

EFE 2021

Q) Calculate the Gross elasticity of Demand
Monthly Demand of Mrs Disha Nair householder

Commodity	Jan 2021		May 2021	
	Price	Quantity	Price	Quantity
Tea	30	50	30	80
Coffee	40	30	50	20

Jan 2021
Tea Price \rightarrow 30
Quantity \rightarrow 50

Coffee Price \rightarrow 40
Quantity \rightarrow 30

\Rightarrow Percentage Price Change

$$= \frac{\Delta P}{P} = \frac{\Delta P}{(P_1 + P_2) / 2} \times 100$$

$$= \frac{10}{(30 + 40) / 2} = \frac{10}{35}$$

$$= 28\%$$

Percentage Quantity Change

$$= \frac{\Delta Q}{Q} = \frac{\Delta Q}{(Q_1 + Q_2) / 2} \times 100$$

$$= \frac{20}{(50 + 30) / 2} \times 100$$

$$= \frac{20}{40} \times 100$$

$$= 50\%$$

$$E_D = \frac{\text{Percentage Quantity Change}}{\text{Percentage Price Change}}$$

$$\equiv \frac{50}{28} = 1.787$$

May 2021

Tea Price $\rightarrow 30$
Quantity 60

Coffee Price $\rightarrow 50$
Quantity $\rightarrow 20$

$$\text{Percentage Price change} \rightarrow \frac{\Delta P}{P} = \frac{20}{(30+50)/2} \times 100$$

$$= \frac{20}{40} \times 100 = 50\%$$

$$\text{Percentage quantity change} \rightarrow \frac{\Delta Q}{Q} = \frac{40}{(60+20)/2} \times 100$$

$$= \frac{40}{40} \times 100$$

$$\text{Elasticity of Demand} \rightarrow \frac{100}{50} = 2$$

3b) A Tata firm increases its advertisements expn from 25000 to Rs 35,000 with increase in Sale from 10,000 units to 12000 units find the Advertisement Elasticity of Demand.

Price - 25000
35000

Quantity 10,000
12,000

$$\begin{aligned}\text{Percentage Price Change} &= \frac{\Delta P}{P} = \frac{10000}{(25000 + 35000)/2} \times 100 \\ &= \frac{10000}{30000} \times 100 \\ &= 33.33\%.\end{aligned}$$

$$\begin{aligned}\text{Percentage change in quantity} &= \frac{\Delta Q}{Q} = \frac{2000}{(10000 + 12000)/2} \times 100 \\ &= \frac{2000}{11000} \times 100 \\ &= 18.18\%.\end{aligned}$$

$$\begin{aligned}ED = \text{Elasticity of Demand} &= \frac{\Delta Q / Q}{\Delta P / P} \\ &= \frac{18.18}{33.33} \\ &= 0.54\end{aligned}$$

Case A Price = 90 & Quantity = 240
Case B = 110 & Quantity = 160

$$\text{Percentage Price Change} = \Delta P / P \\ = 20 / 100 = 20\%$$

$$\begin{aligned} \text{Percentage Quantity Change} &\rightarrow \frac{\Delta Q}{Q} \\ &= \frac{160 - 240}{200} = \frac{-80}{200} \\ &= -40\% \end{aligned}$$

Price elasticity ~~is~~

$$ED = 40 / 20 = 2$$

$$ED = \frac{\Delta Q}{(Q_1 + Q_2) / 2} \div \frac{\Delta P}{(P_1 + P_2) / 2}$$

$$Q = \frac{(160 + 240)}{2} = 200$$

$$P = \frac{(90 + 110)}{2} = 100$$