

## 11. Graphical derivation of supply from cost curve - - supply schedule – supply curve – Law of supply – elasticity of supply.

### ELASTICITY OF SUPPLY

The elasticity of supply measures the degree of responsiveness of quantities supplied to the changes in the price of a commodity. Elasticity of supply is the ratio between percentage change in quantity supplied and percentage change in price.

$$E_s = \frac{\text{Percentage Change in Quantity Supplied}}{\text{Percentage Change in Price}}$$

$$= \frac{\frac{\Delta Q_s}{Q_s} \times 100}{\frac{\Delta P}{P} \times 100} = \frac{\Delta Q_s}{\Delta P} \times \frac{P}{Q_s}$$

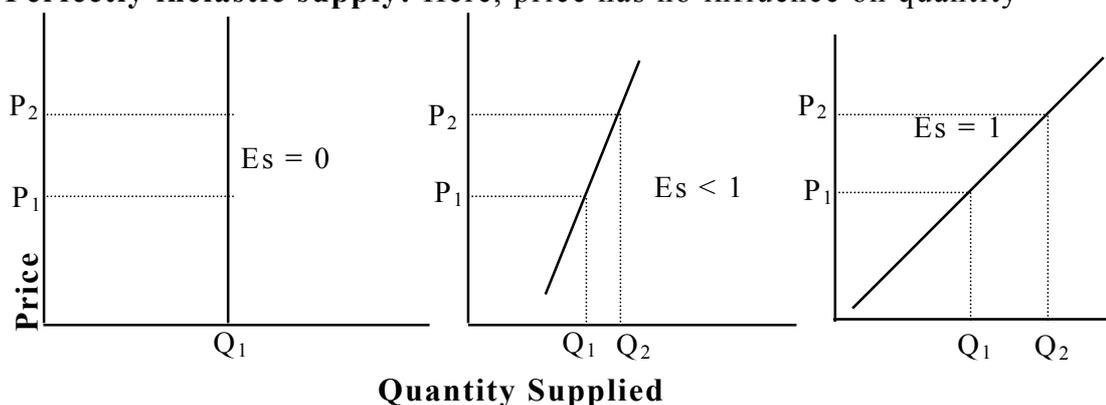
Suppose the price of a mango rises from Re.1 to Rs.1.50 and as a result, the supply rises from 10 to 20 mangoes, then the elasticity of supply is estimated as follows:

$$E_s = \frac{\frac{20-10}{10} \times 100}{\frac{150-100}{100} \times 100} = \frac{100}{50} = 2$$

It could be inferred from the result that there is a two per cent increase in the quantity of mango supplied, if its price increases by one per cent.

#### i) Different Types of Elasticity of Supply

a) **Perfectly inelastic supply:** Here, price has no influence on quantity



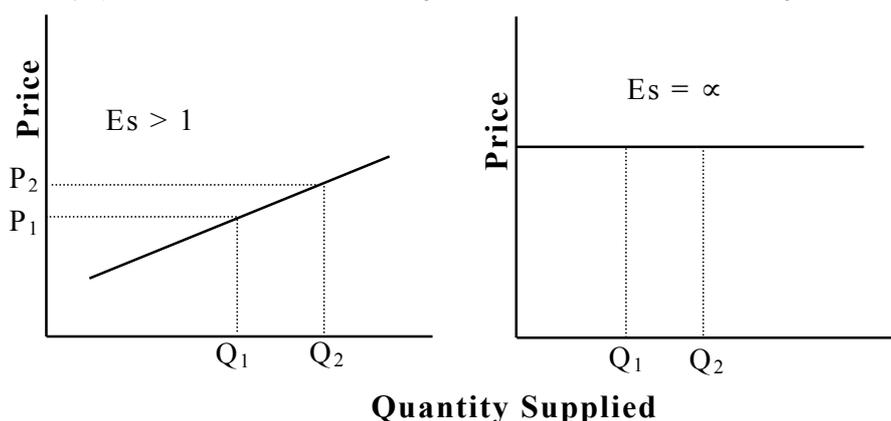
**Fig.5.3 (a) Perfectly Inelastic. Fig.5.3 (b) Inelastic. Fig.5.3(c) Unitary Elastic** supplied. The supply is fixed at a given level irrespective of changes in the price Fig.5.3 (a). The value of elasticity of supply is zero.

