Industrial Economics and Foreign Trade

HUT 300

MODULE 1

Economics

- Economics originated from the Greek word 'IOKONOMIA' which means *Household Management*
- Adam Smith (Father of Economics) > 1776 > 'Wealth of Nations'
- Economics studies how the society and individuals use the limited resources to satisfy the unlimited wants.

Business Economics

Definition

- BE is the branch of analysis which employs the application of economic concepts, methods and theories to solve the practical problems faced by a business firm and to formulate rational business decision.

Basic Economic Problems / Central Problems in an Economy

- Basic concern : Scarcity of Resources (Limited Resources and Unlimited Wants)
- Basic Economic Problems or Central Problems in an Economy as follows :

1. The Problem of Allocation of Resources.
2. The Problem of Fuller Utilization of Resources.
3. The Problem of Growth of Resources.
4. The Problem of Efficiency.

The Problem of Allocation of Resources

- The major concern pertains to
- 1. What to Produce ? (Produce according to the current needs of an economy)
- 2. How to Produce ? (L or K, Depends on Price and Availability)
- 3. For whom to Produce ? (For society and household)

The Problem of Fuller Utilization of Resources

- Optimum usage of limited resources
- No wastage
- Best efficient usage of scarce resources to tap maximum productive capacity

The Growth of Resources

- To improve the standard of living
- To achieve economic growth of an economy
- It is through Technological Advancement where an economy increase the recourse limit
- Technology Advancement > More Growth for an economy

The Problem of Efficiency

- Efficient usage of resources

Scarcity and Choice

- Scarcity means that resources are not available in the required quantity to satisfy all the wants and needs.
- Since we face Scarcity, people have to make choice between goods and services.
- In 1932, Lionnel Robinson ('Nature and significance of Economics') defined economics as a "science which studies the human behaviour in relationship with given ends and scarce means"

Economic Resources OR Factors of Production

- In Economics , resources are classified into 4

1. Land (La) > Surface soil + Natural resources
2. Labour (L) > Mentally and Physically fit for work
3. Capital (K) > All Man made aids to production
4. Organization / Enteurperneurship > Combines all factors of production

Production Possibility Curve (PPC) or Production Possibility Frontier (PPF)

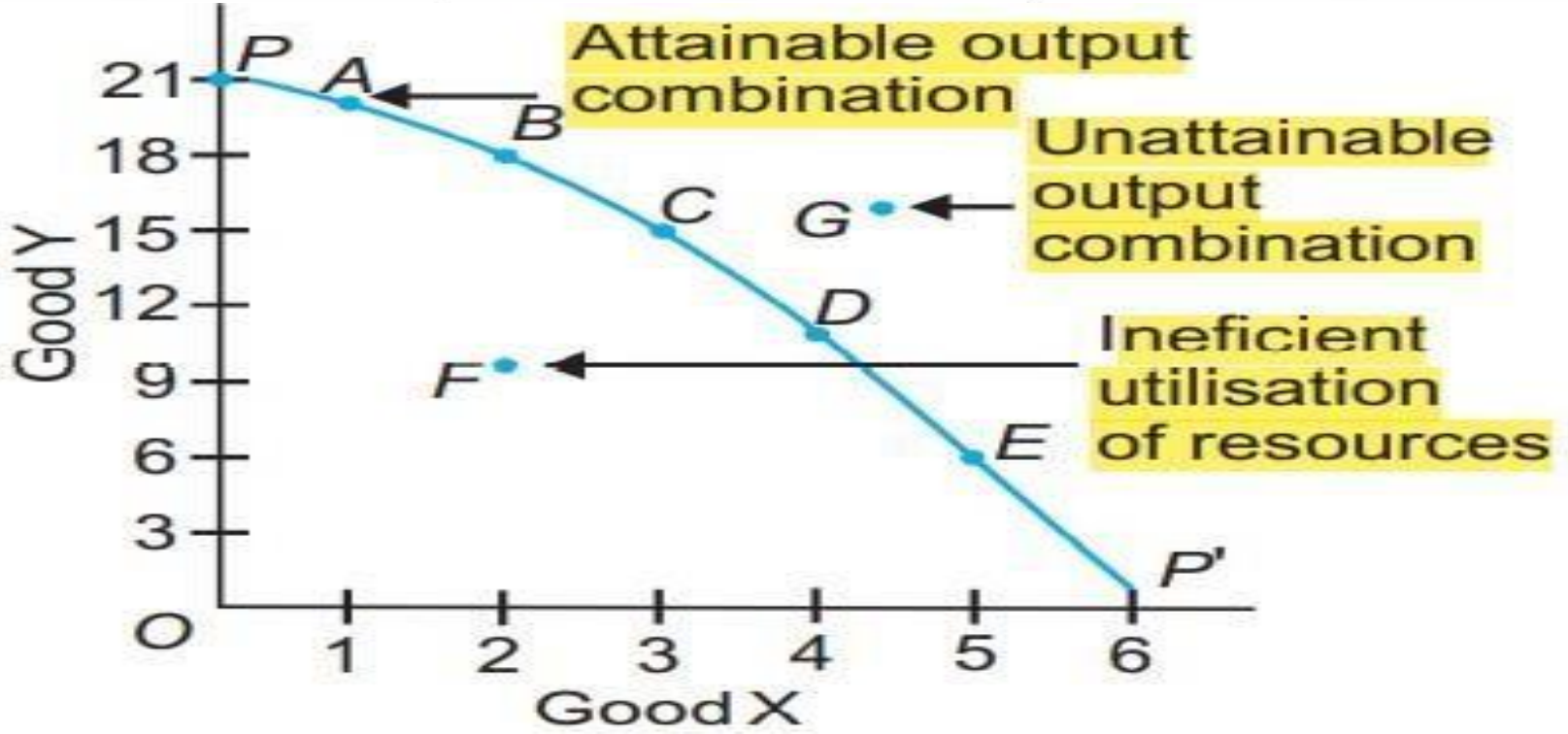
- PPC or PPF shows the various combinations of two commodities that can be produced with latest technology available and within given resources utilised fully and efficiently.

Assumptions

- Only 2 commodities
- Latest technology
- Fuller utilisation of resources

Table 1.3 **Production Possibility Schedule**

Production Possibility	Good *X*	Good *Y*
P	0	21
A	1	20
B	2	18
C	3	15
D	4	11
E	5	6
P'	6	0



Explanation

- Any point on PPC shows fuller utilisation of resources
- Any point above or beyond PPC > point cannot be attained, beyond the scope
- Any point below the PPC shows the under utilisation of resources
- PPC is downward slopping curve and concave in shape shows resources are transferred from one use to other use, that's why it is known as transformation curve.
- It is also known as production boundary or production frontier

Features of Production Possibility Curve

- **PPC slopes downward**: Production of one good can be increased only after sacrificing production of some quantity of the other good.
- **PPC is concave to the origin**: A production possibility curve is concave to the point of origin because of increasing marginal rate of transformation (MRT) or increasing marginal opportunity cost (MOC).

- Marginal opportunity cost is opportunity cost of good X gained in terms of good Y given up. It is also called Marginal Rate of Transformation (MRT).
- Concave shape of PPC means that slope of PPC increase which implies that MRT increases.
- It means that for producing an additional unit of a good, sacrifice of units of other good (i.e. opportunity cost) goes on increasing.

Slope of PPC is defined as the quantity of good Y given up in exchange for additional unit of good X

$$[\text{Slope of Production Possibility Curve}] = \frac{\Delta Y}{\Delta X} = \frac{\text{Amount of Good } Y \text{ lost}}{\text{Amount of Good } X \text{ gained}}$$

