

# PRICE ELASTICITY OF DEMAND

MEANING AND TYPES

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# Price Elasticity

Price elasticity of demand is an economic measure of the change in the quantity demanded or purchased of a product in relation to its price change. Expressed mathematically, it is:

$$\text{Price Elasticity} = E_p = \frac{\% \text{change in quantity demanded}}{\% \text{change in Price}}$$

Or

$$E_p = \frac{\frac{\text{Change in quantity}}{\text{Original Quantity}} \times 100}{\frac{\text{Change in price}}{\text{Original Price}} \times 100}$$

$$\text{OR } E_p = \frac{\text{Change in Quantity}}{\text{Original Quantity}} \times \frac{\text{Original Price}}{\text{Change in Price}}$$

# ARC Price Elasticity of Demand

Arc elasticity is also defined as the elasticity between two points on a curve. The concept is used in both mathematics and economics.

Generally we calculate Elasticity at initial price but in arc we take average of both prices and Quantities rather than initial in division.

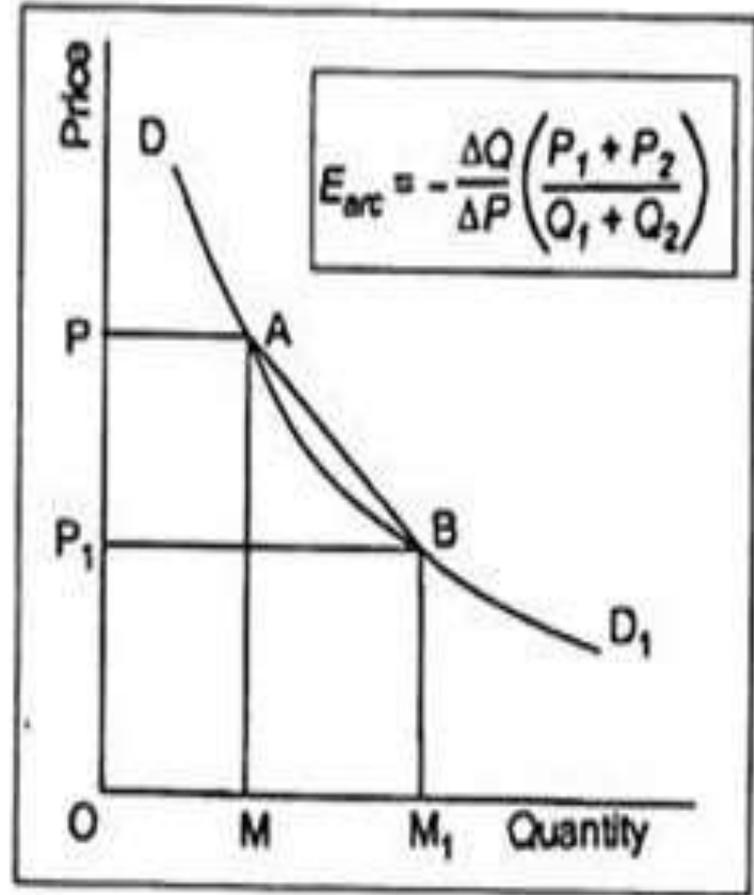
# ARC Price Elasticity of Demand

$$PED = \frac{\% \Delta Q_d}{\% \Delta P}$$

## ARC Price Elasticity of Demand

The ARC PED formula solves the problem of asymmetry and gives the same PED for an increase or a decrease in price.

$$\frac{\frac{Q_{d2} - Q_{d1}}{(Q_{d2} + Q_{d1})/2}}{\frac{P_2 - P_1}{(P_2 + P_1)/2}} = \frac{\frac{\Delta Q_d}{(Q_{d2} + Q_{d1})}}{\frac{\Delta P}{(P_2 + P_1)}}$$

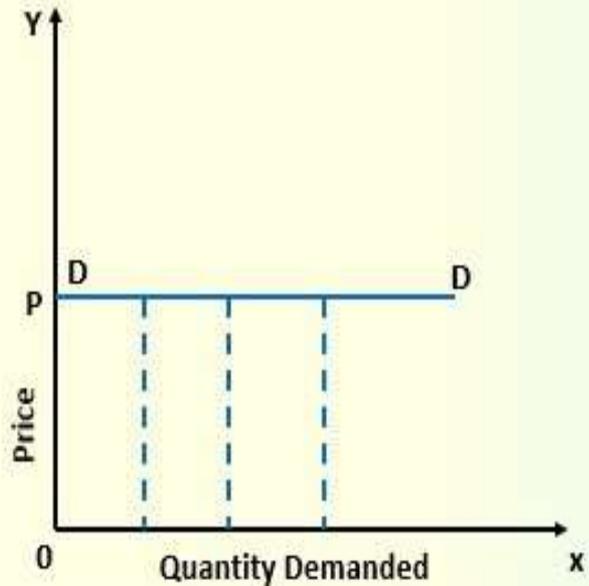




# Types of Price Elasticity

# Perfect Price Elasticity

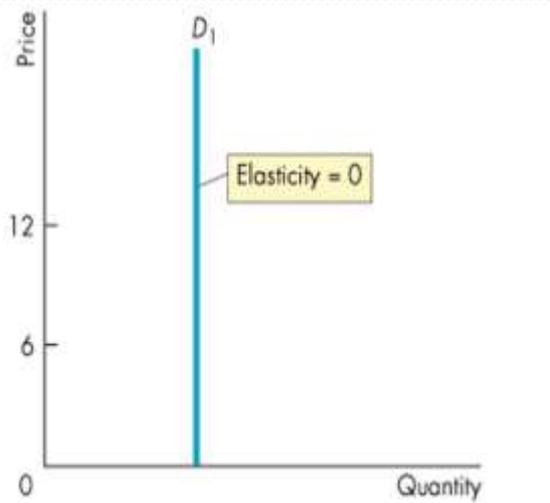
When there is approx no change or negligible change in price lead to infinite change in quantity demanded.



