticity, Income elasticity and Cross elasticity.

#### Price elasticity

- **Price elasticity of demand** is the percentage change in the quantity *demanded* of a good or service divided by the percentage change in the price.
- **Price elasticity of supply** is the percentage change in the quantity *supplied* of a good or service divided by the percentage change in price.

## Degrees /Ranges of Price Elasticity:

Different commodities have different price elasticity's. Basically, the price elasticity of demand ranges from zero to infinity.

- An **elastic demand** or **elastic supply ( $e > 1$ )** is one in which the elasticity is greater than one, indicating a high responsiveness to changes in price. Elastic demand or supply curves indicate that quantity demanded or supplied respond to price changes in a greater than proportional manner
- Elasticity that are less than one indicates low responsiveness to price changes and correspond to **inelastic demand** or **inelastic supply ( $e < 1$ )**. An inelastic demand or supply curve is one where a given percentage change in price will cause a smaller percentage change in quantity demanded or supplied
- **Unitary elasticity ( $e = 1$ )** indicate proportional responsiveness of either demand or supply. A unitary elasticity means that a given percentage change in price leads to an equal percentage change in quantity demanded or supplied.
- Perfectly **elasticity of demand** or **supply is one in which ( $e = \infty$ )** zero percentage change in price brings a very large percentage change in the quantity demanded or supplied.
- **Perfectly inelastic demand or supply ( $e = 0$ )** indicates that the percentage change in the quantity demanded or supplied is zero when the price changes.

## Calculating Elasticity

- **Percentage or proportionate method:** Percentage method is one of the commonly used approaches of measuring price elasticity under which price elasticity of demand or supply is measured in terms of rate of percentage change in quantity demanded or supplied to percentage change in price. The formula to calculate are as follows:
  - *Price elasticity of demand = %change in quantity demanded / % change in price*
  - *Price elasticity of supply = %change in quantity supplied / % change in price*
- **Point method:** Point method measures elasticity of demand or supply at a particular point on a curve.
  - *Price elasticity of demand = Lower segment of the demand curve/ upper segment of the demand curve*
  - *Price elasticity of supply = Lower segment of the supply curve/ upper segment of the supply curve*

- **Arc Method/ Mid-point method:** Arc elasticity is a measure of average of responsiveness of the quantity demanded or supplied to a substantial change in price. The formula to calculate elasticity with arc method is as follows
  - *Price elasticity of demand = (change in quantity demanded / average quantity demanded) / (change in price / average price)*
  - *Price elasticity of supply = (change in quantity supplied / average quantity supplied) / (change in price / average price)*

### **Relationship between Revenue & Price Elasticity**

Elasticity is important in determining whether a change in the price of a good will increase or decrease the total revenues of firms selling the good.

- **If  $E_p > 1$ , (*more elastic*)**
  - An increase in price (↑) will decrease total revenue (↓)
  - A decrease in price (↓) will increase total revenue (↑)
- **If  $E_p < 1$ , (*less elastic*)**
  - An increase in price (↑) will increase total revenue (↑)
  - A decrease in price (↓) will decrease total revenue (↓)
- **If  $E_p = 1$  (*unitary elastic*)**
  - An increase in price (↑) will have no impact on total revenue (↔)
  - A decrease in price (↓) will have no impact on total revenue (↔)

### **Determinants of Price elasticity of demand**

The price elasticity of demand is determined by

- **The availability of close substitutes-** The demand for a good is elastic if a substitute for it is easy to find. The demand for a good is inelastic if a substitute for it is hard to find.
- **The importance of the product's cost in one's budget-** The greater the proportion of income spent on a good, the more elastic is the demand for the good.
- **The period of time under consideration-** The longer the time elapsed since the price change, the more elastic is the demand for the good.
- **Nature of the good -** The demand for a necessity is inelastic. Food is a necessity and the demand for a luxury is elastic. Exotic vacations are luxuries.

- Income - High level income group are not bothered by price rise so elasticity of demand is less elastic. Low level income group are bothered by price rise, so elasticity of demand is high
- **Cross elasticity**

**Cross elasticity** is measured as ratio of % change in quantity demanded due to % change in price of some other good, holding all other determinants fixed.

- Substitute goods will have a positive cross-elasticity of demand.
- Complements will have a negative cross elasticity of demand.
- Unrelated goods will have a cross-elasticity of demand of zero.

### **Income elasticity**

**Income elasticity** is measured as ratio of % change in *quantity demanded* to % change in income, holding all other demand determinants fixed.

