

SUPPLY

Supply refers to the quantity of a commodity offered for sale in the market. Supply is always expressed with reference to a price.

DETERMINANTS OF SUPPLY

The important factors determining supply of a commodity are the following:

1. Price of the Commodity:- The most important factor determining the supply of a commodity is its price. Supply varies directly with price. Other things remaining the same, as the price of a commodity increases, more of it is supplied and if the price falls, only less of it is supplied.

2. Price of other commodities:- Price of other commodities may influence the supply of the commodity. For example, if price of onion increases, a producer of potato may produce less of potato and switch over to the production of onion in order to sell more of it and get more income.

3. Goals of the firm:- The main goal of every private business firm is Profit Maximisation. Apart from this goal, firms pursue other goals like Sales Maximisation, Manager's Utility Function Maximisation, Industry Leadership Status, Social Recognition etc. These goals influence supply.i.e, a change in the goals of the firm will affect the supply of a commodity favourably or adversely.

4. Prices of factors of production:- If the prices of factors of production of a commodity increases, its cost of production will increase. If the cost of production increases, generally, the firm may decide to sell at the given price. On the other hand, if the cost of production falls, the firm may sell more at the same price.

5. Technological Changes:- Scientific inventions, innovations and technological progress often lead to reduction in cost of production and increase in supply.
6. Price Expectations:- Normally, when prices rise, supply also rises. But when prices are expected to rise further, supply may be held back. If price is expected to fall in the future, supply will naturally increase.

7. Transportation and communication facilities:-
Improvements in transportation and communication facilities lead to widening of the market. Thus, supply increases.
8. Natural factors:- Production and supply of agricultural goods depend upon various natural factors such as rain, fertility, climatic conditions etc. Production may be adversely affected by drought, flood etc.

9. Taxation policy:- Taxation policy do influence the supply of goods. The production of the commodity will be discouraged, if heavy duty(excise duty) is imposed on its production. In the same way, tax concessions and subsidies encourage producers to increase supply.

10. Agreement among producers:- Sometimes, all the firms producing the same commodity form an association, a pool or a syndicate(cartel) and regulate supply of goods in such a way that they may earn maximum profit.

Supply Function:-

The functional relationship between supply of a commodity and the factors determining supply is called supply function. The determining factors of supply include price of the commodity, price of other commodities, goals of the firm, technology etc.

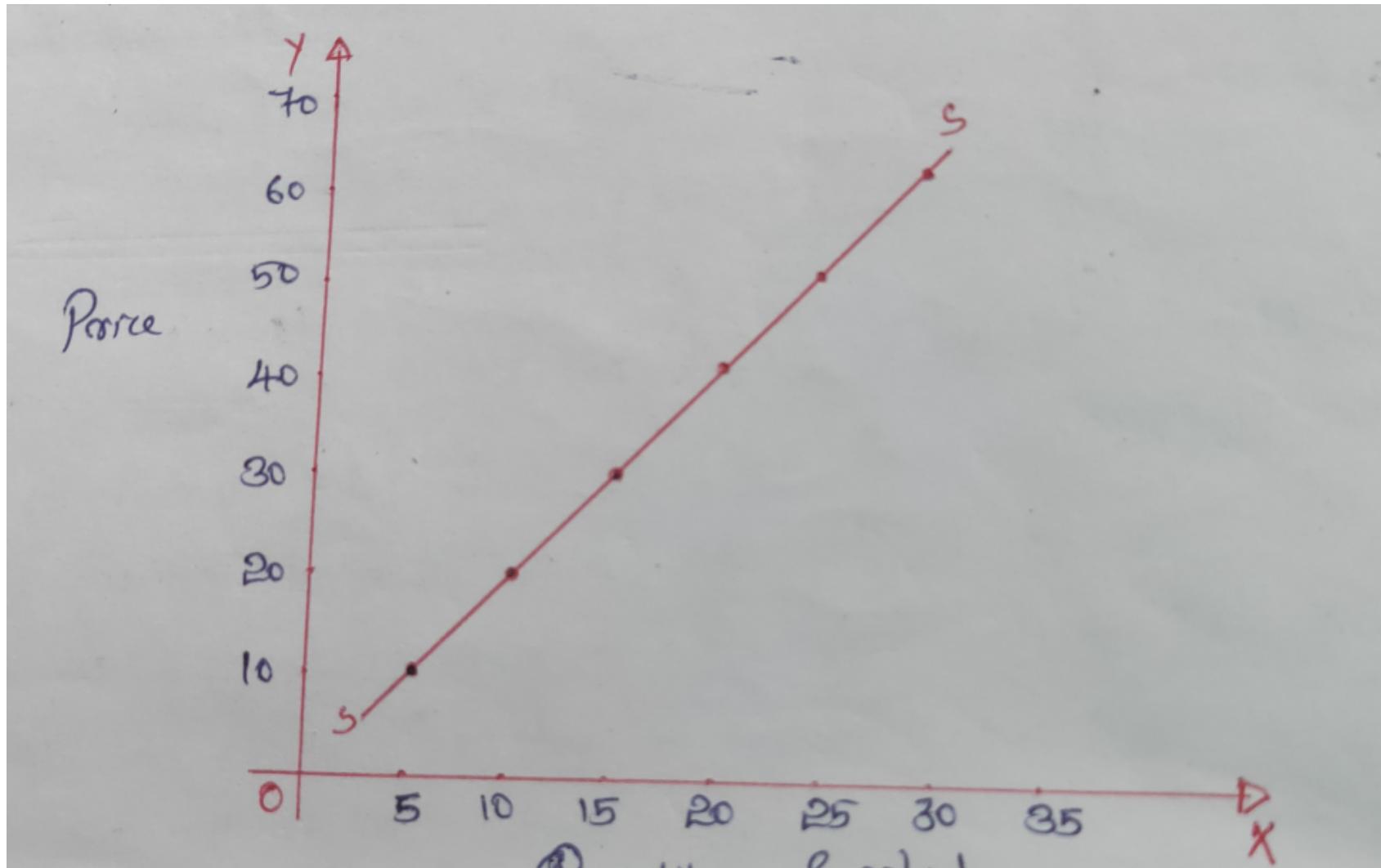
$$S=f(P, P_r, G, T, U)$$

Supply Schedule:-

Supply schedule is a list or table showing various quantities of a commodity that will be offered for sale in the market at various prices during a given period of time.

Price of Apples per Kg	Quantity of Apples Supplied in Kg
60	30
50	25
40	20
30	15
20	10
10	5

Supply Curve:- Supply curve is the graphical representation of the supply schedule.



Law of Supply:- The law of supply states that, other things remaining the same, the quantity supplied of a commodity varies directly with the price of the commodity. It means that there is a direct relationship between price of the commodity and its supply. In other words, the higher the price, the larger the supply; and the lower the price, the smaller the supply.

Assumptions o the Law:-

- 1.No change in the prices of other goods.
- 2.No change in the prices of factors of production.
- 3.No change in the production technology.
- 4.No change in the goals of the firm.

Exceptions of the Law of Supply:- There are some situations under which the law of supply does not operate.