$$= MRT \text{ or } [\text{Marginal Opportunity Cost}]$$

Shift in PPC

Shift in PPC shows technological growth in the economy

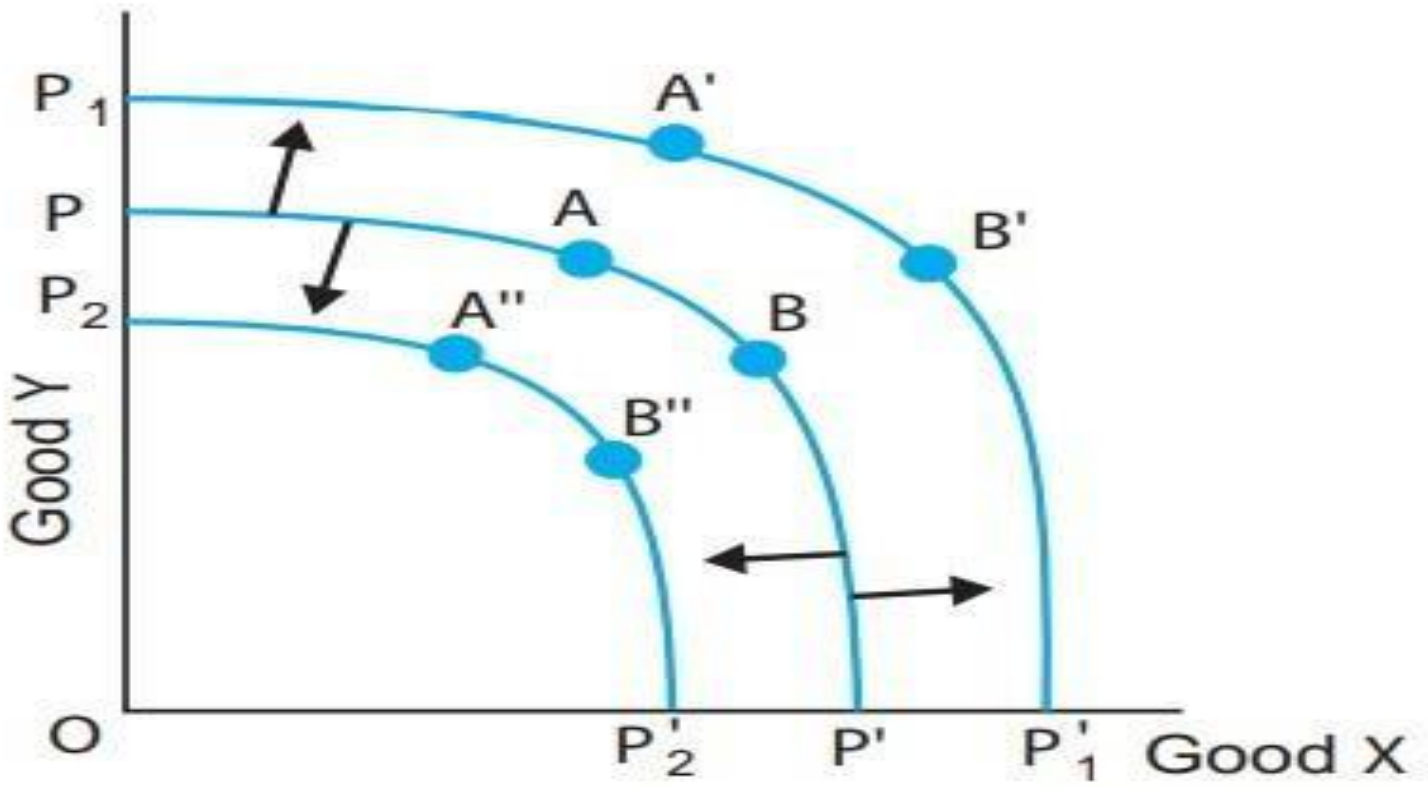


Fig. 1.6 P_1P_1' shows Economic Growth

Firm and Types

- A firm is a for-profit business organization—such as a corporation, limited liability company (LLC), or partnership—that provides professional services.

Types of Firm:

- A **sole proprietorship or sole trader** is owned by one person, who is liable for all costs and obligations, and owns all assets.
- A **partnership** is a business owned by two or more people; there is no limit to the number of partners that can have a stake in ownership. A partnership's owners each are liable for all business obligations, and together they own everything that belongs to the bu siness.

- **Corporation:** Owners of a corporation are not liable for any costs, lawsuits, or other obligations of the business. A corporation may be owned by individuals or by a government.. A firm that is owned by multiple people is often called a company.
- A **financial cooperative** is similar to a corporation in that its owners have limited liability, with the difference that its investors have a say in the company's operations

Firms and its objectives

The main objectives of firms are:

- Profit maximisation
- Sales maximisation
- Increased market share/market dominance
- Social/environmental concerns
- Co-operatives – Welfare oriented

Law of diminishing marginal utility

Basic Concepts

Utility

The want satisfying capacity of a commodity is known as utility. It is expressed in Utils. Utility is a cardinal concept i.e., it can be measured. Benham formulated the unit of measurement of utility as utils.

Total Utility (TU)

TU refers to the total satisfaction derived by the consumer from the consumption of a given quantity of a commodity.

TUn = MU1 + MU2 + ...+ Mun

Marginal Utility (MU)

MU refers to the additional utility derived by the consumer from the consumption of an additional unit of a commodity

$$MU = TU_n - TU_{n-1}$$

$$MU = \frac{d(TU)}{d(Q)}$$

Law of Diminishing Marginal Utility Theory (DMU) / Theory of Consumer Behaviour

- Theory has been developed by Prof.Alfred Marshall

Assumptions of the Theory

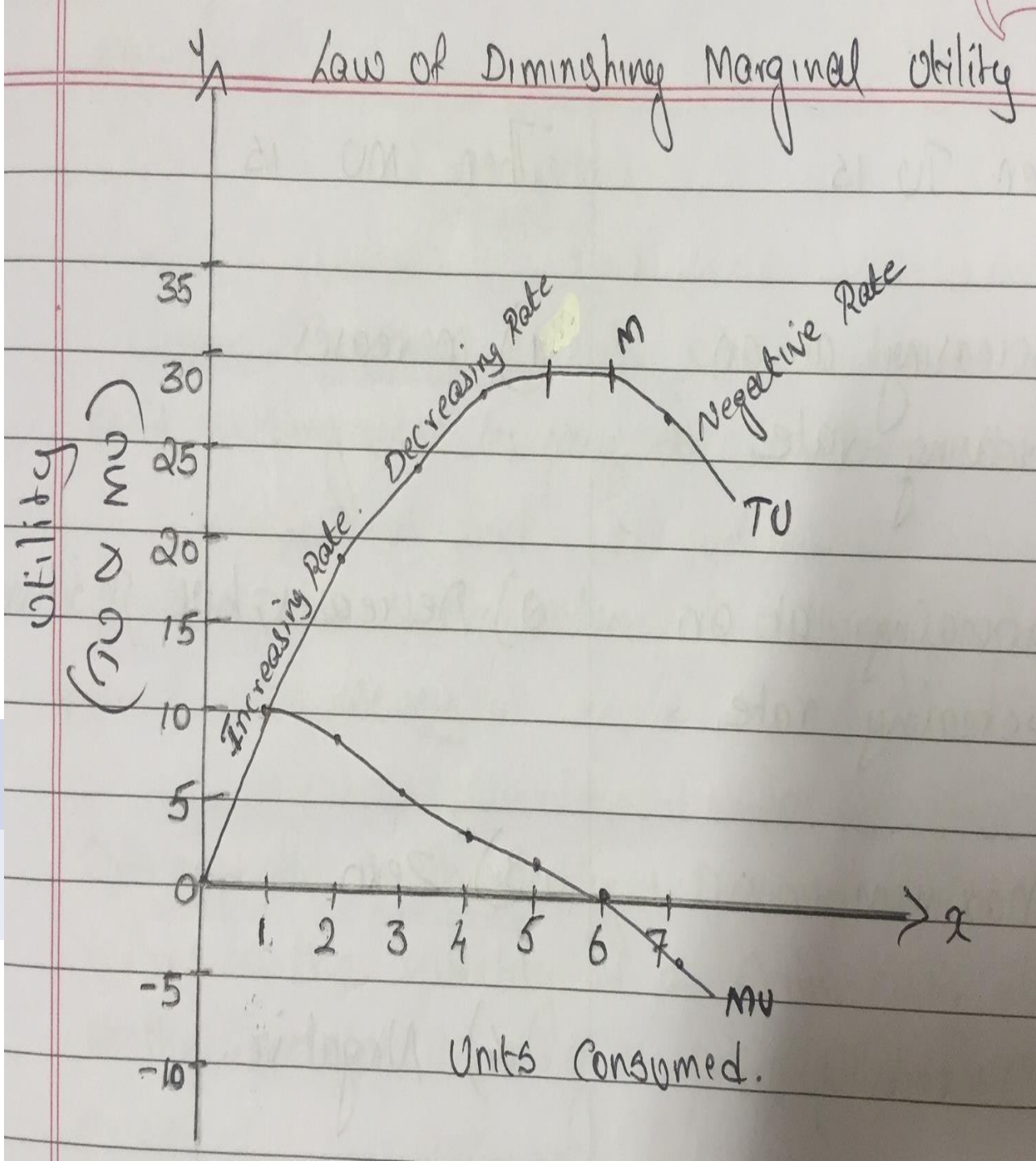
- Rationality
- Commodities should be homogenous and normal
- No time gap between the consumption of goods
- No change in taste and preferences
- No change in price of the commodity

Statement of Theory

- As the consumer consumes more and more units of a same good, the additional utility (MU) from each additional units goes on decreasing.

