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Elasticity of Demand

4.3 MEASUREMENT OF PRICE ELASTICITY OF DEMAND BY PERCENTAGE METHOD

Percentage method is also called **proportionate method**. According to this method, e_D is calculated by the following formula:

$$e_D = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

$$\text{or } e_D = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$$

The absolute value of the coefficient of elasticity of demand **ranges from zero to infinity** ($0 \leq e_D \leq \infty$). The five different magnitudes of elasticity of demand are shown in Table 4.2.

Table 4.2 Different Values of Elasticity of Demand

Coefficient Type of e_D	Type of e_D	Description	Type of Good	Shape of Demand Curve (See Fig 4.2)
1. $e_D = 0$	Perfectly inelastic demand	This occurs when to a percentage change in price there is no change in quantity demanded.	Essentials like life saving drugs	Vertical (dF)
2. $0 < e_D < 1$	Inelastic	This occurs when to a percentage change in price there is less than proportionate change in quantity demanded.	Necessities like food, fuel	Vertical (dF)

3. $e_D = 1$	Unitary elastic demand	This occurs when to a percentage change in price there is equal change in quantity demanded.	Normal goods	Steeper (dD)
4. $1 < e_D < \infty$	Elastic demand	This occurs when to a percentage change in price there is greater change in quantity demanded.	Luxuries like eating in a 5-star hotel	Linear demand curve forms 45° angle with both the axes (dC) or a rectangular hyperbola. Flatter (dB)
5. $e_D = \infty$	Perfectly elastic demand	This occurs when there is infinite change in quantity demanded without any change in price.	Imaginary situation (It exist under perfect competition)	Horizontal (dA)

Graphically, the five coefficients of price elasticity of demand are shown in Fig. 4.1. The details of each coefficient of price elasticity of demand is as follows:

1. Perfectly inelastic demand ($e_D = 0$)

When the demand of a commodity does not change as a result of change in its price, the demand is said to be perfectly inelastic. The perfectly inelastic demand curve is a vertical line parallel to y-axis as shown in Fig. 4.2. As it is clear from the diagram, price may be OP or OP_1 or OP_2 , but the demand will be constant at OQ . In other words, there is no effect of changes in the price on the quantity demanded. It exists in case of **essentials like life saving drugs**.

Table 4.3 Perfectly Inelastic Demand Schedule

Price (₹)	Demand (Units)
15	10
10	10
20	10

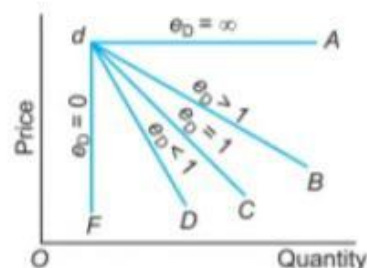


Fig. 4.1 Different Types of Price Elasticity of Demand

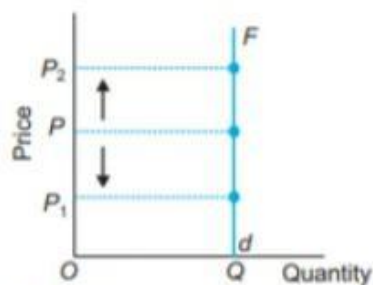


Fig. 4.2 Perfectly Inelastic Demand Curve

2. Inelastic (or less than unit elastic) Demand ($0 < e_D < 1$)

When a change in price leads to a less than proportionate change in the demand, the demand is said to be less elastic or inelastic.

It is shown in Table 4.4, where price falls by ₹ 8, quantity demanded increases by only 1 unit. The coefficient of price elasticity of demand is said to be less than 1 unit. The slope of an inelastic demand curve is more, i.e., the demand curve is steep as shown in Fig. 4.3. It exists in case of **necessities like food, fuel**, etc.

Table 4.4 Inelastic Demand Schedule

Price (₹)	Demand (Units)
10	20
2	21

The inelastic demand curve shows that change in quantity demanded (QQ_1) is less than change in price (PP_1).

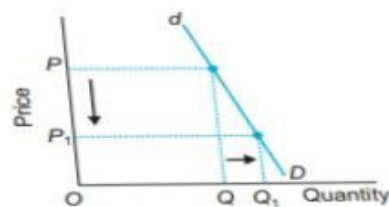


Fig. 4.3 Inelastic Demand Curve