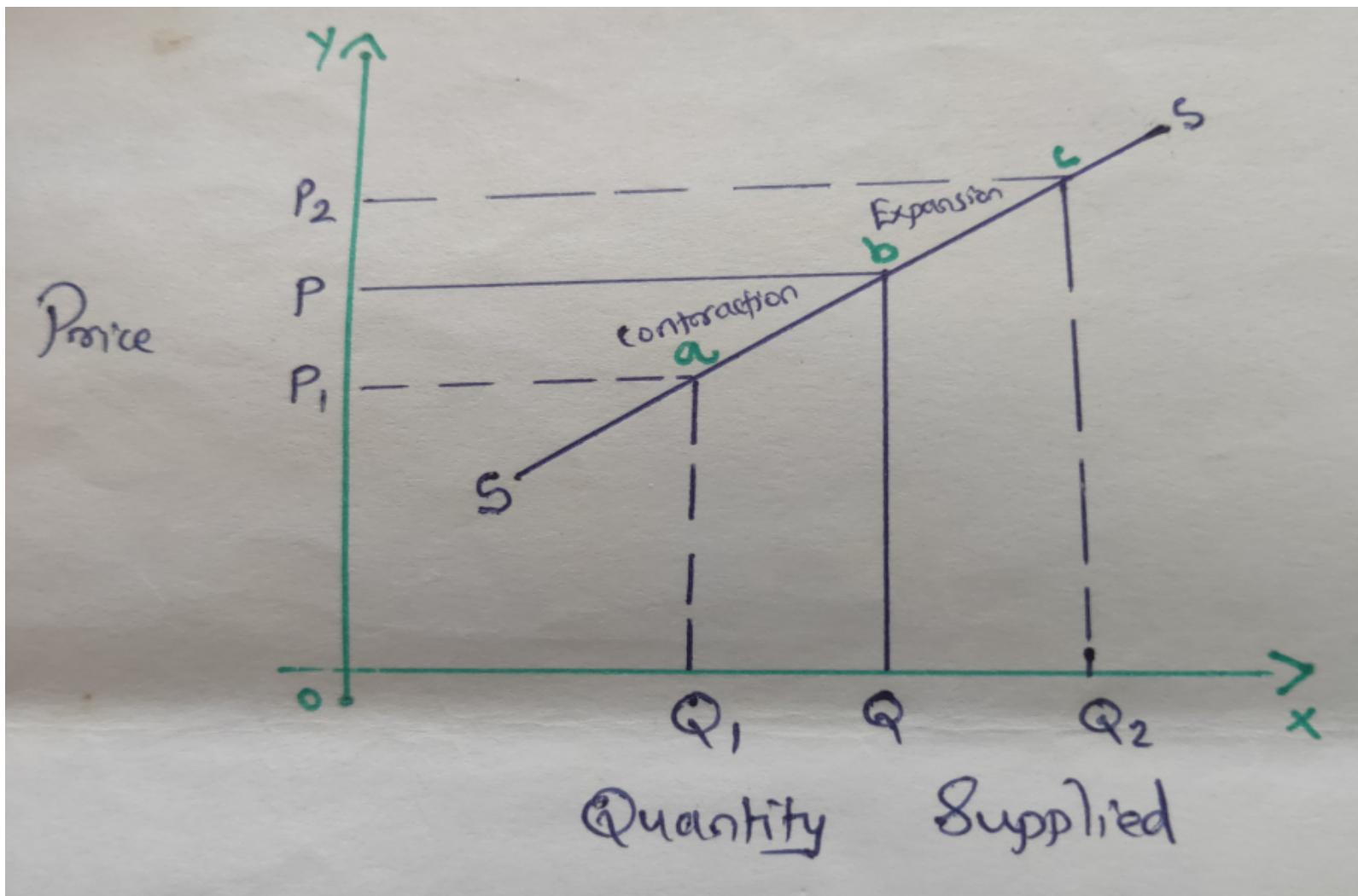
1. Expectation of further change in price.
2. Perishable agricultural goods like fruits and vegetables.
3. Absence of sufficient resources to produce goods as in the case of backward countries.
4. High quality artistic goods.

CHANGES IN SUPPLY:-

The change in supply may be due to change in price or due to factors other than price of the commodity. When change in supply is due to change in price, we call it as expansion or contraction of supply. In such cases, there is movement along the supply curve. When change in supply is due to factors other than price of the commodity, we call it as increase or decrease in supply. In such case, there is shift in the supply curve.

Expansion and Contraction//Movements along the supply curve

Rise in supply due to rise in price alone is called expansion of supply and fall in supply due to fall in price is called contraction of supply. The following figure illustrates expansion and contraction of supply.



Increase and Decrease in Supply/ Shifts in Supply:-

Changes in supply due to factors other than price are called increase and decrease in supply. The changes in supply are shown by shifts of the supply curve.

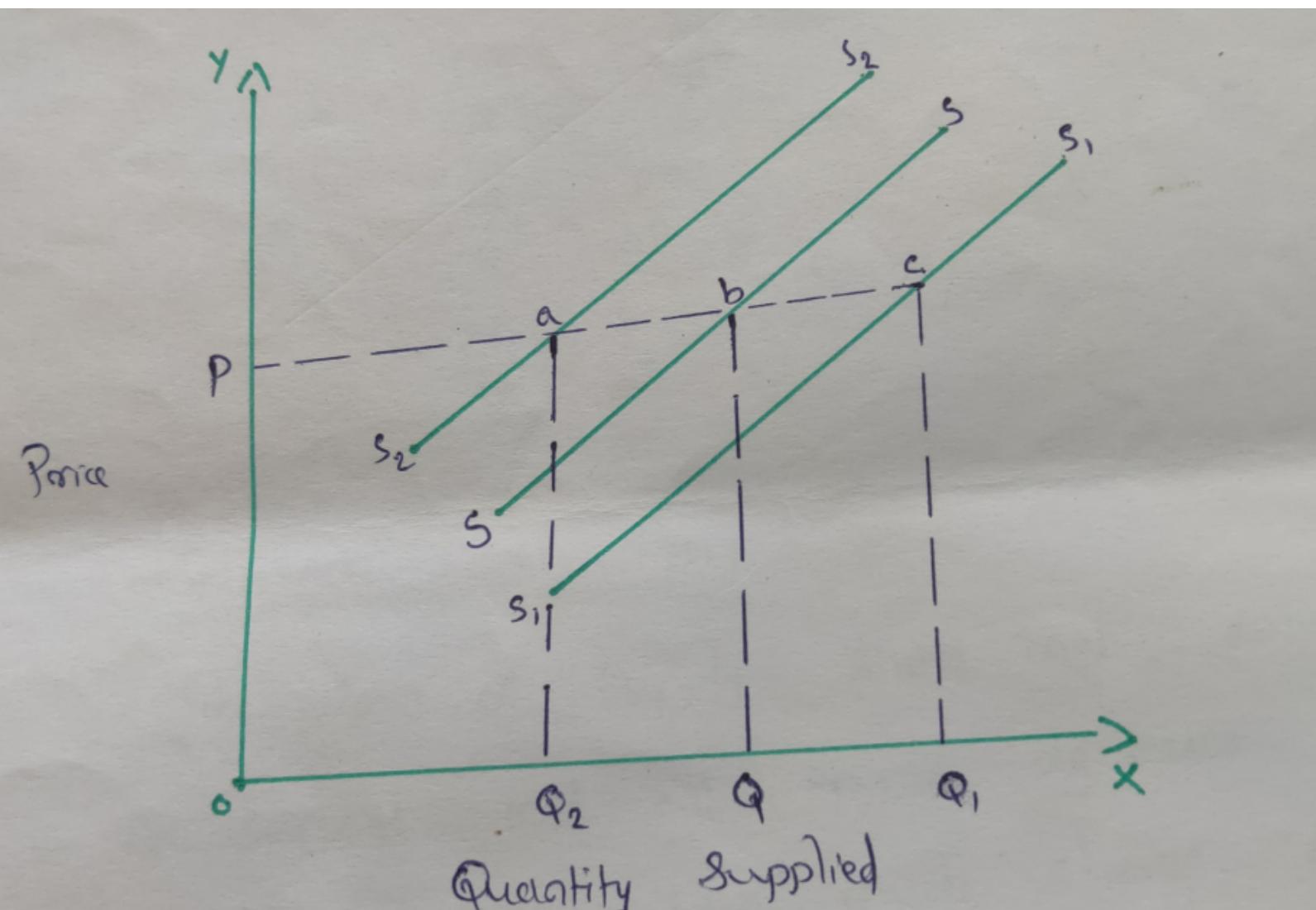
Rise in supply due to changes in factors other than price is called increase in supply.i.e, more is supplied at the same price or same is supplied at a lower price. In this case, the supply curve shifts rightwards. Increase in supply could be caused by:

- (a) Improvement in technology, (b) fall in the price of other commodities, (c) fall in the price of factors of production and (d) change in the goal of the firm

Fall in supply due to factors due to factors other than price is called decrease in supply. That means, less is supplied at the same price or same quantity is supplied at a higher price. In this case, the supply curve shifts leftwards.

