Course

on

HS205: consumer Behaviour and Welfare Economics

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Instructor

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Lecture 12 Elasticity of Demand and Elasticity of Supply

Elasticity of demand: Meaning

Elasticity of demand can be defined as the proportionate or percentage change in the quantity demand as a result of a proportionate or % change in its price, income or prices of other goods

Different types of elasticity

1. Price elasticity of demand
2. Income elasticity of demand
3. Cross elasticity of demand

Elasticity of demand

1. $E_p = \dfrac{\%\,\Delta \text{ in demand}}{\%\,\Delta \text{ in price}} = \dfrac{\frac{\Delta Q}{Q} \times 100\%}{\frac{\Delta P}{P} \times 100\%} = \dfrac{\Delta Q}{\Delta P} \times \dfrac{P}{Q} = \dfrac{dQ}{dP} \times \dfrac{P}{Q}$

2. $E_y = \dfrac{dQ}{dy} \dfrac{y}{Q}$

3. $E_{xy} = \dfrac{\%\,\Delta \text{ in demand}x}{\%\,\Delta \text{ in price}y} = \dfrac{\frac{\Delta Q_x}{Q_x} \times 100\%}{\frac{\Delta P_y}{P_y} \times 100} = \dfrac{\Delta Q_x}{\Delta P_y} \dfrac{P_y}{Q_x} = \dfrac{dQ_x}{dP_y} \dfrac{P_y}{Q_x}$

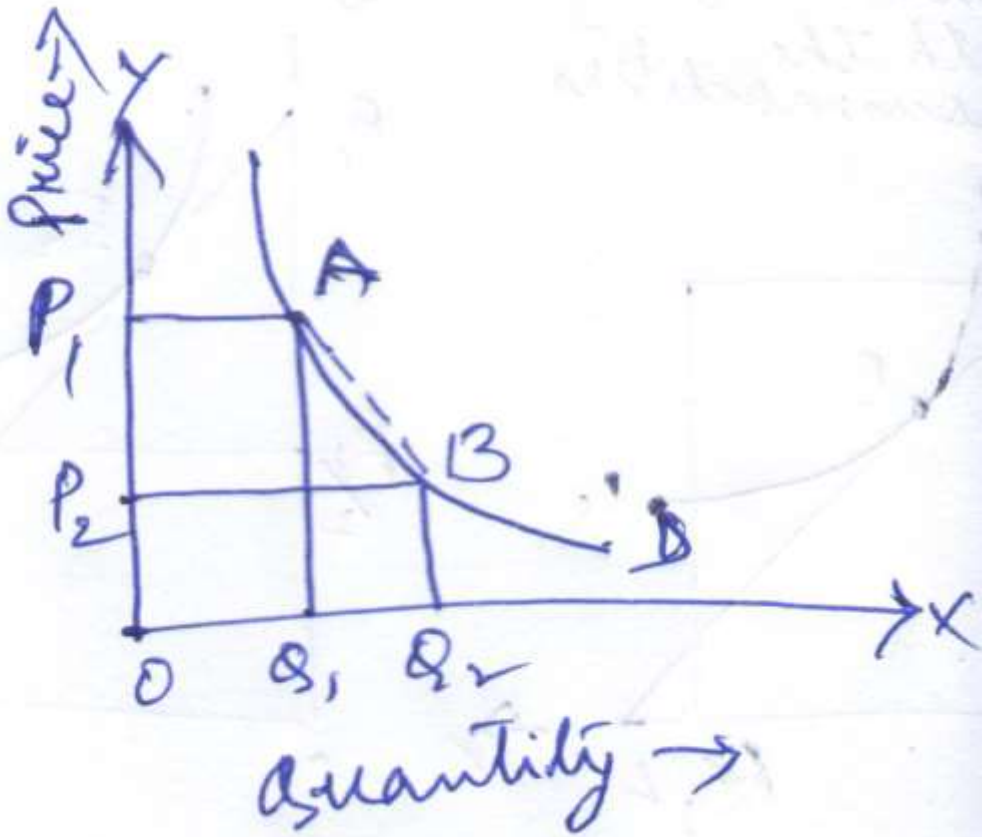
On the basis of intensity or value of the elasticity

1. Elasticity of demand is 1 = Unitary elasticity
2. Elasticity of demand is >1 = Relatively elastic or elastic demand
3. Elasticity of demand is <1 = **Relatively inelastic** or **inelastic** demand
4. Elasticity of demand is 0 = Perfectly inelasticity
5. Elasticity of demand is α = Perfectly elasticity

Arc elasticity

when the changes are large

$$\text{Arc elasticity} = \frac{dQ}{dP} \times \frac{P_1 + P_2}{Q_1 + Q_2}$$



Problem 1:
Let us suppose that the price of a product falls from Rs. 6 to Rs. 4 per unit and as a result quantity demanded of the product increases from 80 units to 120 units. Calculate the price elasticity of demand

Problem 2:
Let us suppose that the price of a product increases from Rs. 4 to Rs. 6 per unit and as a result quantity demanded of the product falls from 120 units to 80 units. Calculate the price elasticity of demand

Problem 3: Compare the results of Problem 1 and Problem 2
Problem 4: A consumer purchases 80 units of a commodity when its price is Rupee 1 per unit and purchases 48 units when its price rises to Rs. 2. Calculate the elasticity of demand

Problem 4: Suppose a seller wants to lwer the price of its product from Rs. 150 per unit to Rs. 142.5 per unit. If its present sales are 2000 units per annum and further it is estimated that its elasticity of demand for the product is -0.7.

i. Whether or not his total revenue will increase as a result of his decision to lower the price?
ii. Calculate the exact magnitude of its new total revnue

Price elasticity & price consumption curve