- Income elasticity is positive for normal goods and negative for inferior goods

## **SESSION 6: Price Controls**

### **Price Controls**

In a free market, it is assumed that the equilibrium price and output is the outcome of the market forces. But in the real world, there is no existence of free market. Absence of free market mechanism results in imbalance between demand and supply of goods and services. Whenever there is such imbalance, it gives scope for few players to exploit the market that reduces the social welfare. In this situation, there is a need for government intervention to regulate the market so as to restore or enhance the social welfare. The government can regulate the price with the help of price controls.

### **What is price control?**

**Price controls** are restrictions set in place and enforced by governments, on the prices that can be charged for goods and services in a market. The intent behind implementing such controls stem from the desire to maintain affordability of goods even during shortages, and to slow inflation, or, alternatively, to ensure a minimum income for providers of certain goods or to try to achieve a living wage. There are two primary forms of price control, a price ceiling, the maximum price that can be charged, and a price floor, the minimum price that can be charged.

### **Price Ceiling**

A maximum price means firms are not allowed to set prices above a certain level. Price ceiling is a cap where the government fixes the price below the equilibrium price. It is done for the wider benefit of the society. In order to put a check on the rise in the prices of essential goods and services in terms of creating artificial shortage in the market, the government intervenes in the form of price ceiling. Example of price ceiling is Rent Control Act. Another example that is appropriate in this instance is the cap imposed by the government on pharmaceutical companies. After declaring face masks and hand sanitisers under essential commodities, the government has now fixed the prices of these items. During the second world war, the price of goods was fixed and goods rationed. However, this encouraged people to sell on the black market through inflated prices.

### **Price Floor**

Floor price is a minimum price level for a good. A price floor is a government- or group-imposed price control or limit on how low a price can be charged for a product, good, commodity, or service. Governments use price floors to keep certain prices from going too low. Normally, floor price is maintained above equilibrium price. Minimum support price for agriculture crops and minimum wages declared by government are examples of floor pricing.

### **Price Controls and Their Effects**

Price floors and price ceilings are inefficient. The reason most economists are skeptical about price controls is that they distort the allocation of resources. To paraphrase a remark by **MILTON FRIEDMAN**, economists may not know much, but they do know how to produce a shortage or surplus. Price ceilings, which prevent prices from exceeding a certain maximum, cause shortages. Price floors, which prohibit prices below a certain minimum, cause surpluses, at least for a time. Price cap reduces the supply, as less number of suppliers are willing to supply at low price. A price floor or a price ceiling will prevent a market from adjusting to its equilibrium price and quantity, thus creating an inefficient outcome. Floor pricing generates surplus just like how price ceiling. The loss in social surplus that occurs when the economy produces at an inefficient quantity is called *deadweight loss*.

### **Effects of price control in the market can be explained in two categories:**

- (i) a deadweight loss (ii) a transfer of surplus**

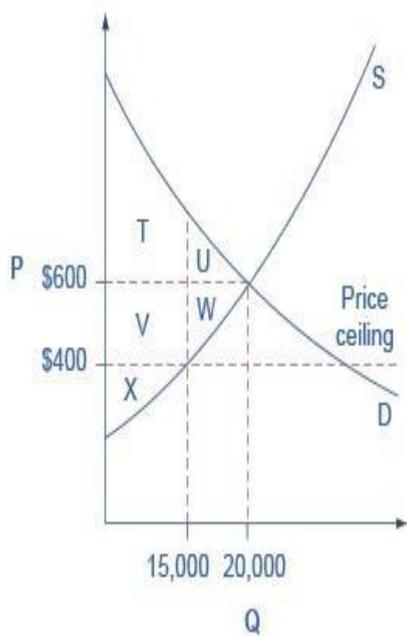
**Dead-weight loss:** A deadweight loss is a cost to society created by market inefficiency, which occurs when supply and demand are out of equilibrium. It means that there is an inefficient allocation of resources and optimal quantity of a good is not produced. Price ceilings (such as price controls and rent controls), price floors (such as minimum wage and

living wage laws) and taxation are all said to create deadweight losses. In dig a,  $U + W$  and in dig. b  $J + K$  is the dead-weight loss.