Decrease in supply could be caused by:

(a) Deterioration in technology, (b) rise in prices of other commodities, (c) rise in prices of factors of production and (d) changes in the goals of the firm



PRICE ELASTICITY OF SUPPLY

Price elasticity of supply is the degree of responsiveness of quantity supplied of a commodity to a change in its price. It can be expressed as:

$$e_S = \frac{\% \text{ change in quantity supplied}}{\% \text{ change in price}}$$

e_S = Proportionate change in quantity supplied:
Proportionate change in price

$$e_p = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

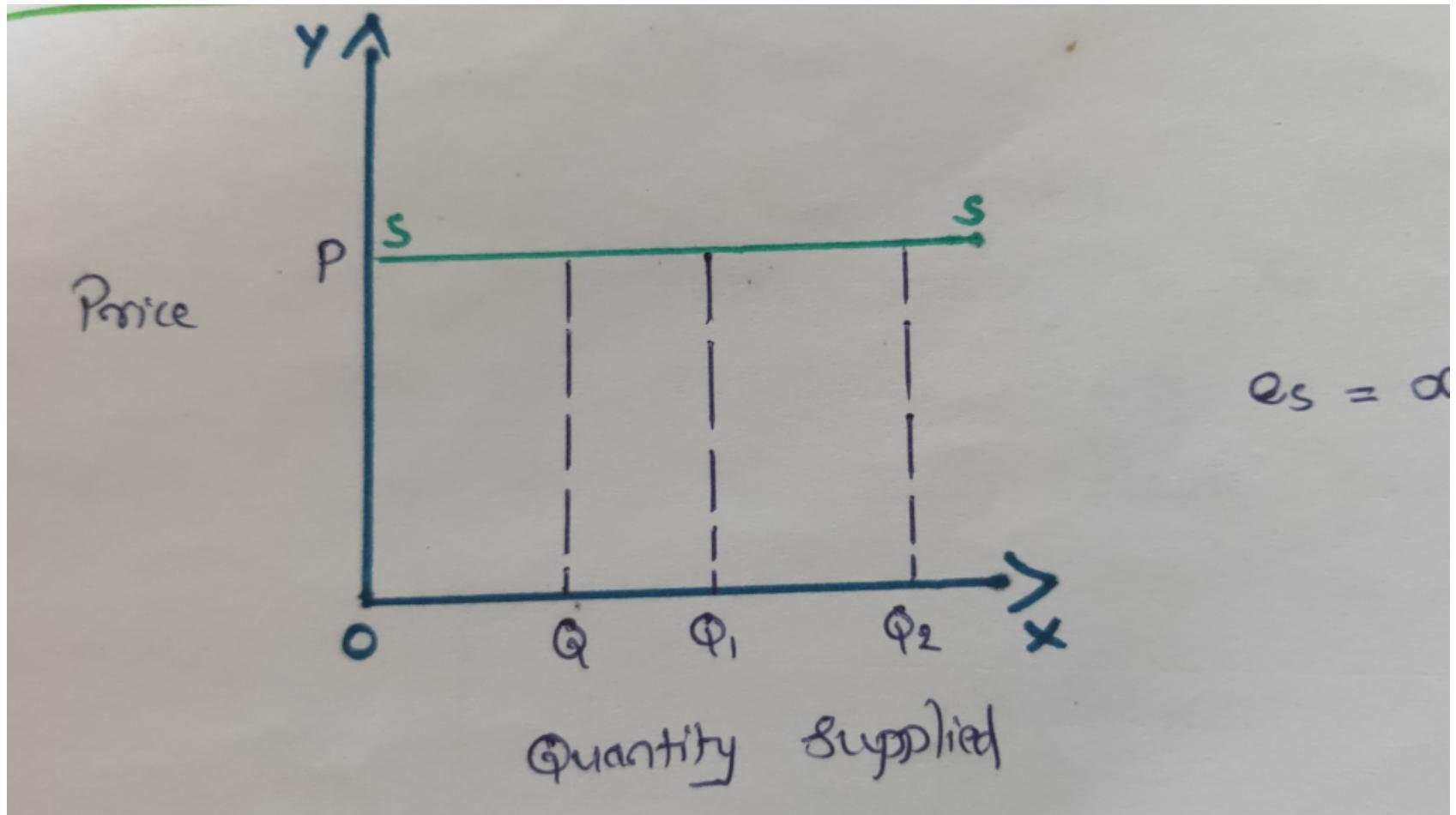
Degrees of price elasticity of supply

The law of supply states that, when price increases more is supplied and when price decrease less is supplied. But the law does not tell us how much change in the quantity supplied occurs in response to the change in its price. Price elasticity of supply explains at what rate supply changes in response to a given change in price.

In the case of supply, there are five degrees of price elasticity. They are as follows.

1. Perfectly elastic supply:- Supply of a commodity is said to be perfectly elastic when a slightest change in the price leads to an infinite change in the quantity supplied. The following figure shows a perfectly elastic supply curve.

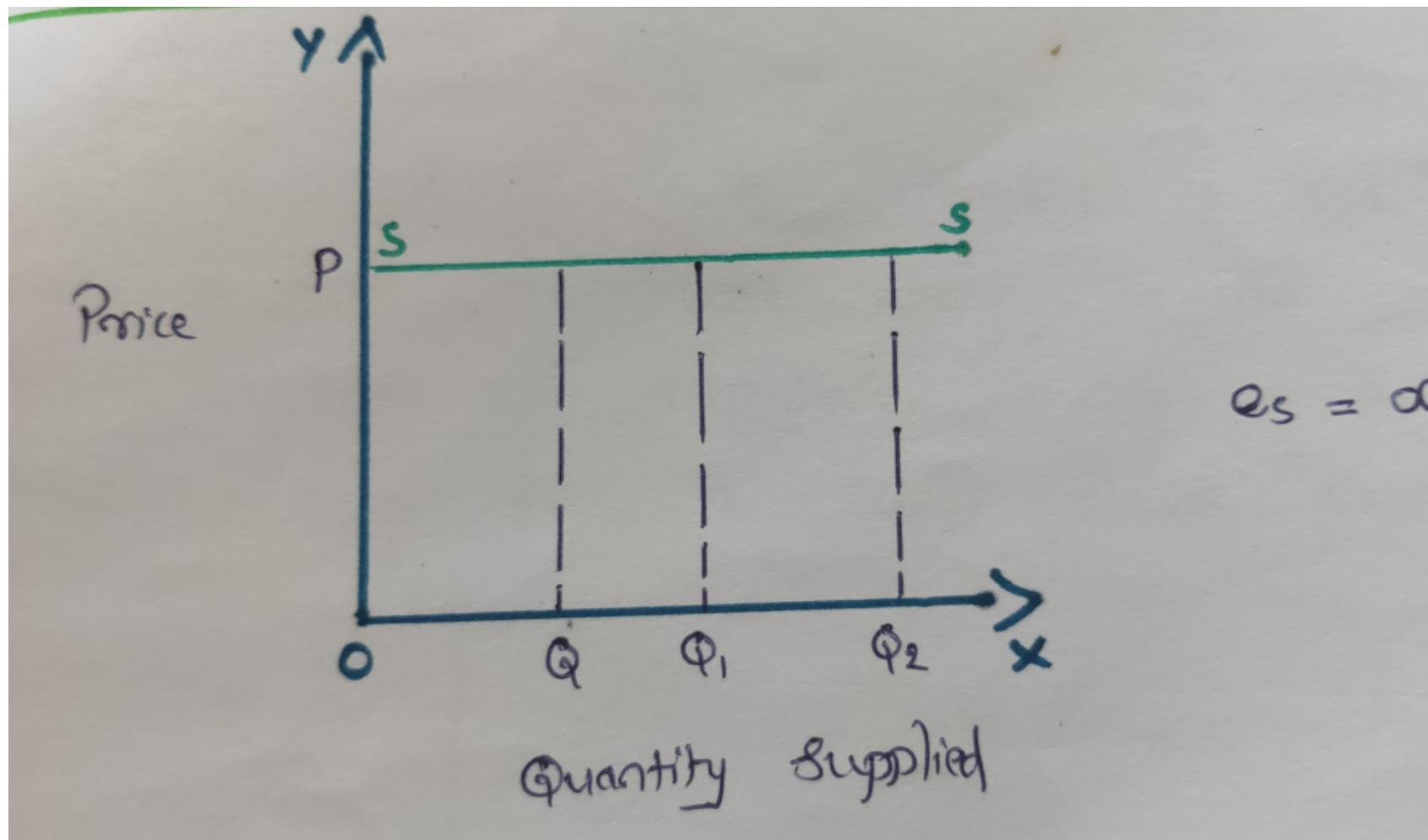
In the case of perfectly elastic supply, the supply curve is a horizontal straight line parallel to 'x' axis and elasticity is equal to infinity