**b) Inelastic:** If the elasticity is less than one, the good is said to have an inelastic supply. That is, supply of the good is relatively less responsive to changes in price (Fig.5.3 (b)).

**c) Unit Elasticity:** A supply elasticity equal to one refers to the situation where the percentage change in quantity supplied and percentage change in price are equal (Fig. 5.3(c)).

**d) Elastic:** If the elasticity of supply is greater than one, then the good has an elastic supply. Here the quantity supplied is relatively more responsive to changes in price. (Fig.5.3 (d)).

**e) Perfectly Elastic:** This is also known as infinitely elastic supply, as its value is infinite ( $\infty$ ). In this situation, any amount of a commodity will be supplied at



**Fig.5.3 (d) Elastic**

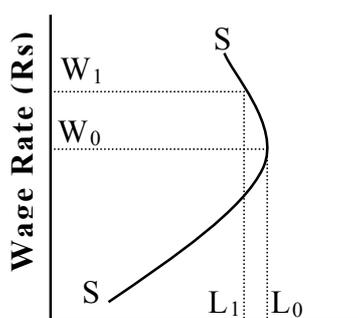
**Fig.5.3(e) Perfectly Elastic**

the prevailing market price, but nothing will be supplied at a lower price. (Fig.5.3 (e)).

**ii) Determinants of Elasticity of Supply**

**a) Time:** A longer time period allows producers to make adjustment in quantity in response to price changes. Hence, a longer period gives a higher elasticity.

**b) Cost and Feasibility of storage:** Goods that are costly to store will have a low elasticity of supply. Goods that will soon decay will be supplied within a short period (after the harvest) in the market irrespective of price levels; their elasticity of supply will be very low.



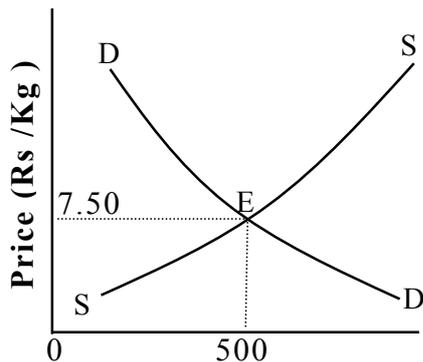
**Supply of Labour**  
**Fig.5.4 Backward Tending Labour Supply Curve**

**iii) Exceptional Supply Curve or Backward Tending Labour Supply Curve:** As per the law of supply, when price increases, the supply also increases and vice versa. But for certain commodities as price increases the supply decreases. For example, after a certain level of wage rate, the increase in wage rate will not increase labour supply as people prefer leisure over work and those who are already working at lower wage rate may stop going for work.

## INTERACTION OF DEMAND AND SUPPLY

The analysis on interaction of demand and supply is useful to determine the equilibrium market price and quantity. When the price is rs.9 per kg of rice, the difference between market demand and market supply is 900 tonnes and this

unsold stock would put a downward pressure on price and hence the sellers will reduce it to rs.8.50per kg. Now, the demand would rise to 300 tonnes and supply would reduce to 800 tonnes. Still there is an excess supply over demand and this would again reduce the price. The process continues till the price settles at Rs.7.50 per kg, which is the equilibrium price. At equilibrium price, the forces of demand and supply are balanced (at 500 tonnes per day) i.e., the



**Quantity Demanded and Supplied**  
**Fig 5.4 Market Equilibrium**

market demand is equal to market supply and buyers and sellers are satisfied.

