

VIDYA BHAWAN BALIKA VIDYA PITH

शक्तिउत्थानआश्रमलखीसरायबिहार

Class 11 commerce Sub. ECO/A Date 9.11.2020

Teacher name – Ajay Kumar Sharma

Elasticity of Demand

3. Unit Elastic Demand ($e_D = 1$)

When percentage change in demand is equal to the percentage change in price, the demand for the commodity is said to be unitary elastic.

It is shown in Table 4.5, where when price falls by ₹ 5, demand increases by 10 units. The unitary elastic demand curve is a straight downward sloping line forming 45° angles with both the axis. It is also a rectangular hyperbola. It is drawn in Fig. 4.4. It exists in case of **normal goods**.

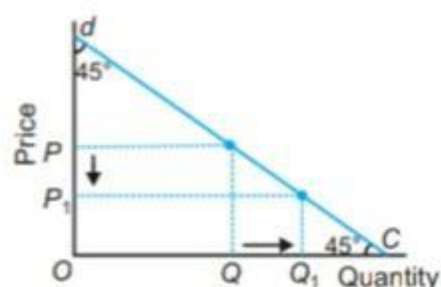


Fig. 4.4 Unitary Elastic Demand Curve

Table 4.5 Unitary Elastic Demand Schedule

Price (₹)	Demand (Units)
10	20
5	30

The unitary elastic demand curve shows that when price falls from OP to OP_1 , demand rises from OQ to OQ_1 . The change in demand (QQ_1) is equal to the change in price (PP_1).

4. Elastic (or more than unit elastic) Demand ($1 < e_D < \infty$)

When a change in price leads to a more than proportionate change in demand, the demand is said to be elastic or more than unit elastic. It is shown in Table 4.6, when price falls by ₹ 1 demand increases by 20 units. The coefficient of elasticity of demand is greater than unity. The demand curve is downward sloping and flatter as shown in Fig. 4.5. It exists in case of **luxuries**.

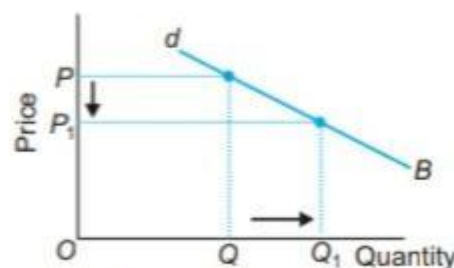


Fig. 4.5 Elastic Demand Curve

Table 4.6 Elastic Demand Schedule

Price (₹)	Demand (Units)
10	20
9	40

The elastic demand curve shows that when price falls from OP to OP_1 , demand rises from OQ to OQ_1 . The change in demand (QQ_1) is more than the change in price (PP_1).

5. Perfectly Elastic Demand ($e_D = \infty$)

When the demand for a commodity rises or falls to any extent without any change in price, the demand for the commodity is said to be perfectly elastic. It is shown in Table 4.7, where quantity demanded keeps on changing at the same price of ₹ 10. The coefficient of price elasticity of demand is infinity. It is shown graphically in Fig. 4.6. It exists under **perfect competition**, which is an ideal and imaginary situation.

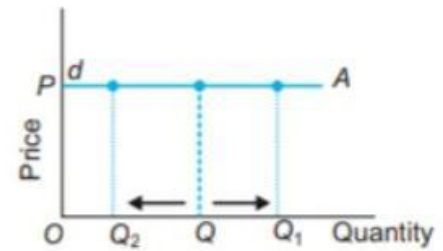


Fig. 4.6 Perfectly Elastic Demand Curve

Table 4.7 Perfectly Elastic Demand Schedule

Price (₹)	Demand (Units)
10	10
10	5
10	20

Perfectly elastic demand curve is a horizontal line parallel to the x -axis. It means that at price OP , quantity demanded can be OQ or OQ_1 or OQ_2 .

Point Elasticity vs. Arc Elasticity (Only for reference)

Point e_D . The percentage formula applies only in case of *point* elasticity. Point elasticity relates to price elasticity at a single point on a demand curve. In case of point elasticity, there is very small change in price and quantity demanded.

Arc e_D . If there are *finite* change in price and quantity demanded, such that it relates to a *stretch* over the demand curve, then the percentage formula is modified. It is called *arc elasticity*, defined as the price elasticity of demand between *two points* on a demand curve. Problem arises as the same pair of price and quantity figures are giving two different values of elasticity. The value of elasticity depends upon the *direction* in which elasticity is measured. To avoid this problem, the price and quantity values are averaged. Hence, the formula for arc elasticity is:

$$\text{Arc } e_D = \frac{\Delta Q}{\Delta P} \cdot \frac{\frac{P_1 + P_2}{2}}{\frac{Q_1 + Q_2}{2}}$$

or
$$\text{Arc } e_D = \frac{\Delta Q}{\Delta P} \cdot \frac{(P_1 + P_2)}{(Q_1 + Q_2)}$$