2. Perfectly Inelastic supply:-

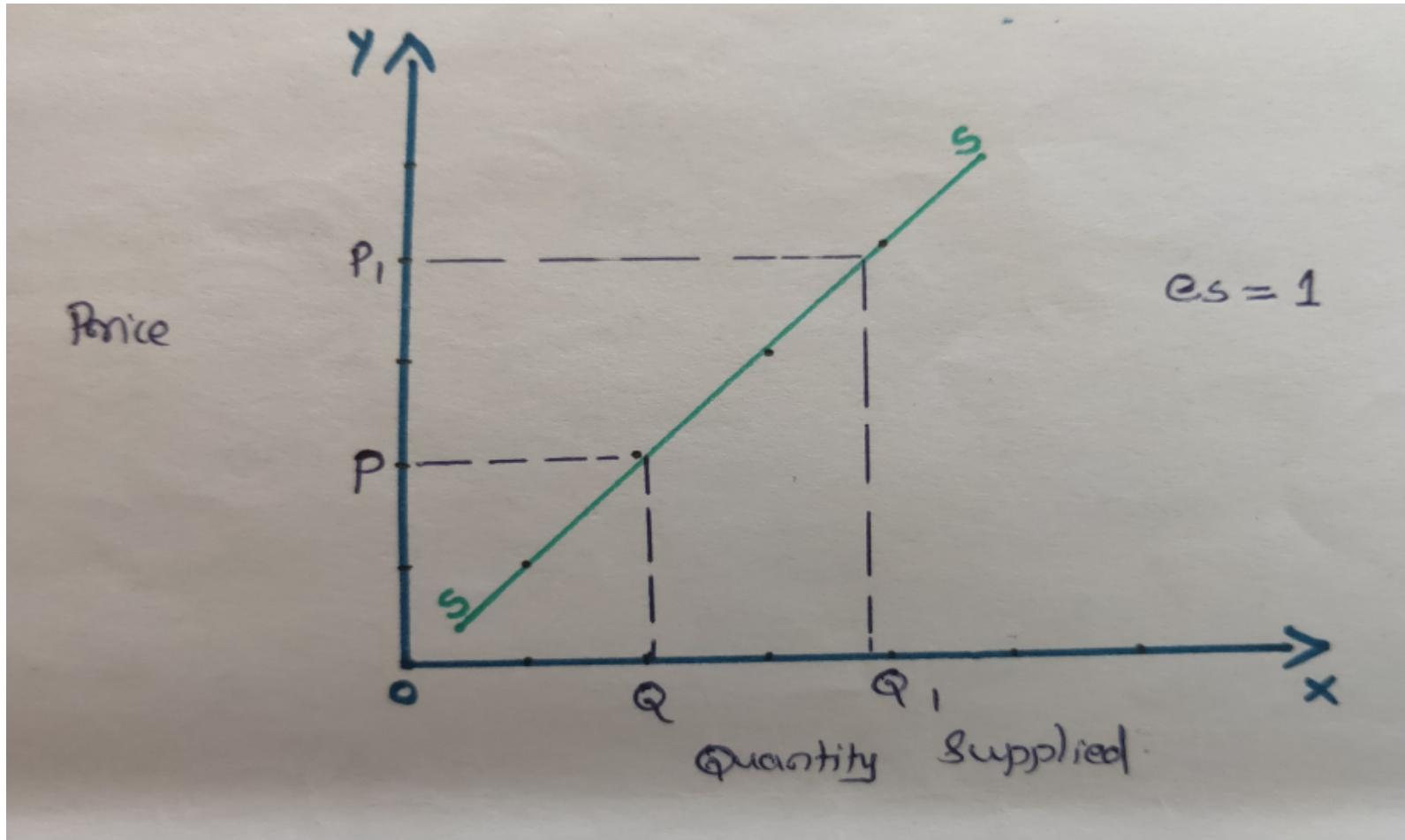
Supply of a commodity is said to be perfectly inelastic when changes in price cause no changes in quantity supplied. The following figure shows a perfectly inelastic supply curve.

Perfectly inelastic supply curve is a vertical straight line parallel to 'y' axis and elasticity is equal to zero



3. **Unitary elastic supply**:- Supply of a commodity is to be unitary elastic when a given proportionate change in the price of a commodity causes an equal and proportionate change in the quantity supplied.

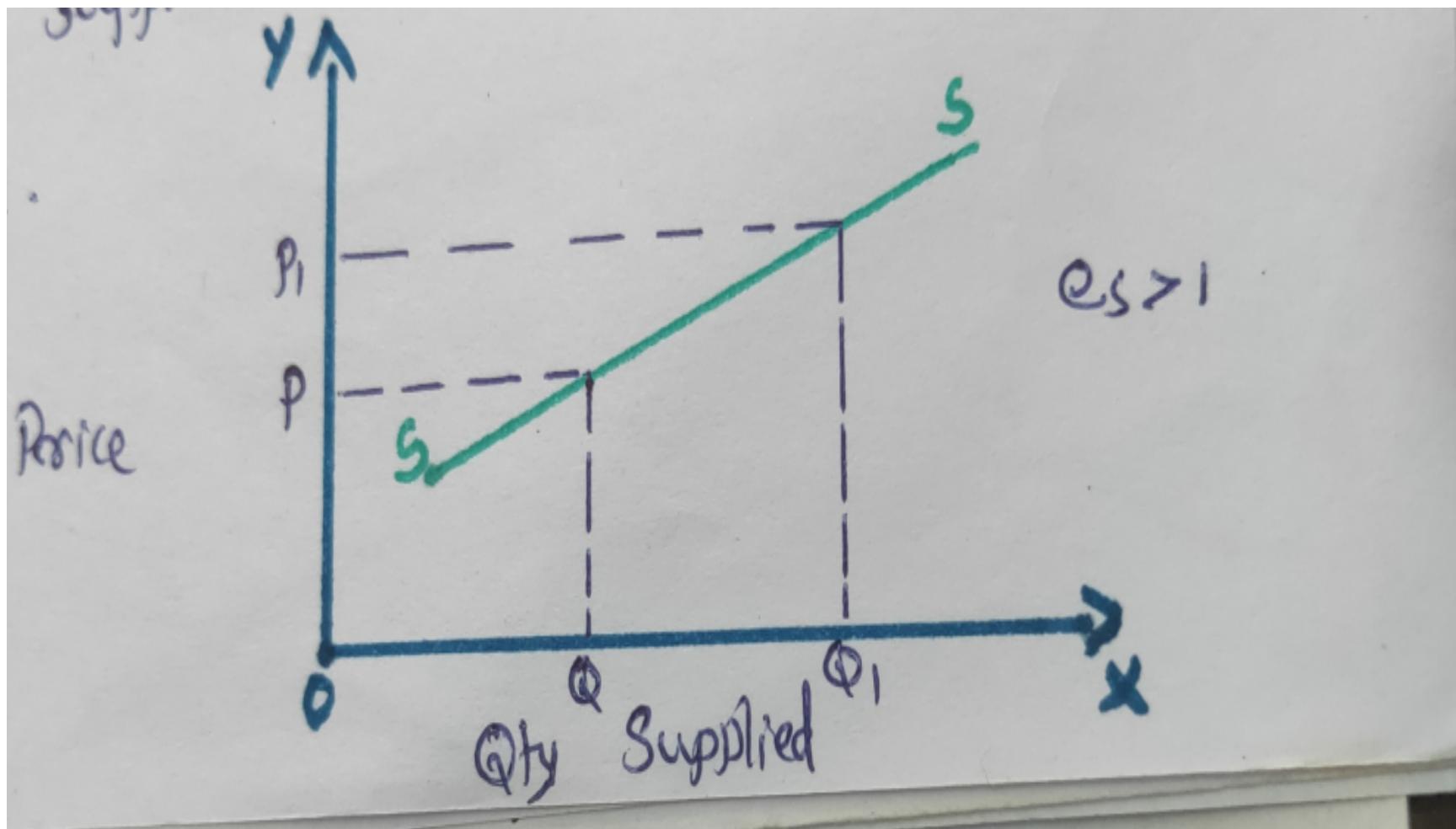
Unitary elastic supply curve is a positively slopped straight line passing through the origin 'O' and elasticity is equal to 1.