**Table 5.2 Market Demand and Supply Schedules for Rice**

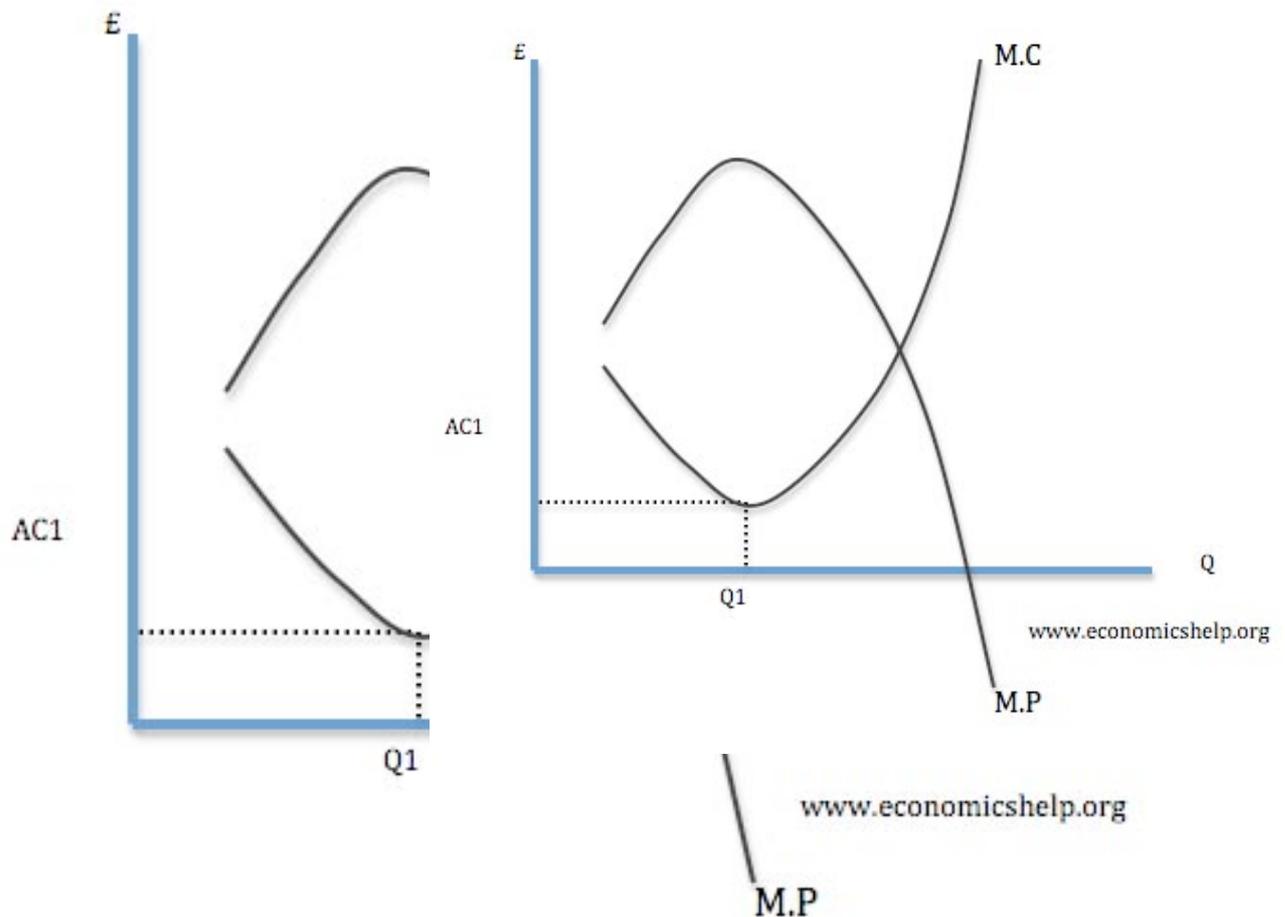
Price (Rs./kg)	Market demand (Tonnes/day)	Market supply(Tonnes/day)
9.00	100	1000
8.50	300	800
8.00	400	600
7.50	500	500
7.00	700	400
6.50	1000	200

### Law of Diminishing Marginal Returns

- Diminishing Returns occurs in the short run when one factor is fixed (e.g. Capital)
- If the variable factor of production (e.g. labour) is increased, there will come a point where extra workers become less productive than previous workers. Therefore, these extra workers will have a lower marginal product.

## Why does diminishing returns occur?

This is because, if capital is fixed, extra workers will eventually get in each other's way as they attempt to increase production. For example, think about the effectiveness of



## Chapter 5: Questions for Review:

i) Please match column A with column B:

### Column A

1. Price increase
1. Change in production techniques
2. When supply elasticity is zero
3. When supply elasticity is infinite
5. Labour supply curve

### Column B

- a) Perfectly inelastic supply
- b) Perfectly elastic supply
- c) Exceptional supply curve
- d) Increase in quantity supplied
- e) Shift in supply

**Answer the following:**

1. Explain the law of supply with an example and state the factors determining supply.

2. Define elasticity of supply. Explain the different kinds of elasticity of supply with diagrams. What are the determinants of elasticity of supply?
3. What is elasticity? Why supply may not be equal to production? Write about the practical uses of elasticity of supply.
4. Explain how the equilibrium price and quantity are determined?