Units Consumed	TU	MU
0	0	0
1	10	10
2	18	8
3	24	6
4	27	3
5	29	2
6	29	0
7	27	-2

Law of Diminishing Marginal Utility



STAGE 1 > Increasing Returns

- TU , MU increases at an increasing rate

Stage 2 > Diminishing Returns

- MU starts falling
- TU increases at a diminishing rate
- At the end of second stage , MU reaches zero and TU reaches at its maximum (Point M)

Stage 3 > Negative Returns

- After point M, MU becomes negative
- TU starts falling

NOTE : TU moves according to MU

Consumer Equilibrium

- According to DMU ,the consumer reaches equilibrium when MU of last unit is equal to price of the commodity

➢ When he consumes only one commodity

MU = PRICE

➢ When he consumes more than one commodity (Consumes Goods X , Y , Z) - Law of Equi-Marginal Utility

$$\frac{MUx}{Px} = \frac{MUy}{Py} = \frac{MUz}{Pz} \ldots\ldots\ldots \frac{MUn}{Pn}$$

Demand

- Demand is the desire backed by the ability and willingness to pay for a commodity.
- Price is the value of a thing expressed in terms of money.
- Demand for a commodity : it refers to the qty of a commodity demanded in the market in a given period of time at a given price.

Determinants of Demand / Factors affecting Demand

- **Price of the commodity** (P rises, DD falls and vice versa)

❖Exceptional cases: Giffen goods (Essential) and Veblen goods (Luxury)

- **Income of the consumer (Y)**

❖Y rises, DD rises and vice versa (Normal Goods)

❖Y rises ,DD decreases (Inferior Goods)

❖Y increases or decreases , DD remains constant (Exceptional goods)

- **Taste and preferences of consumer**

- **Price of other commodity**

  - Substitute goods
  - Complementary goods

- **Consumer Expectations**

- **Size of population**

Demand Function

- It shows the functional relationship between the demand for a commodity and factors affecting demand is called demand function.

Dn = f(Pn, P1…Pn-1, Y , T , E , H , G …. U)

Law of Demand

- **Statement of Law**

"Other things remains constant , the quantity demanded of a commodity increases when it's price falls and decreases when it's price rises"

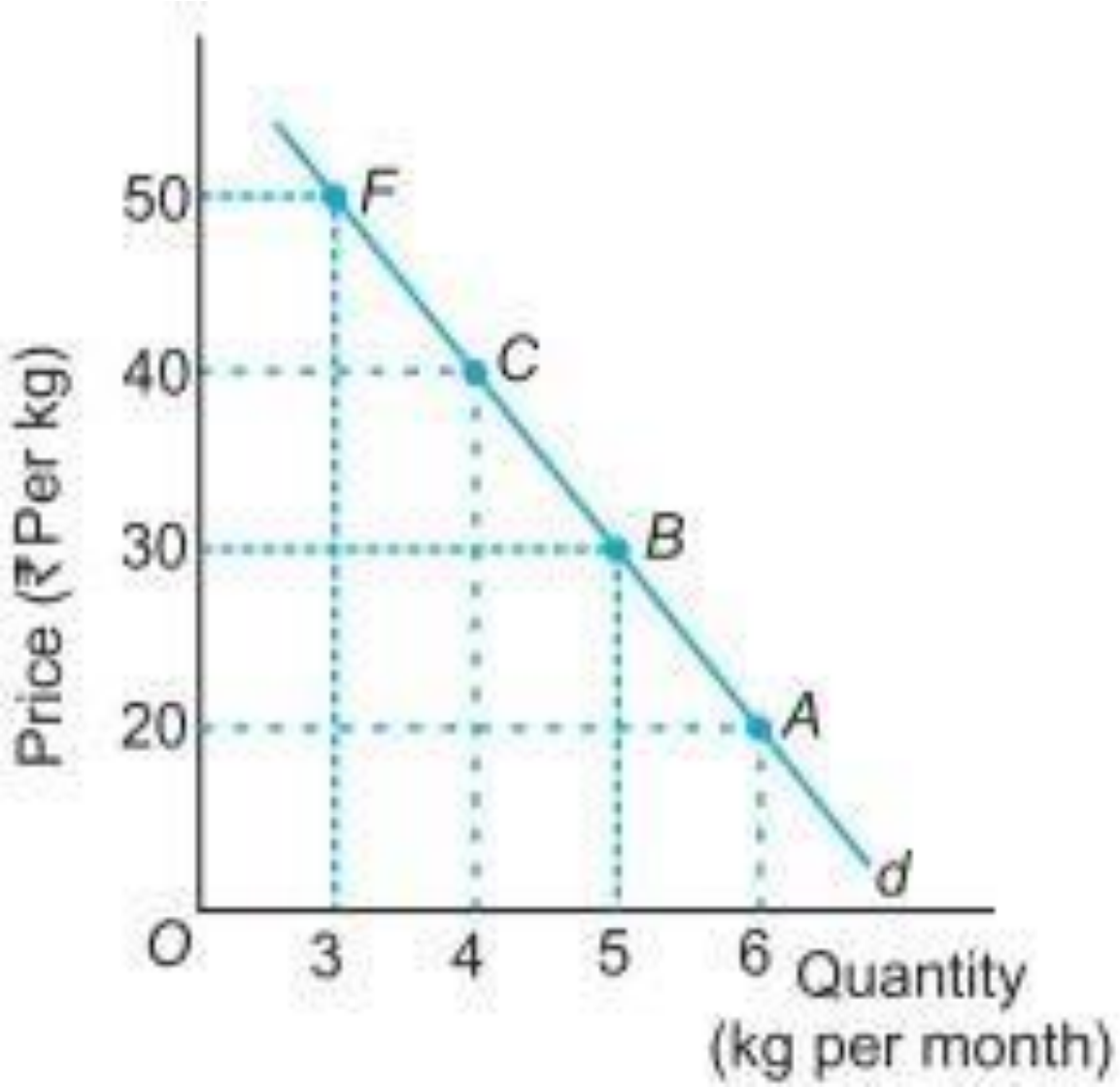
Demand Schedule

- It is the table that shows different quantities of a commodity that would be demanded at different prices.

Table 3.1 Demand Schedule for Wheat

Price (₹ per kg)	Quantity Demanded (kg per month)	Reference Point (Fig. 3.6)
20	6	*A*
30	5	*B*
40	4	*C*
50	3	*F*

Demand Curve



Exceptions to Law of Demand

- Inferior Goods
- Luxury Goods
- Life saving Goods
- Basic Necessities

Changes in Demand

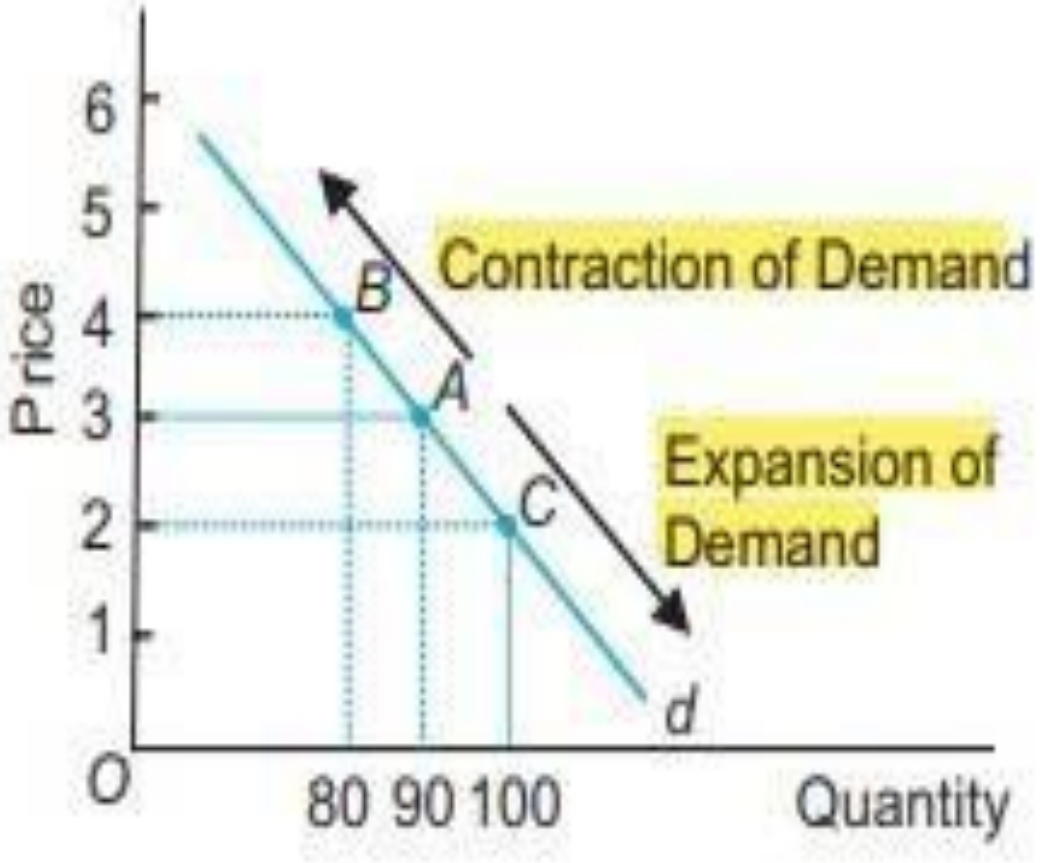
2 types of changes in demand

- Change in demand due to change in price – Expansion and Contraction of Demand – Movement along demand curve