4. Relatively elastic/ elastic/ more elastic supply:

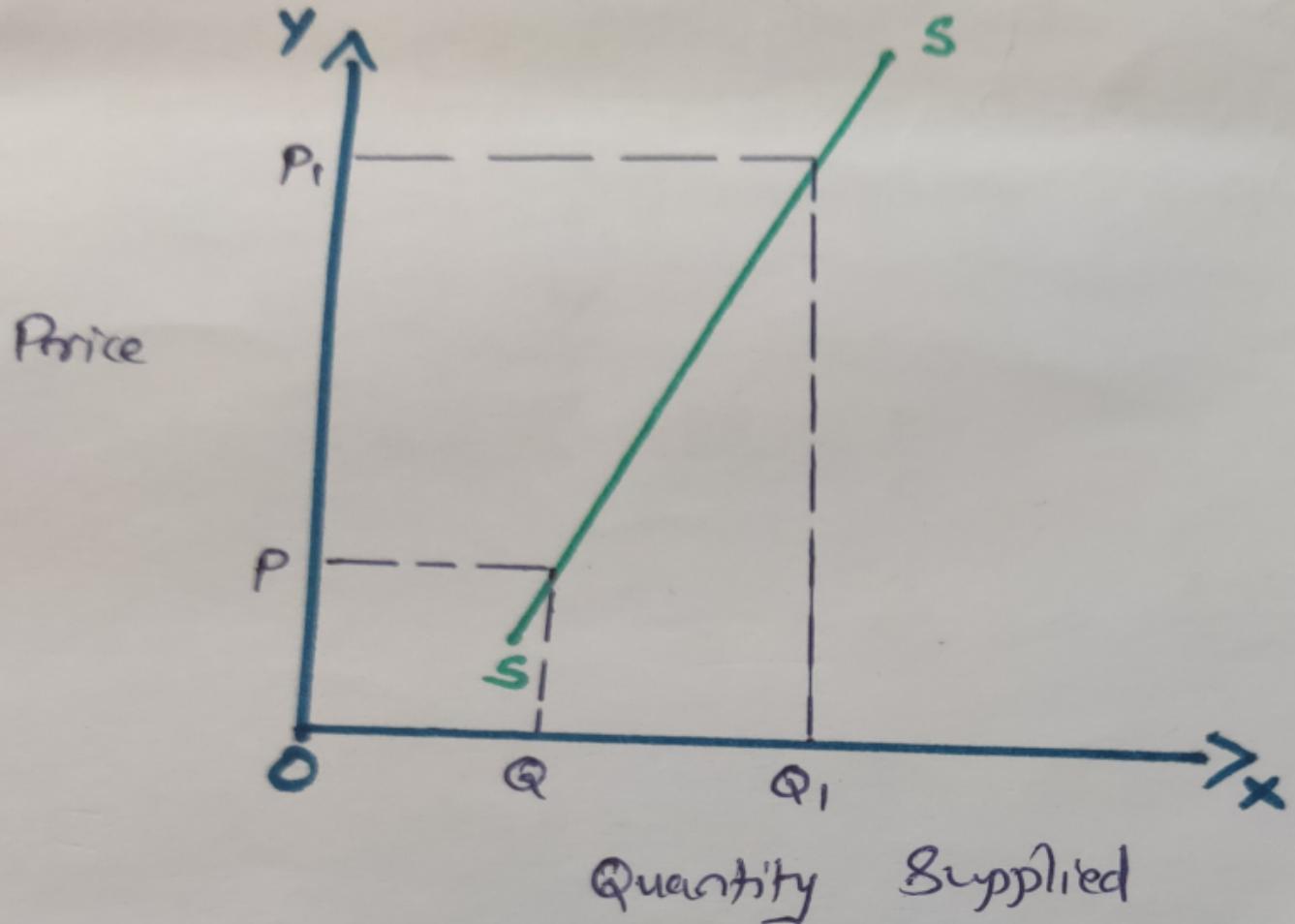
Supply of a commodity is said to be more elastic when a given proportionate change in price leads to a more than proportionate change in quantity supplied.

Relatively elastic supply curve is a positively slopped supply curve which meets 'y' axis above the origin 'o' and elasticity is greater than 1.



5. Relatively inelastic supply/inelastic supply/ less elastic supply:

Supply of a commodity is said to be relatively inelastic when a given proportionate change in price leads to a less than proportionate change in quantity supplied. Relatively inelastic supply curve is a positively slopped curve which meets 'x' axis to the right of origin.



MEASUREMENT OF ELASTICITY OF SUPPLY

Elasticity of supply can be measured through 2 methods:

1. Percentage method.
2. Geometric method

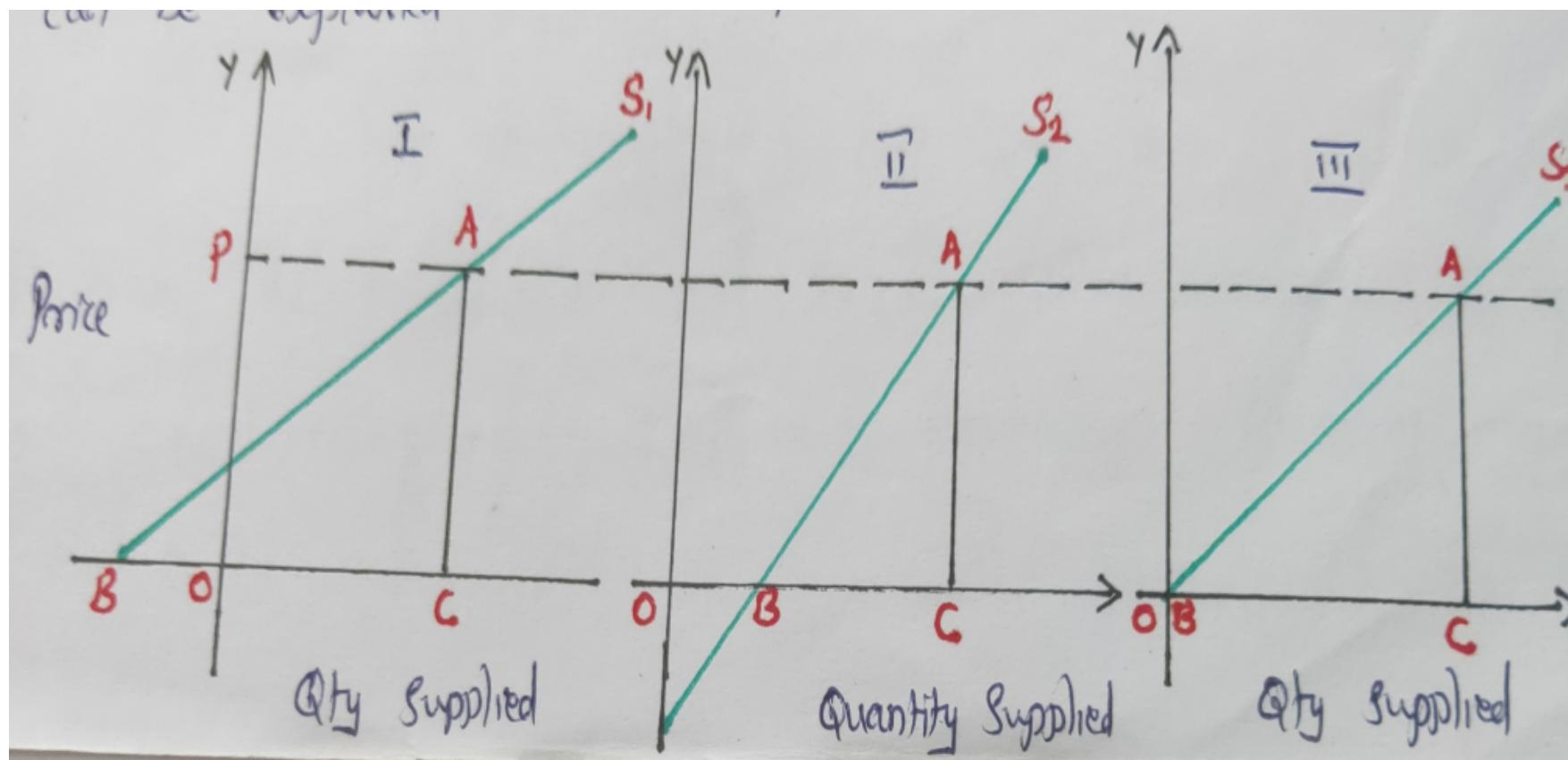
1. Percentage Method

$$c_s = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

- Example..... Suppose the price of commodity ‘x’ is Rs. 3 per unit and the quantity supplied at that price is 300 units. If the price rises to Rs.6 and quantity supplied rises to 450. Find elasticity.

2. Geometric Method

If the supply curve is a straight line, elasticity of supply can be calculated by extending the supply curve to touch the 'x' axis.



Using the Geometric method, elasticity of supply is calculated by dividing the horizontal segment 'BC' by the quantity supplied 'OC'

$$E_s = \frac{BC}{OC}$$

Factors influencing elasticity of supply

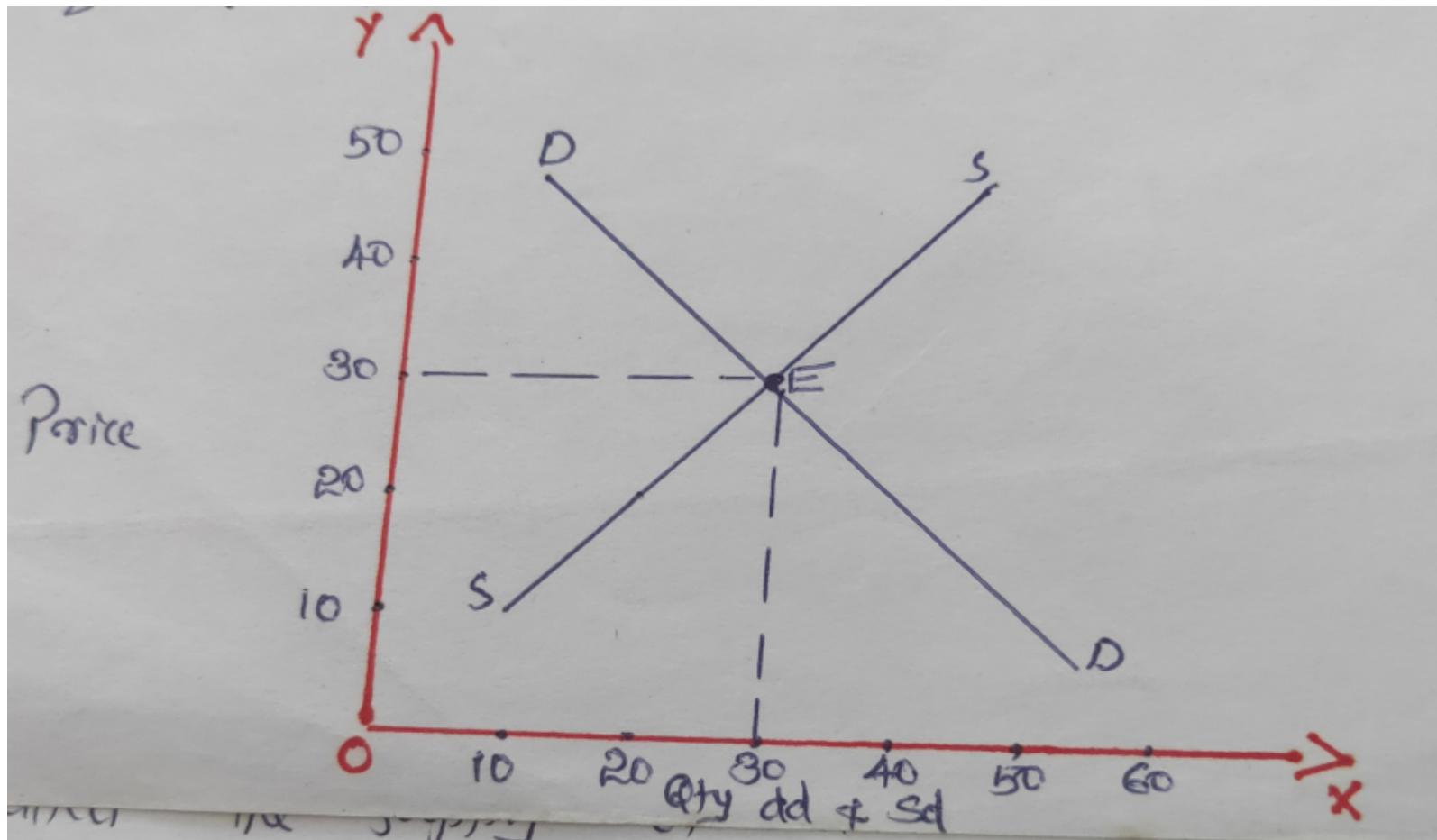
1. Nature of the commodity:- Elasticity of supply depends on the nature of the commodity. Perishable goods like fruits and vegetables have inelastic supply. Durable goods have elastic supply.
2. Cost of production:- if cost of production per unit rises rapidly as output rises, the supply will tend to be rather inelastic. If, on the other hand, unit cost rises slowly as production increases, supply will tend to be rather elastic.

3. Time period:- During short period, supply will be less elastic and during long period, it will be more elastic.
4. Technique of production:- Goods produced using simple techniques of production will have elastic supply. On the other hand, goods produced using complex techniques of production will have less elastic supply.

5. Risk bearing capacity:- If producers have a large risk bearing capacity, their goods will have elastic supply. But if producers are unable to bear risk, the supply will be less elastic.
6. Storage capacity:- If better storage capacity is available to the producers, the supply of the commodity will be elastic, otherwise, it will be inelastic.

EQUILIBRIUM PRICE:-

Equilibrium price is the price at which quantity demanded equals quantity supplied.