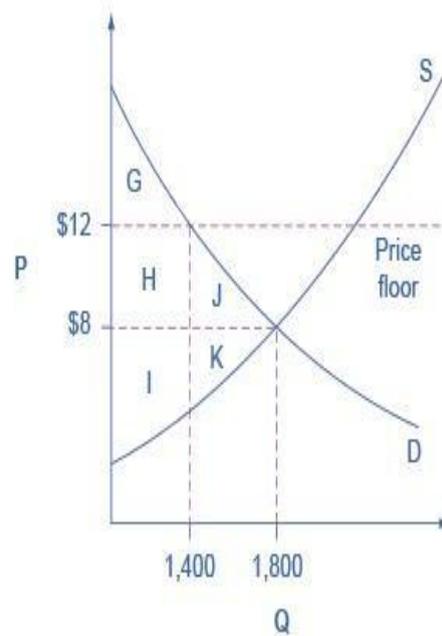
**Transfer of surplus:** Price controls also lead to redistribution of surplus. For instance, in dig a, before price ceiling consumer's surplus is  $T + U$  and producer's surplus is  $V + W + X$ . But after price ceiling  $V + W$  transfers from producer to consumer. In dig b, after price floor,  $H$  and  $J$  transfers from consumer to producer.

Although price controls are widely used by governments, economists usually agree that price controls do not accomplish what they are intended to do and are generally to be avoided.

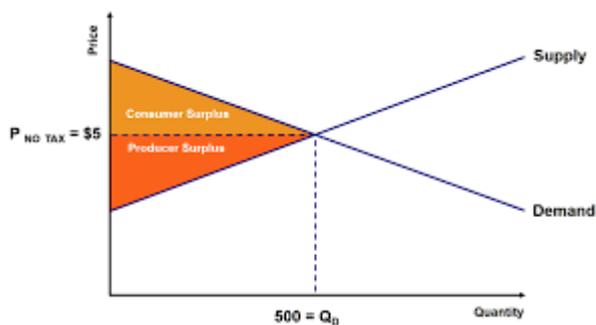
### Appendix



(a) Reduced social surplus from a price ceiling



(b) Reduced social surplus from a price floor



## **SESSION 7: Consumer Behaviour**

### **CONSUMER BEHAVIOUR: Meaning and Definition**

Consumer behaviour is the study of how individual customers, groups or organizations select, buy, use, and dispose ideas, goods, and services to satisfy their needs and wants. It refers to the actions of the consumers in the marketplace and the underlying motives for those actions.

Marketers expect that by understanding what causes the consumers to buy particular goods and services, they will be able to determine—which products are needed in the marketplace, which are obsolete, and how best to present the goods to the consumers.

**THE CONCEPT OF UTILITY:** Propounded by Alfred Marshal, utility can be defined as the want satisfying power of a commodity. There are two approaches to utility- Cardinal approach and Ordinal approach. The Cardinal approach regards utility as measurable in terms of some quantifiable unit such money. The Ordinal approach regards that utility cannot be measured. However, the consumer can rank goods in order of utility.

**MARGINAL UTILITY:** Increase in total utility as a result of the consumption of additional unit. **MU** is the slope of the total utility curve and tells as to at what rate the TU will change.

**TOTAL UTILITY:** If a person has more than one unit of a commodity in his stock, the sum of utilities which he derives from the individual units of the commodity is total utility.

- (i) the relationship between marginal utility and total utility is as follows:
- The point where MU becomes zero, is called the point of satiety. Before this point is reached (though MU tends to decline), it always remains positive. TU in this situation increases, the rate of increase, however, declines.
  - At the point of satiety, MU turns zero. At this point TU is maximum.
  - After the point of satiety, MU turns negative and as a result, TU declines. At this stage, TU declines at an increasing rate.

**LAW OF DIMINISHING MARGINAL UTILITY:** The law states that the value that any household attaches to successive units of a commodity diminishes steadily as its total consumption increases, the consumption of all other commodities being held constant.

- (i) The Law of Diminishing Marginal Utility is univesal in character.

#### **ASSUMPTIONS**

- (i) The behaviour of the consumer is rational
- (ii) Cardinal measurement of utility is possible
- (iii) Marginal utility of money is constant
- (iv) Units of commodity are normal and uniform both quantitatively and qualitatively
- (v) There is no discontinuity in consumption i.e., the consumption is taking place continuously without any break
- (vi) There is no change in the personal and social condition of the consumer i.e., income, tastes, preferences, attitude of the consumer and fashions do not change.

#### **EXCEPTIONS TO LAW**

- (i) Law does not operate in the case of rare goods like old paintings, antiques etc and for articles of distinction
- (ii) The law does not operate in the case of articles of conspicuous consumption
- (iii) The law does not operate if the mental condition of the consumer changes
- (iv) The law does not operate in the early stages of consumption
- (v) The law does not apply in the case of money
- (vi) The law does not operate for psychological reasons when a person repeatedly enjoys the same piece of music or reads some interesting book again and again.