- Change in demand due to factors other than price – Increase and Decrease in demand – Shift in demand curve

Change in demand due to change in price

- Price changes and other factors remains constant



Change in demand due to factors other than price

- Other factors changes and price remains constant

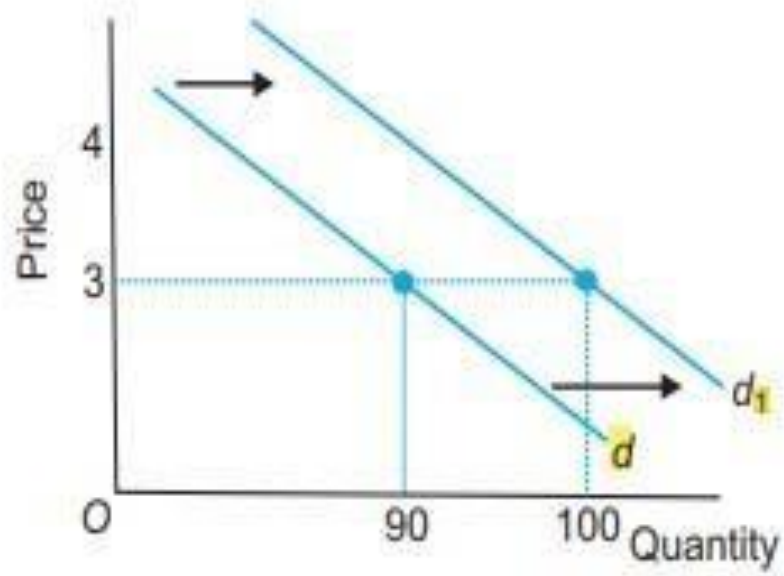


Fig. 3.9 Shift in Demand Curve: Increase in Demand

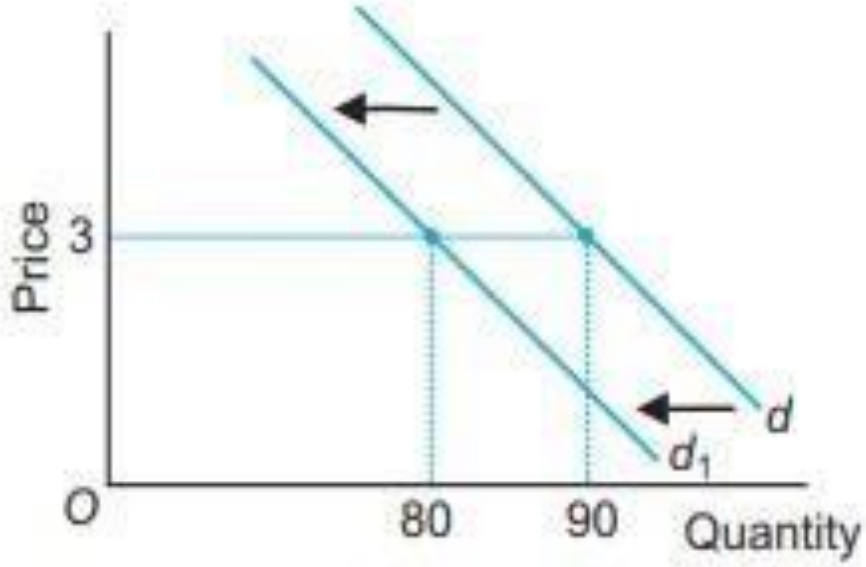


Fig. 3.10 Shift in Demand Curve: Decrease in Demand

Elasticity of Demand

- It refers to the degree of responsiveness change in qty demanded of a commodity due to change in price or any other factors.
- It was put forward by Alfred Marshall
- 3 Types of elasticity of demand

✓ Price Elasticity

✓ Income Elasticity

✓ Cross Elasticity

Price Elasticity of Demand (ep)

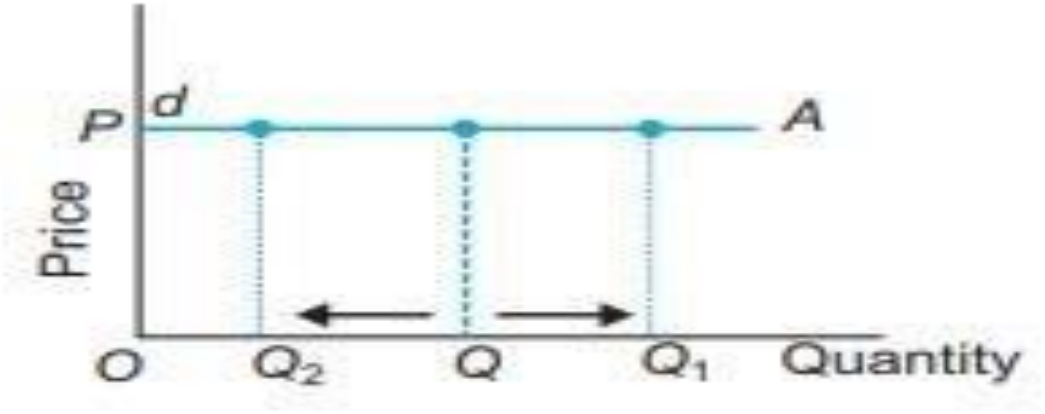
- It refers to the degree of responsiveness change in qty demanded of a commodity due to change in price.

Types of price elasticities of Demand

1. Perfectly elastic demand
2. Perfectly inelastic demand
3. Unit elastic demand / Unitary elastic demand
4. Elastic demand / More elastic demand
5. Inelastic demand / Less elastic demand

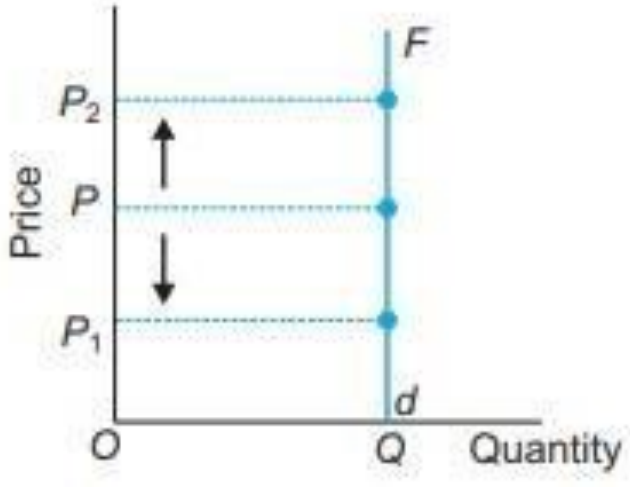
Perfectly Elastic Demand

- With a small change in price there would be an infinite change in qty demanded. It is an ideal and imaginary situation.
- Demand curve would be a horizontal straight line parallel to x - axis
- In this case price elasticity would be infinity



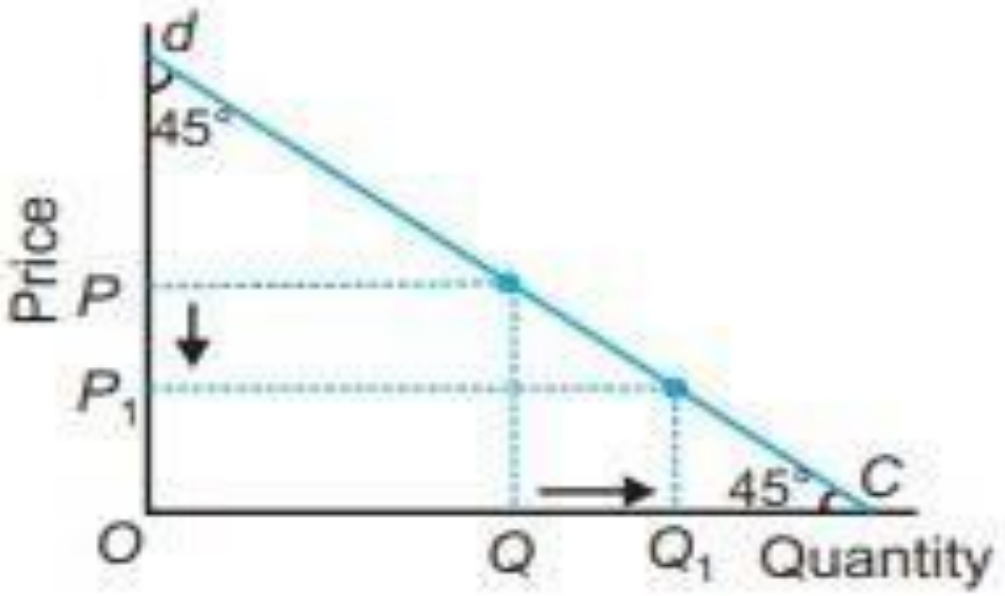
Perfectly Inelastic Demand

- With a small change in price there would be no change in qty demanded. It exists in case of essentials like life saving drugs.
- Demand curve would be a vertical straight line parallel to Y - axis
- In this case price elasticity would be Zero