Price change is Tending to Zero, which lead to infinite change in Quantity.

So,  $E_p$  is also tending to infinite.

# Perfect Price Inelasticity



- When change in Price lead no change in quantity needed or demanded.

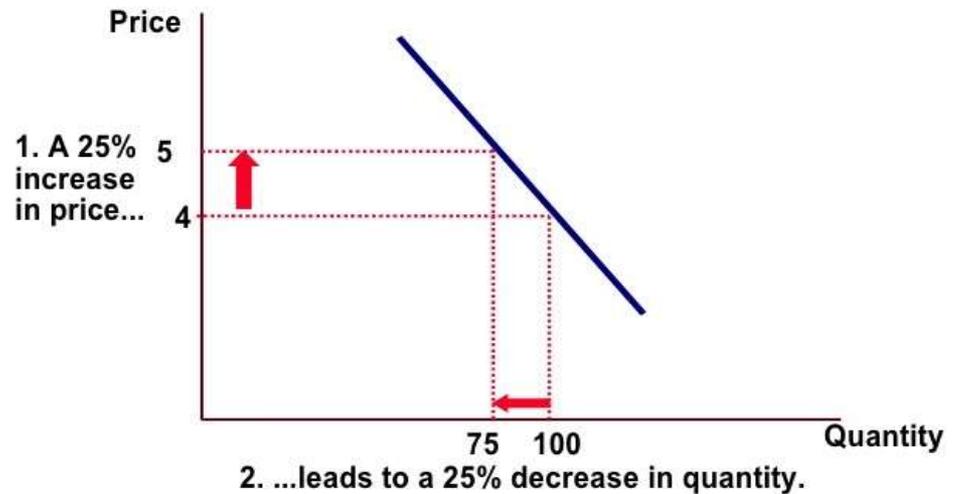
Price change is there, but no change in Quantity, i.e. Zero change.

So,  $E_p$  is also tending to zero.

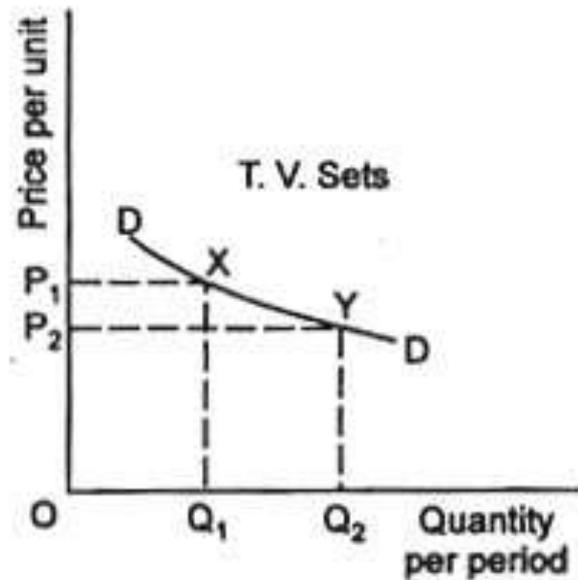
# Unit Price Elasticity

When percentage or proportionate change in price lead to same amount of change in Quantity demanded.

Here  $E_p=1$



## Elastic Demand or Relative Price Elasticity

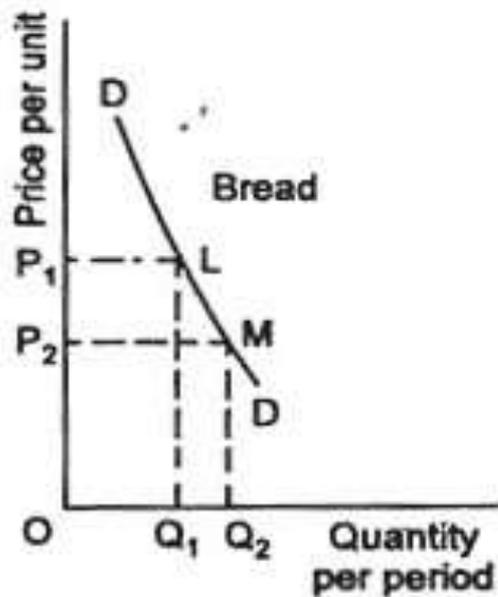


When percentage or proportionate change in price lead to higher amount of change in Quantity demanded.

In this type of elasticity  $E_p$  is greater than one.

$$E_p > 1$$

## Inelastic Demand or Relative Price inelasticity



When percentage or proportionate change in price lead to less amount of change in Quantity demanded.

In this type of elasticity  $E_p$  is greater than one.

$$E_p < 1$$

Thank You