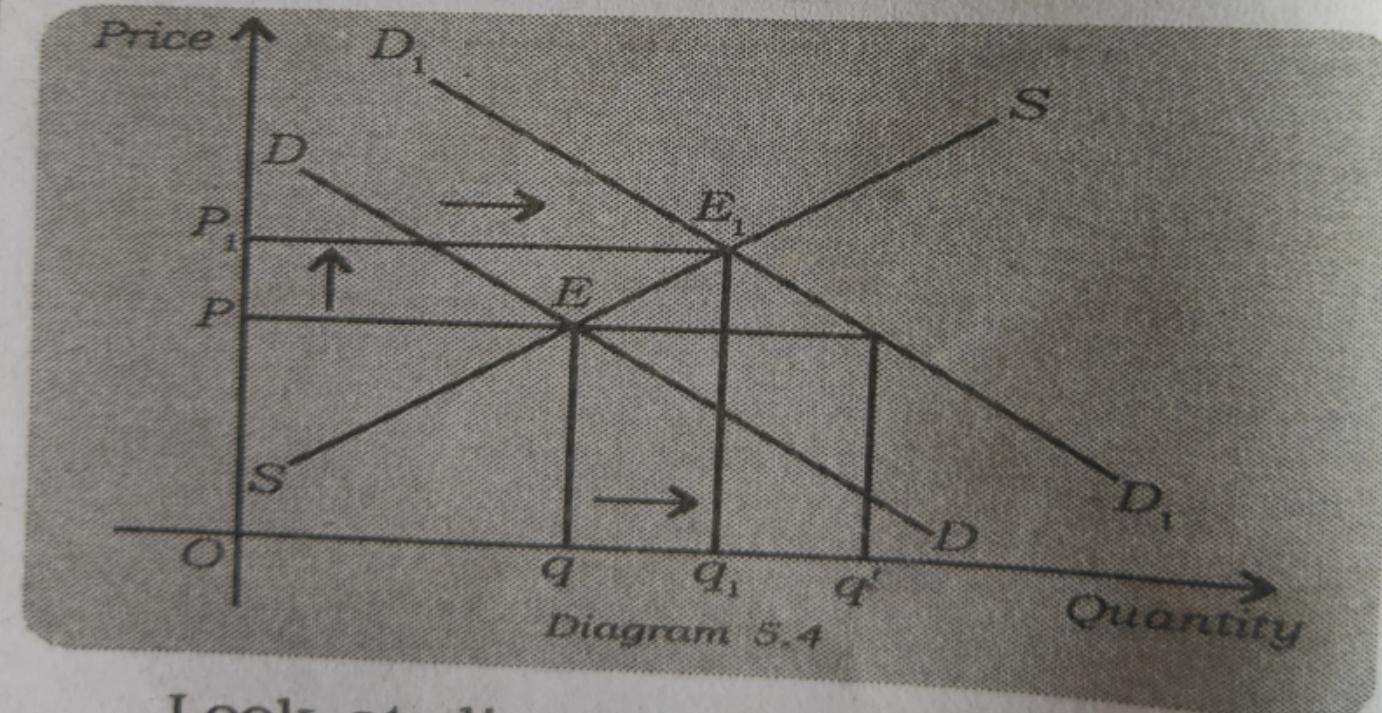


Price per Kg	Quantity Demanded	Quantity Supplied
50	10	50
40	20	40
30	30	30
20	40	20
10	50	10

Changes in Demand and its effects on Equilibrium

(Rightward shift of Demand Curve)

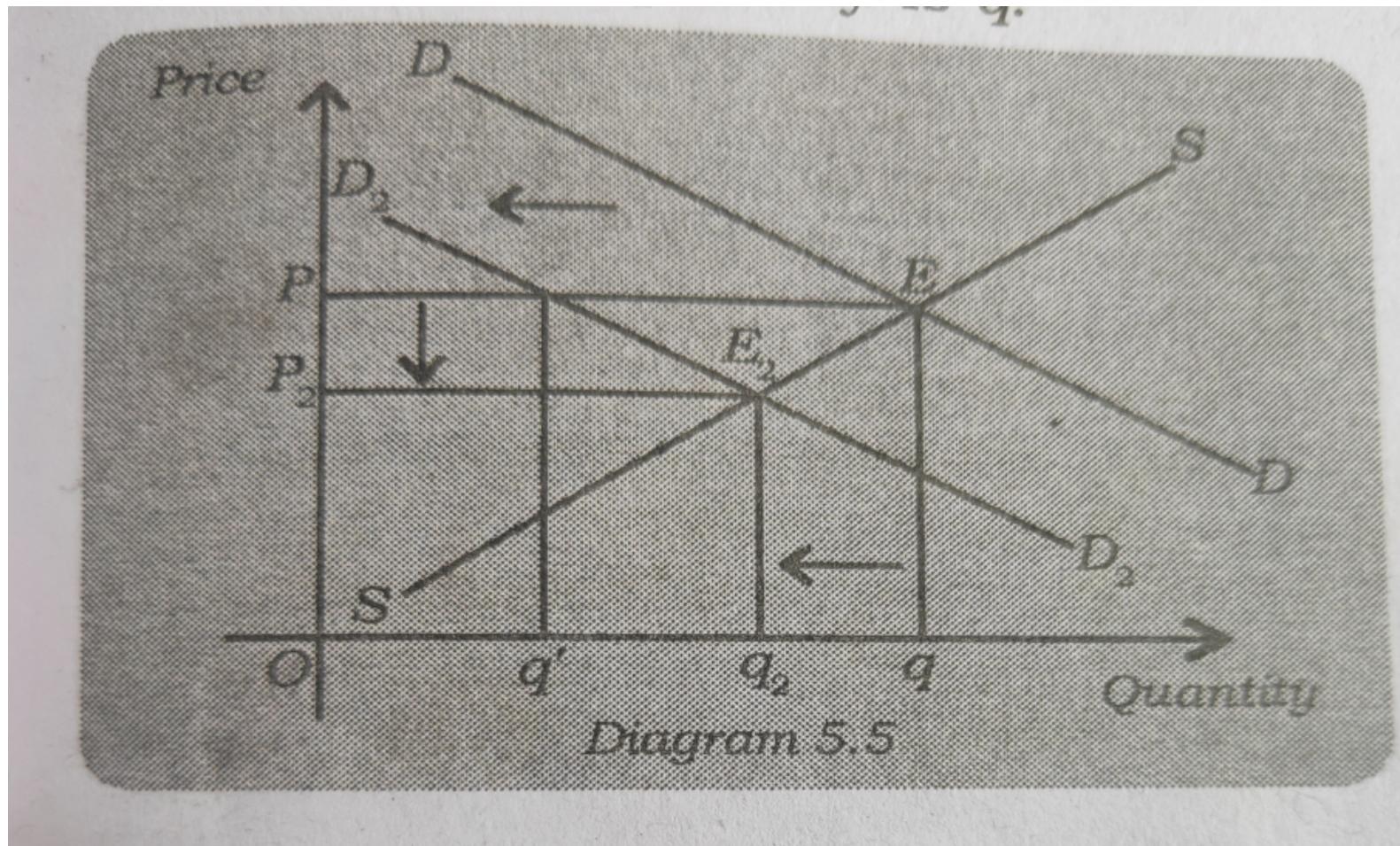
- (1) If the supply curve remains unchanged, and the demand curve shifts equilibrium price and quantity will increase.**



Look at it

Changes in Demand and its effects on Equilibrium

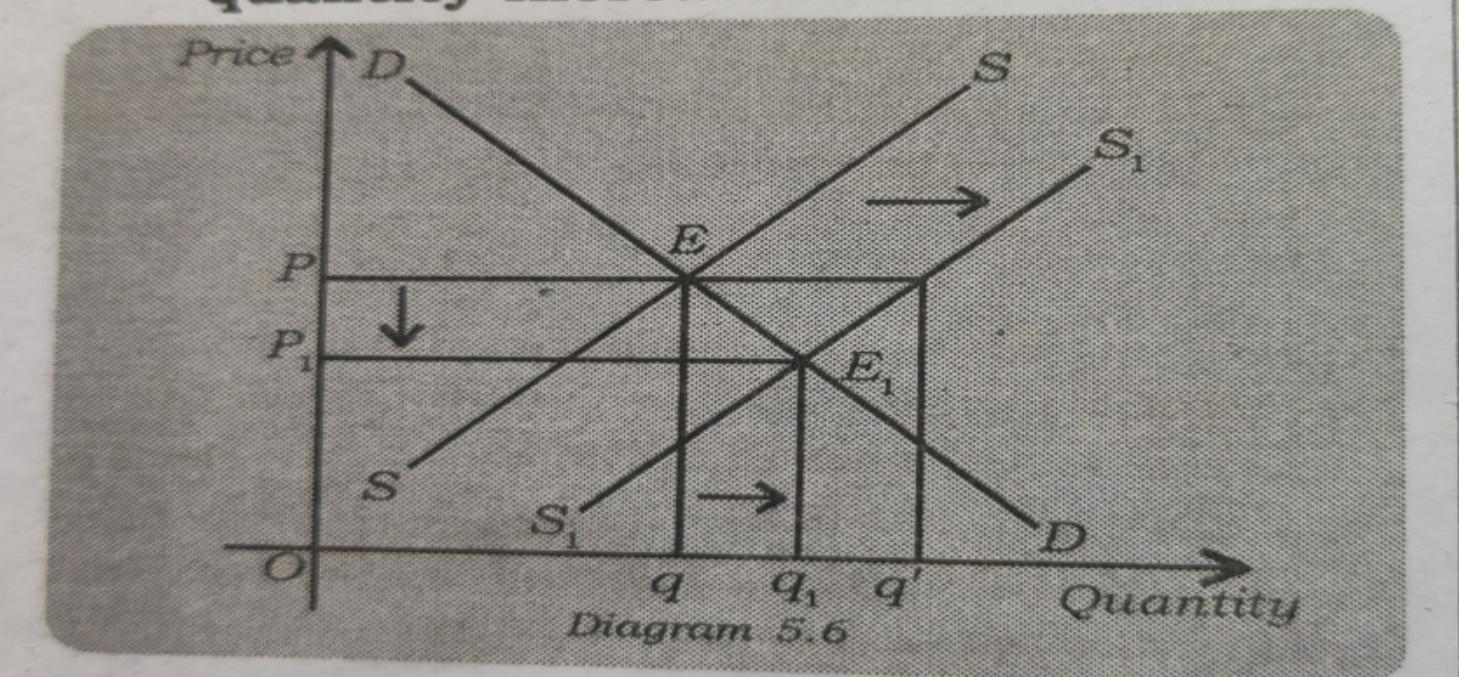
(Leftward shift of Demand Curve)