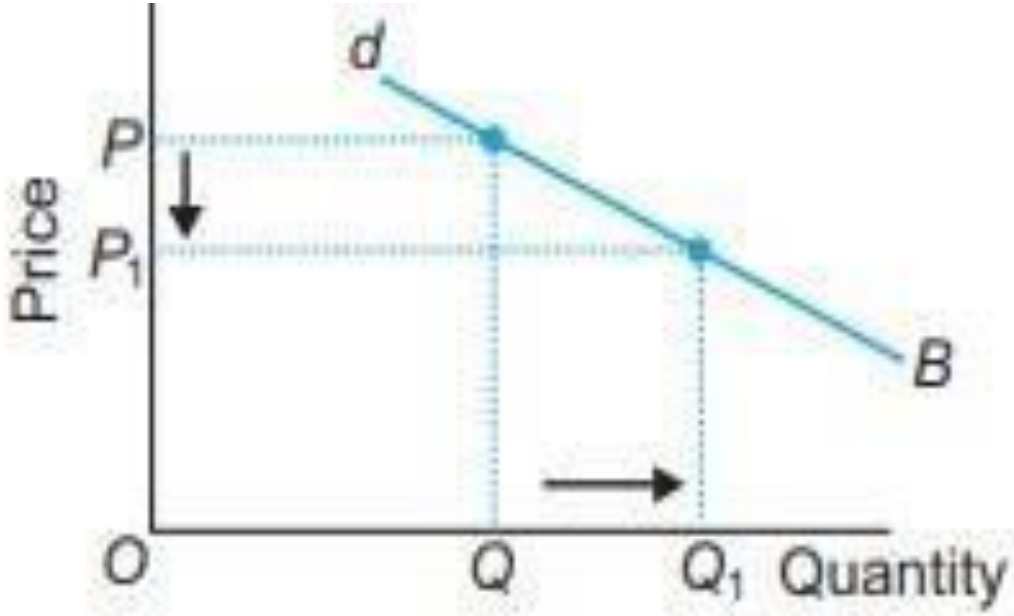
Unit Elastic Demand/Unitary Elastic Demand

- With a given change in price there would be an equal and proportionate change in qty demanded for the commodity. It exists in case of normal goods.
- ep = 1



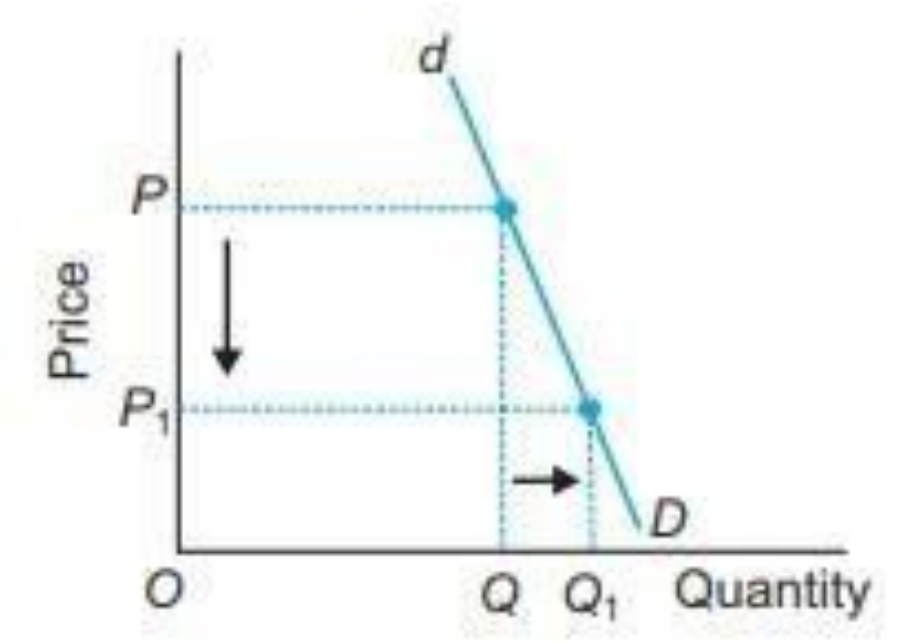
More elastic demand/ Elastic demand

- With a given change in price there would be a more than proportionate change in qty demanded of the commodity. It exists in case of luxuries.
- Ep > 1



Inelastic demand /Less Elastic demand

- With a given change in price there would a less than proportionate change in qty demanded of the commodity. It exists in case of necessities like food, fuel, etc.
- Ep < 1



Price elasticity of demand: Measurement using Percentage Method

Percentage method is also called proportionate method. The absolute value of the coefficient of elasticity of demand ranges from zero to infinity.

$$e_D = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

$$\text{or} \quad e_D = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$$

Numerical Problems

- Suppose the qty demanded of a commodity was initially 800 units at a price of 10rs and increases to 1000 units when price falls to 8rs. Calculate price elasticity of demand?

Numerical Problems

- When the price of a commodity falls by 2 per unit, its quantity demanded increases by 10 units. Its price elasticity of demand is 1. Calculate its quantity demanded at the price before change which was 10 per unit.
- The quantity demanded of a commodity falls by 5 units when its price rises by 1 per unit. Its price elasticity of demand is 1.5. Calculate the price before change if at this price quantity demanded was 60 units.
- The market demand for a good at a price of 10 per unit is 100 units. When its price changes its market demand falls to 50 units. Find out the new price if the price elasticity of demand is 2.
- A consumer spends 40 on a good at a price of 1 per unit and 60 at a price of 2 per unit. What is the price elasticity of demand? What kind of good it is? What shape its demand curve will take?

Supply

- Supply refers to the quantities of a commodity which a seller offers for sale at a particular price in a given period of time.
- It refers to the desired qty of commodity that the seller offer for sale in the market.

Factors affecting Supply

- Price of the commodity (P rises SS rises)
- Goals of the firm
- Price of other commodities
- Price of factors of production
- State of technology
- Government Taxation

Supply function

- It shows the functional relationship between supply and factors affecting the supply

Sn = f(Pn, Pn...Pn-1, Gf, T, E, Gt, N….U)

Law of Supply

'Other things remains constant, the quantity supplied increases with rise in price of the commodity and quantity supplied decreases with fall in the price of the commodity'

Supply Schedule

- It is a table shows the amounts of a commodity supplied at a given period of time at various prices

Price (₹ per kg)	Quantity Supplied (kg per Month)	Reference Point (Fig. 9.3)
1	5	*A*
2	8	*B*
3	12	*C*