- (viii) **An indifference curve** is a curve that represents all the combinations of goods that give the same satisfaction to the consumer. Since all the combinations give the same amount of satisfaction, the consumer prefers them equally. Hence the name indifference curve.
- (ix) Indifference Map
- (x) An Indifference Map is a set of Indifference Curves. It depicts the complete picture of a consumer's preferences. It is the combinations lying on the same indifference curve. However, it is important to note that he prefers the combinations on the higher indifference curves to those on the lower ones. This is because a higher indifference curve implies a higher level of satisfaction. Therefore, all combinations on IC1 offer the same satisfaction, but all combinations on IC2 give greater satisfaction than those on IC1.
- (xi) Properties of an Indifference Curve or IC
- (xii) **1. IC slopes downwards to the right**
- (xiii) This slope signifies that when the quantity of one commodity in combination is increased, the amount of the other commodity reduces. This is essential for the level of satisfaction to remain the same on an indifference curve.
- (xiv) **2. An IC is always convex to the origin**
- (xv) From our discussion above, we understand that as Peter substitutes clothing for food, he is willing to part with less and less clothing. This is the diminishing marginal rate of substitution. The rate gives a convex shape to the indifference curve. However, there are two extreme scenarios:
- (xvi) (a) Two commodities are perfect substitutes for each other – In this case, the indifference curve is a straight line, where MRS is constant.
- (xvii) (b) Two goods are perfect complementary goods – An example of such goods would be gasoline and water in a car. In such cases, the IC will be L-shaped and convex to the origin.

- (xviii) **3. Indifference curves never intersect each other**
- (xix) Two ICs will never intersect each other. Also, they need not be parallel to each other either.
- (xx) **4. An IC does not touch the axis**
- (xxi) This is not possible because of our assumption that a consumer considers different combinations of two commodities and wants both of them. If the curve touches either of the axes, then it means that he is satisfied with only one commodity and does not want the other, which is contrary to our
- (xxii) **Derivation of demand curve from Price Consumption Curve(PCC)**
- (xxiii) PCC provides with the information regarding what quantities of a commodity a consumer would like to have at different prices. The demand curve also provides exactly this information i.e., how much of a commodity would be demanded by a consumer at different prices. However, while in the case of a price consumption curve, two commodities are presented – one on the x axis and other on the y axis and price at which these quantities are demanded on the y axis. Demand curve can be derived easily from the price consumption curve. For this purpose, while quantities of the commodity are taken on the x axis, income of the consumer is taken on the y axis.

(xxiv)

### **SESSION 9: Demand Forecasting**

#### **DEMAND FORECASTING**

— according to **Cundiff and Still**, "*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.*"

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.

- 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?

### **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.

### **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. 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.

## **SESSION 10: Introduction to Production Function**

**Production function**, expresses the relationship between the quantities of productive factors (such as labour and capital) used and the amount of product obtained. It states the amount of product that can be obtained from every combination of factors, assuming that the most efficient available methods of production are used. The production function can thus answer a variety of questions. It can, for example, measure the marginal productivity of a particular factor of production (*i.e.*, the change in output from one additional unit of that factor). It can

also be used to determine the cheapest combination of productive factors that can be used to produce a given output.

Important Points:

- (i) Production function belongs to the Supply side of economics.
- (ii) It Examines the behavior of producers
- (iii) Seeks to answer How firms can produce efficiently and how their costs of production change with changes in both input prices and the level of output.
- (iv) Production functions describe what is technically feasible when the firm operates efficiently—that is, when the firm uses each combination of inputs as effectively as possible.
- (v) It shows the highest output that a firm can produce for every specified combination of inputs.
- (vi) It is based on ‘Theory of the firm’:

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. **Labour:** Labour 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 labour.

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 Decisions of a Firm depend upon:**

Details:

Production Technology: Factors of production Inputs e.g., labor, capital, and materials.

Example:

Labor inputs:

Skilled workers (carpenters, engineers); unskilled workers (agricultural workers); entrepreneurial efforts of the firm's managers.

Materials:

Steel, plastics, electricity, water, and any other goods that firm buys and transforms into final products.

Capital:

Land, buildings, machinery, inventories.

### **Law of Diminishing Marginal Returns applied to production function**

- (i) As the use of an input increases with other inputs fixed, the resulting additions to output will eventually decrease.
- (ii) Labour inputs are of equal quality: Assumption
- (iii) DMR results from the limitation on the use of fixed input.
- (iv) It is not negative returns

### **EFFECT OF TECHNOLOGICAL IMPROVEMENT**

*Labor productivity* (output per unit of labor) can increase if there are improvements in technology, even though any given production process exhibits diminishing returns to labor.

As we move from point *one point on production function curve* to *another*, labor productivity increases. Adding one factor while holding the other factor constant eventually leads to lower and lower incremental output.

□