Changes in Supply and its effects on Equilibrium

(Rightward shift of Supply Curve)

(1) If demand curve remains steady and unchanged and the supply curve shifts towards the right, equilibrium price decreases and the equilibrium quantity increases.



Changes in Supply and its effects on Equilibrium

(Leftward shift of Supply Curve)

(2) Demand curve remains steady without change and supply curve shifts towards the left, and equilibrium quantity decreases.

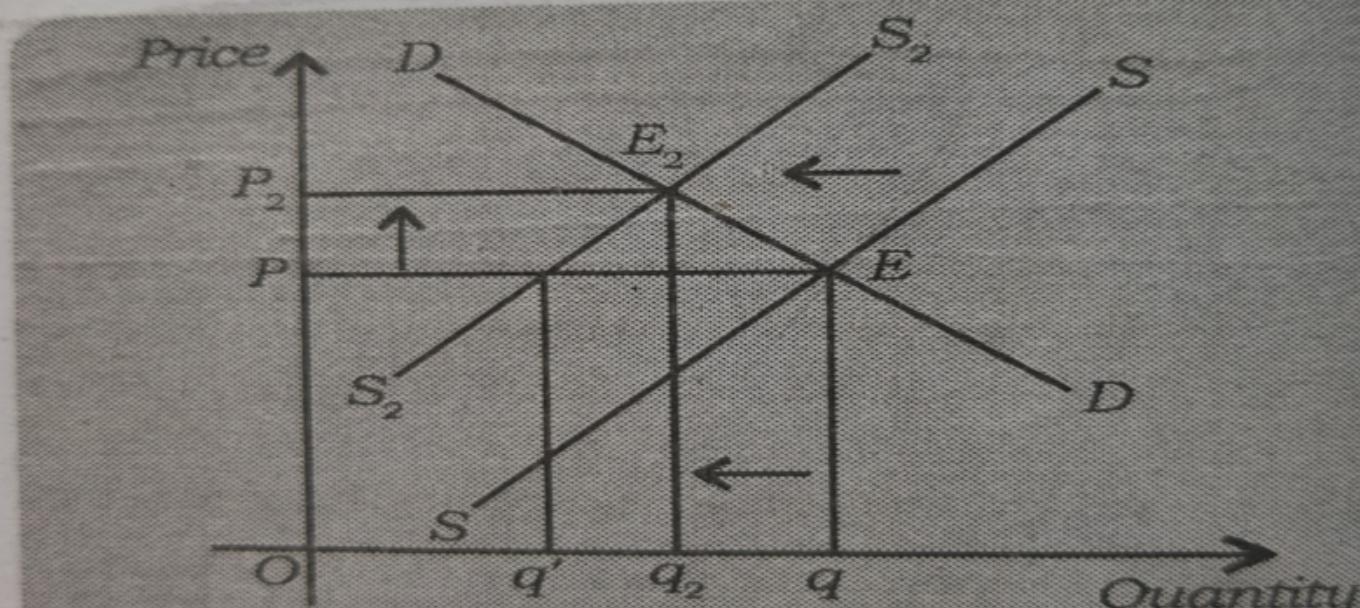


Diagram 5.7

Simultaneous Shifts in Demand and Supply

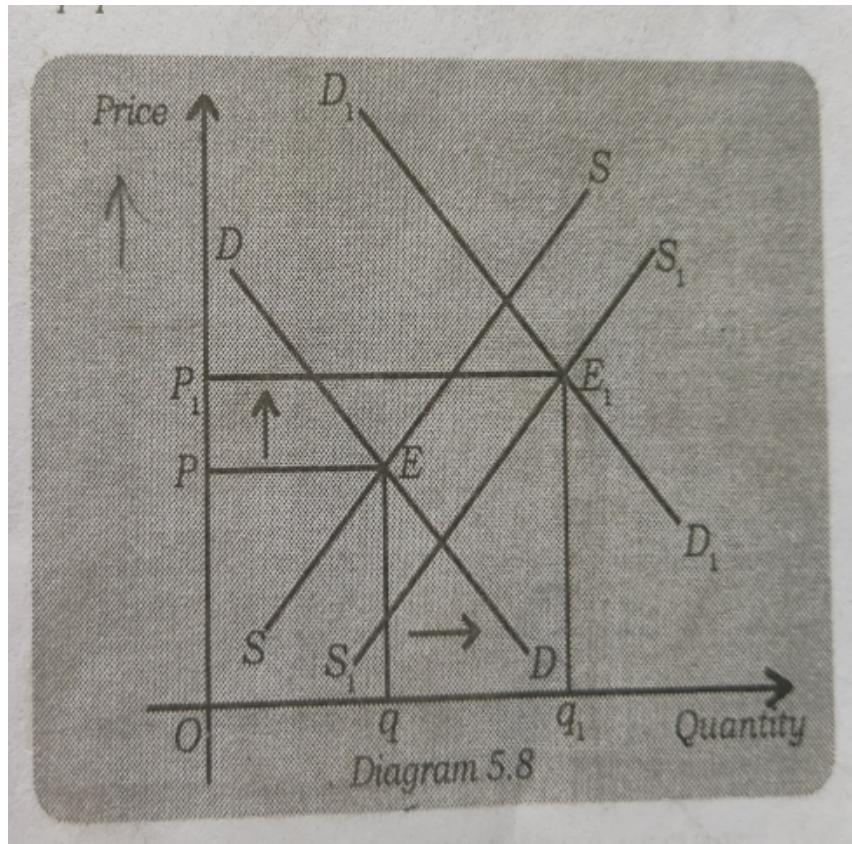


Table 5.2: Impact on equilibrium price due to demand-supply shift

Shift in demand	Shift in supply	Change in equilibrium Quantity Q_{EQ}	Change in equilibrium price P_{EQ}
To the right	To the right	Increases	May increase, decrease, may not change
To the left	To the left	Decreases	May increase, decrease, may not change
To the right	To the left	May increase, decrease, may not change	Increases
To the left	To the right	May increase, decrease, may not change	Decreases

Numerical Example of Equilibrium

1. Demand function of a product is given as $D=50-2P$ and supply function $S=20+3P$. What will be the equilibrium price and quantity of the product? Find the excess demand of the product when price equals Rs.3.

Numerical Example of Equilibrium

1. Demand function of a product is given as $D=50-2P$ and supply function $S=20+3P$. What will be the equilibrium price and quantity of the product? Find the excess demand of the product when price equals Rs.3.

At the equilibrium point, Demand=Supply.

$$\text{ie, } 50-2P=20+3P \quad \therefore \quad 5P=30 \quad \therefore P=6$$

Thus equilibrium price of the product is Rs.6/-

To find equilibrium quantity, substitute equilibrium price in any one of the equations.

When equilibrium price is substituted in demand function we get,

$$D=50-2*6=38, \text{ Thus equilibrium quantity is 38.}$$

When $P=3$, $D=50-2*3=44$ and $S=20+3*3=29$

Therefore, excess demand when P equals Rs.3 is 15 (44-29)