Supply Curve

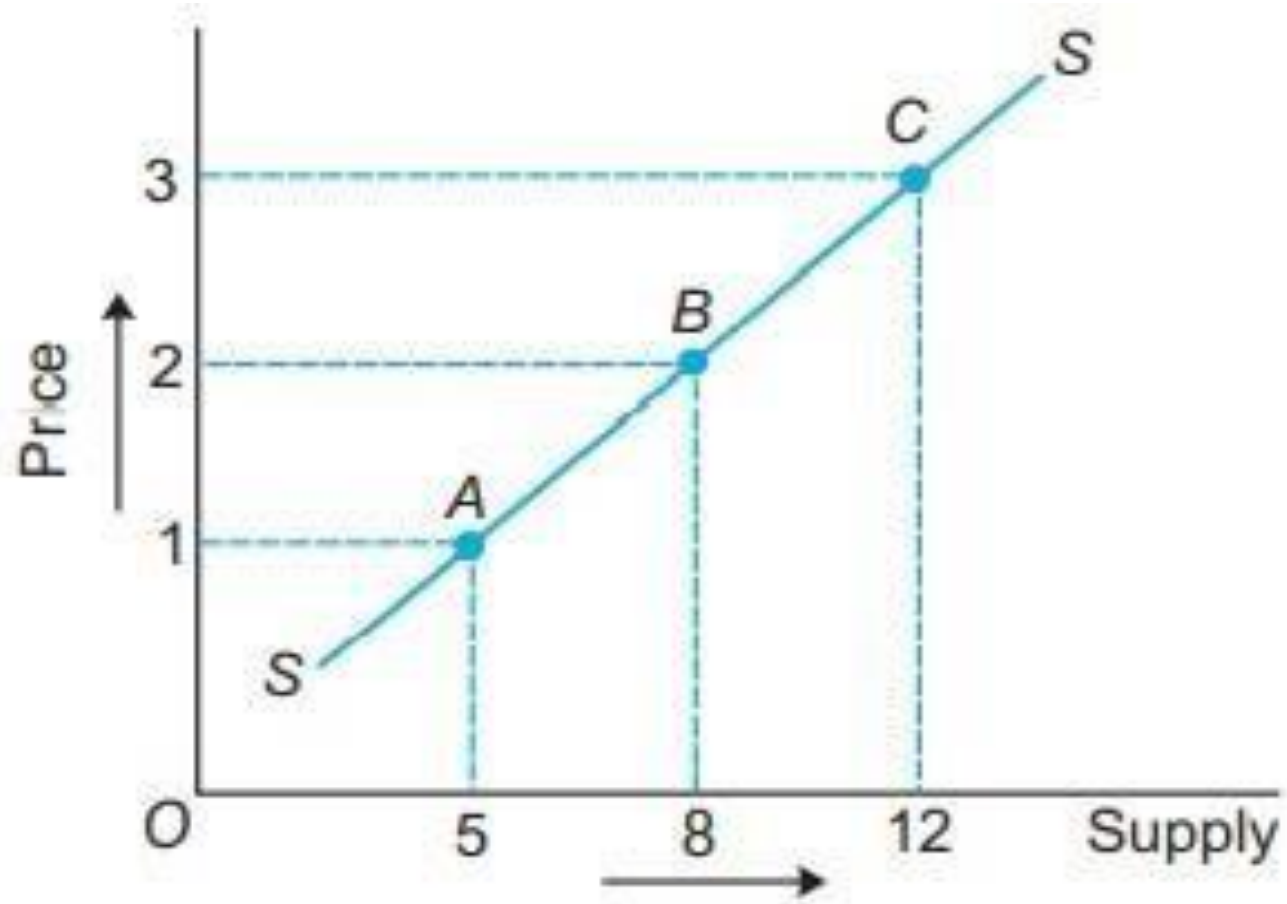


Fig. 9.3 The Supply Curve

Changes in Supply

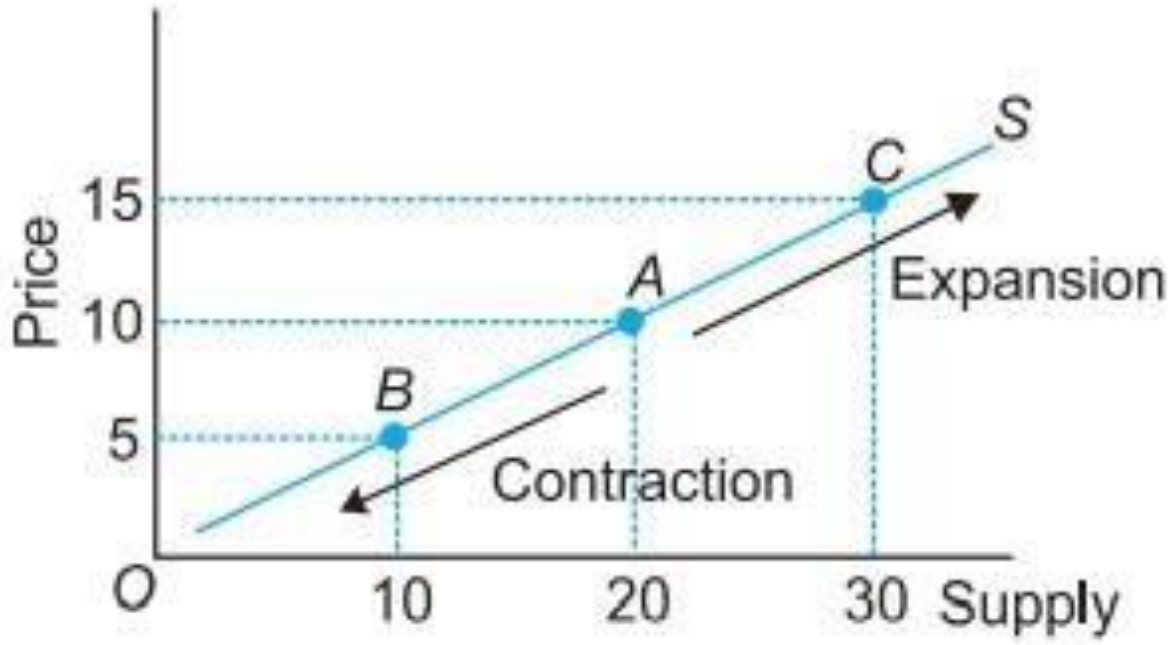
2 types of changes in Supply

- Change in supply due to change in price – Expansion and Contraction of supply – Movement along supply curve

- Change in supply due to factors other than price – Increase and Decrease in supply – Shift in supply curve

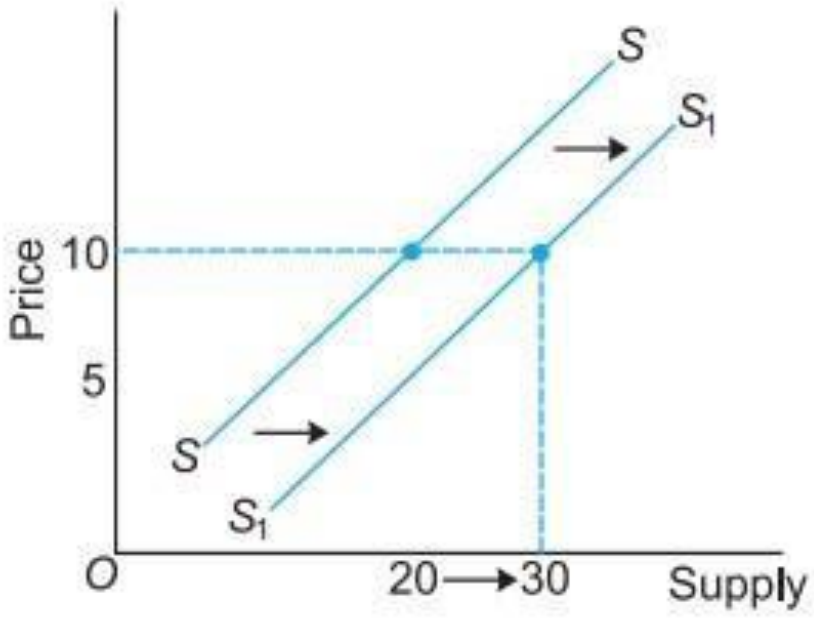
Change in supply due to change in price

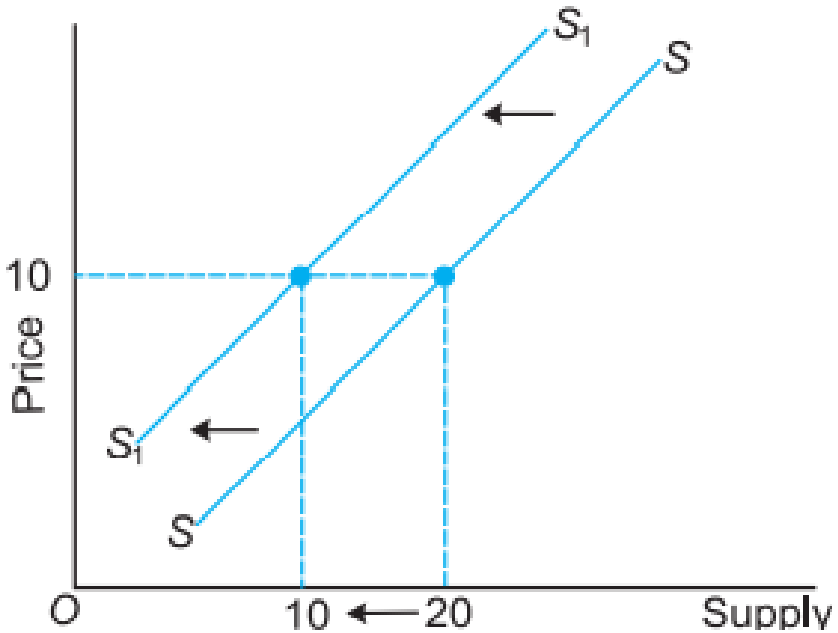
- Price changes other factors remains the same



Change in supply due to factors other than price

- Other factors changes and price remains the same





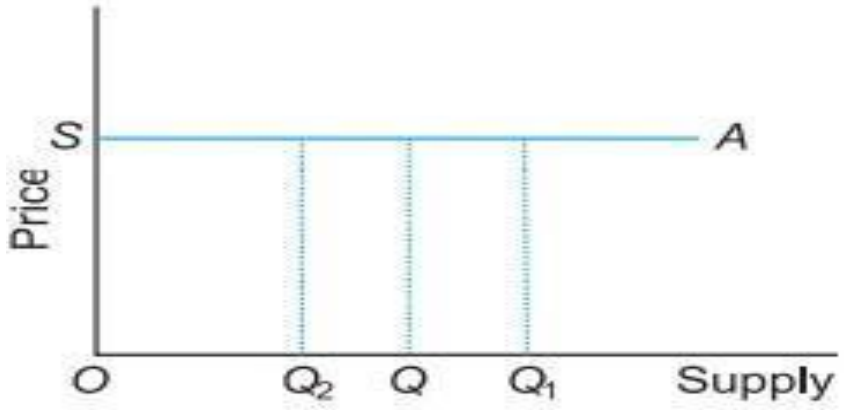
Elasticity of Supply (Es)

