

Elasticity of Demand

Elasticity of demand-

- Elasticity of demand is a measure of how much the quantity demanded would be affected by a proportionate change in its determinants.
- The concept of elasticity was first introduced by Dr. Alfred Marshall, who is regarded as the major contributor of the theory of demand.
- According to Lipsey, "Elasticity of demand may be defined as the ratio of percentage change in demand to the percentage change in the price".
- According to Mrs. Joan Robinson, "The elasticity of demand is the proportionate change of amount purchased in response to a small change in price, divided by the proportionate change in price."

Types of elasticity of demand: Price elasticity, income elasticity and cross elasticity.

Price elasticity: Price elasticity of demand is a measure of a change in the quantity demanded of a product due to change in the price of the product.

$$\text{Price elasticity of demand} = \frac{\text{Proportionate Change in the Quantity Demanded}}{\text{Proportionate Change in Price}}$$

The formula for calculating the price elasticity of demand:

$$E_p = -\frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

Where,

E_p = Price elasticity of demand

p = Initial price

Δp = Change in price

q = Initial quantity demanded

Δq = Change in quantity demanded

Income elasticity of demand: Income elasticity of demand is a measure of a change in the quantity demanded of a product due to change in the income of consumers.

According to Watson, "Income elasticity of demand means the ratio of the percentage change in the quantity demanded to the percentage change in income."

Income elasticity of demand = $\frac{\text{Proportionate Change in the Quantity Demanded}}{\text{Proportionate Change in Income of Consumer}}$

The formula for calculating the income elasticity of demand:

$$E_y = -\frac{\Delta q}{\Delta y} \times \frac{y}{q}$$

Where,

E_y = Income elasticity of demand

y = Initial Income

Δy = Change in Income

q = Initial quantity demanded

Δq = Change in quantity demanded

Cross elasticity of demand: Cross elasticity of demand is a measure of a change in the quantity demanded of a product due to change in the price of related product.

According to Ferguson, "The cross elasticity of demand is the proportional change in the quantity demanded of good X divided by the proportional change in the price of the related good Y."

$$\text{Cross elasticity of demand} = \frac{\text{Proportionate Change in the Quantity Demanded}}{\text{Proportionate Change in price of related goods}}$$

The formula for calculating the cross elasticity of demand:

$$E_c = -\frac{\Delta q_x}{\Delta p_y} \times \frac{p_y}{q_x}$$

Where,

E_c = Cross elasticity of demand

p_y = Initial price of related goods y

Δp_y = Change in price of related goods y

q_x = Initial quantity demanded of good x

Δq_x = Change in quantity demanded of good x

Advertisement elasticity of demand: Advertisement elasticity of demand is a measure of a change in the quantity demanded of a product due to increase in advertisement expenditure.

Advertisement elasticity of demand =

$$\frac{\text{Proportionate Change in the Quantity Demanded}}{\text{Proportionate Change in advertisement expenditure}}$$

The formula for calculating the advertisement elasticity of demand:

$$E_a = -\frac{\Delta q}{\Delta a} \times \frac{a}{q}$$

Where,

E_a = Advertisement elasticity of demand

a = Initial advertisement expenditure

Δp_y = Change in advertisement expenditure

q = Initial quantity demanded

Δq = Change in quantity demanded