- It refers to the degree of responsiveness change in qty supplied of a commodity due to change in price or any other factors.
- We have only price elasticity under Elasticity of Supply (Es)

1. Perfectly elastic supply
2. Perfectly inelastic supply
3. Unit elastic supply / Unitary elastic supply
4. Elastic supply / More elastic supply
5. Inelastic supply / Less elastic supply

Perfectly elastic supply

- With a small change in price there would be an infinite change in qty supplied.
- Supply curve would be a horizontal straight line parallel to x - axis
- In this case price elasticity would be infinity



Perfectly Inelastic supply

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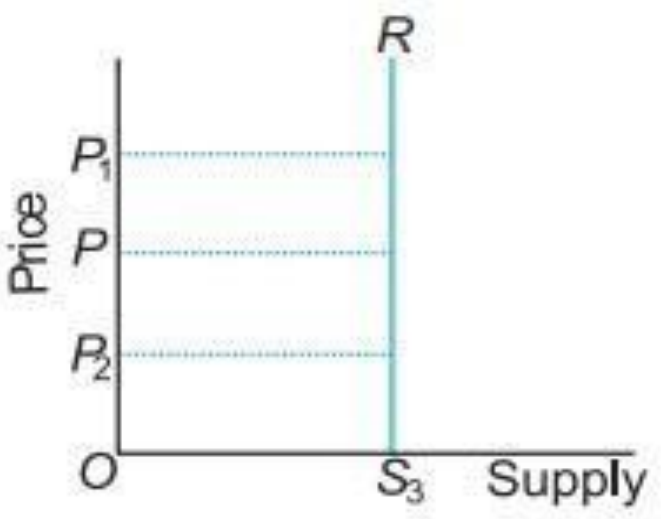
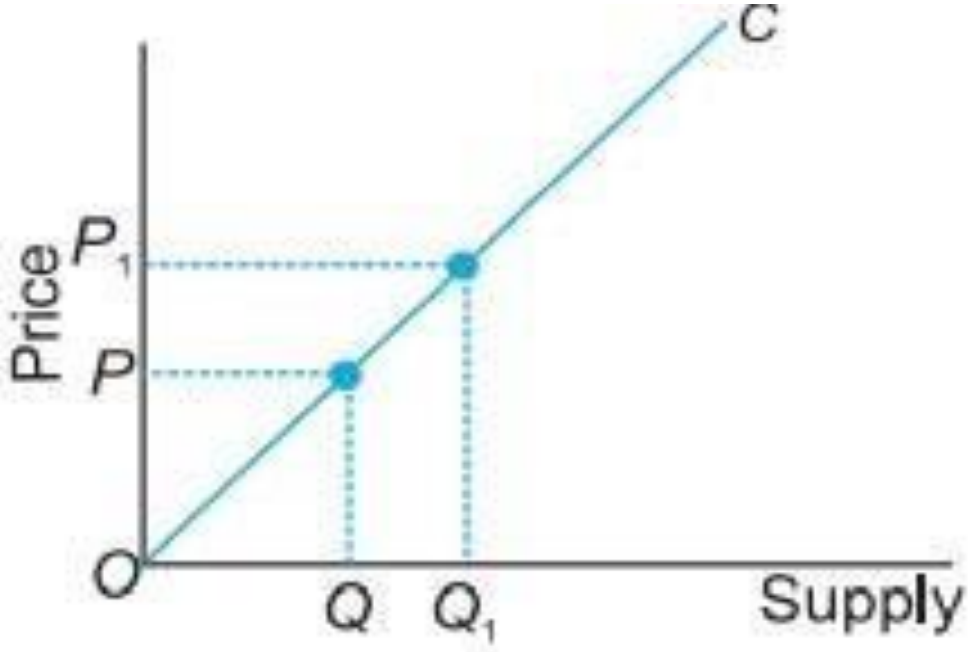


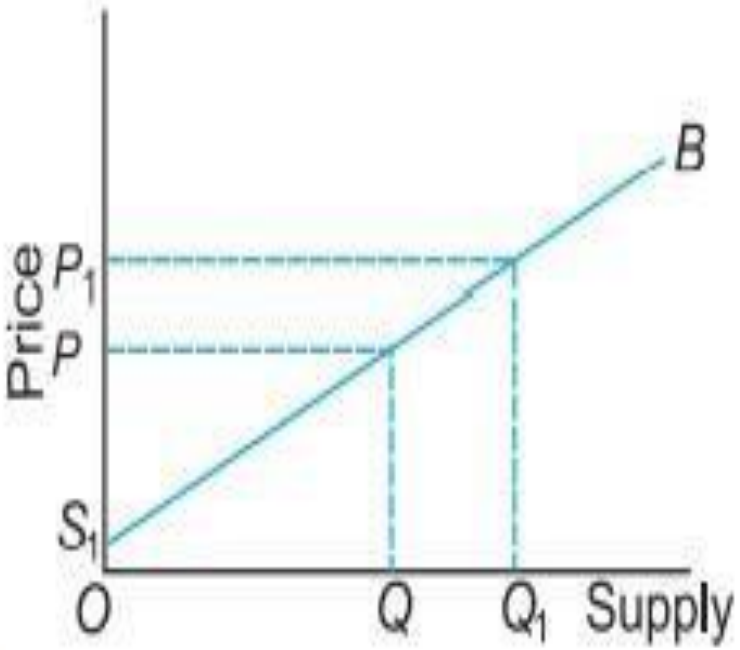
Unit elastic supply / Unitary elastic supply

- With a given change in price there would be an equal and proportionate change in qty supplied for the commodity
- es = 1



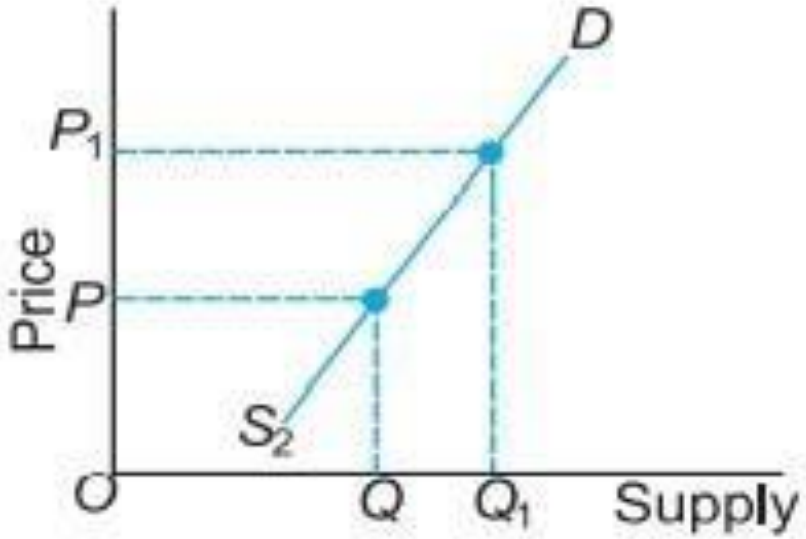
Elastic supply / More elastic supply

- With a given change in price there would be a more than proportionate change in qty supplied of the commodity.
- Es > 1



Inelastic supply / Less elastic supply

- With a given change in price there would a less than proportionate change in qty supplied of the commodity.
- Es < 1



Equilibrium Price & Quantity

- Equilibrium is a position or situation from which there is no tendency to change. It is a state of balance or rest.

Equilibrium Price

Qd = Qs

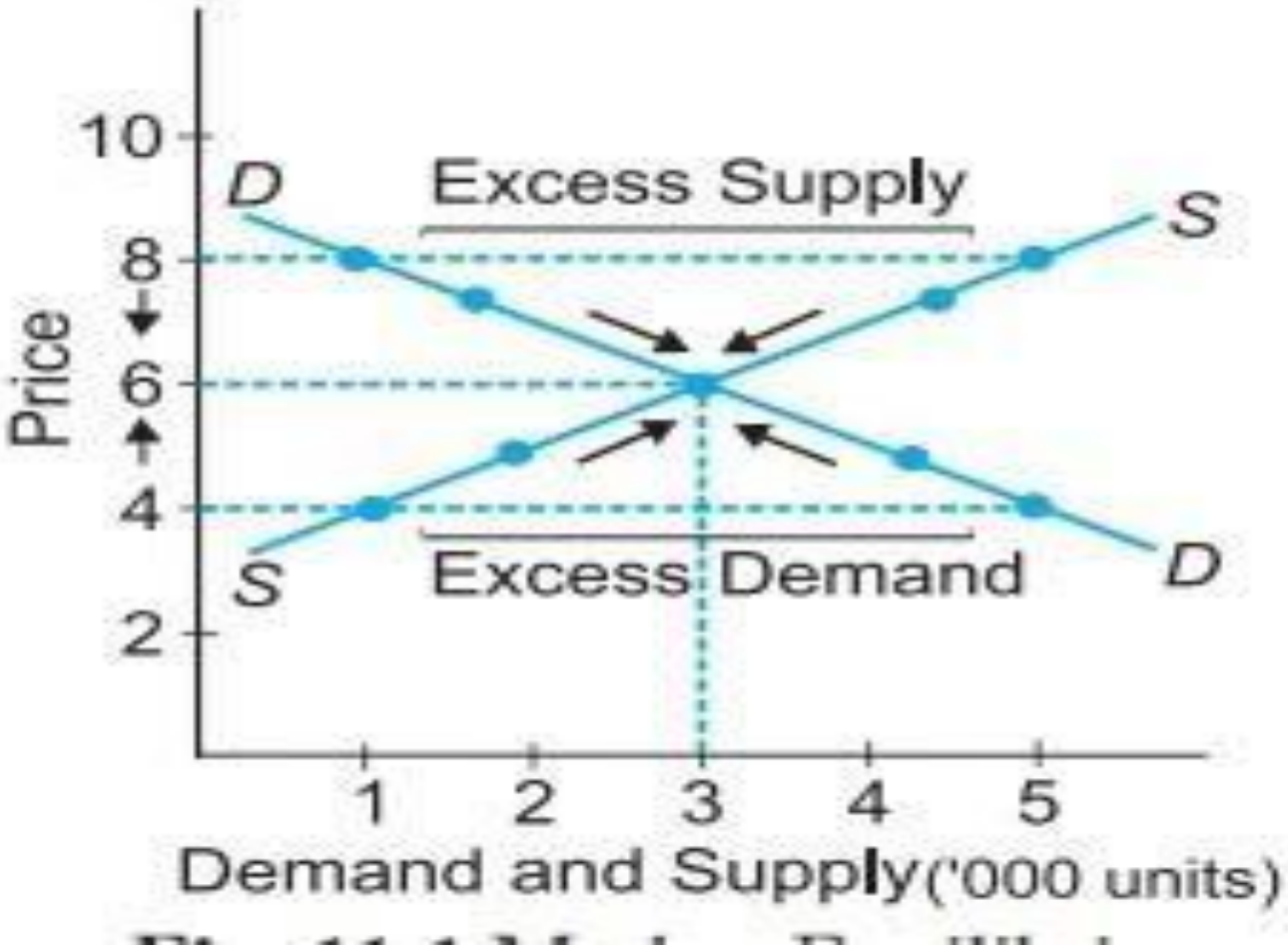
it is the price at which qty demanded of a commodity equals to the quantity supplied of the commodity

Thus demand and supply is known as Invisible hands of the market

Determination of Equilibrium Price and Quantity

Table 11.1 Market Demand-Supply Schedules

Price ₹	Market Demand (Units)	Market Supply (units)	Equilibrium
8	1000	5000	Excess Supply
7	2000	4000	Excess Supply
6	3000	3000	Market Equilibrium
5	4000	2000	Excess Demand
4	5000	1000	Excess Demand


10
8
6
4
2
Price
D
Excess Supply
S
S
Excess Demand
D
1
2
3
4
5
Demand and Supply ('000 units)

Effects of changes in demand and supply on equilibrium price

- Increase in Demand
- Decrease in Demand.
- Increase in Supply
- Decrease in supply

- Suppose the demand function of a particular commodity for the year 2006 is given by $Qd = 1000 – P$ and supply function is given as $Qs = 100 + 4P$.
- Find equilibrium price & qty
- What is the excess demand or excess supply when price is a.) 500 b.) 100

- Given the following demand and supply functions of a particular commodity . Find the equilibrium price and quantity ?
- $Q_d = 100 - P$
- $P = 10 + 2Q_s$

Solution:

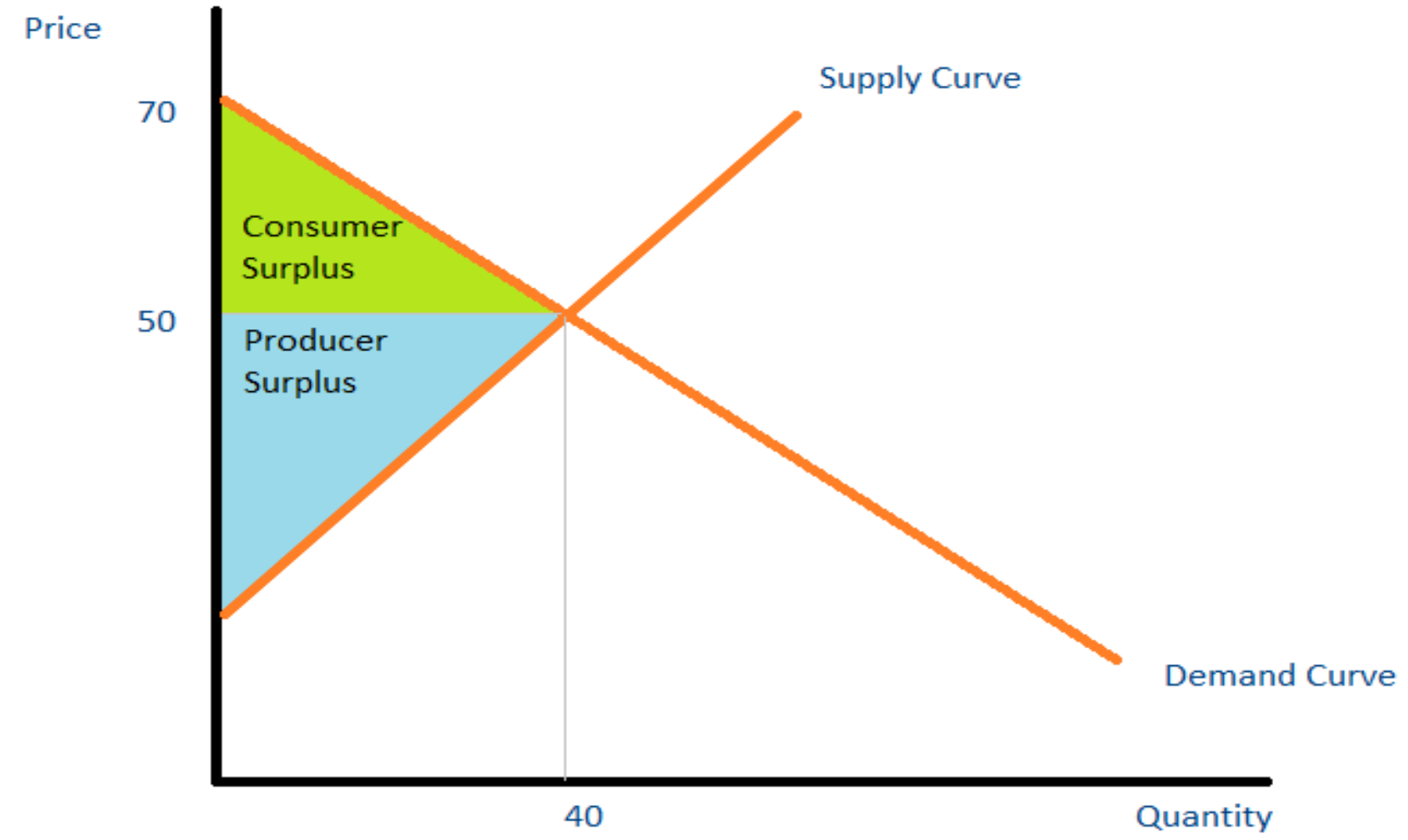
Qd = Qs

Consumer Surplus

- Consumer surplus is defined as the difference between the consumers' willingness to pay for a commodity and the actual price paid by them.
- A surplus occurs when the consumer’s willingness to pay for a product is greater than its market price.
- Consumer surplus always increases as the price of a good falls and decreases as the price of a good rises.

Producer Surplus

- Producer surplus is the difference between how much a person would be willing to accept for given quantity of a good versus how much they can receive by selling the good at the market price.
- The difference or surplus amount is the benefit the producer receives for selling the good in the market


Price
70
50
Consumer Surplus
Producer Surplus
Supply Curve
Demand Curve
40
Quantity

Taxation

- Taxation is the means by which a government or the taxing authority imposes or levies a tax on its citizens and business entities.
- *Taxation* refers to the practice of government collecting money from its citizens to pay for public services.
- A tax is a mandatory fee or financial charge levied by any government on an individual or an organization to collect revenue for public works providing the best facilities and infrastructure.

Deadweight Loss

- A deadweight loss is a cost to society created by market inefficiency, which occurs when supply and demand are out of equilibrium.
- A deadweight loss is the irrecoverable reduction in economic efficiency that occurs when a free-market equilibrium is disturbed by a market intervention or other shock to supply and/or demand.