

Price elasticity of demand:

Price elasticity of demand is defined as the percentage change in the quantity demanded divided by the percentage change in the price of the commodity.

Algebraically:

$$E_d = \text{Percentage change in quantity demanded} / \text{Percentage change in price}$$

Price elasticity also shows the degree of responsiveness of the change in the quantity demanded of a product due to the change in its price.

The above equation can be written as:

$$E_d = \frac{\Delta Q}{Q} \times 100 / \frac{\Delta P}{P} \times 100$$

$$= \frac{\Delta Q}{Q} / \frac{\Delta P}{P}$$

$$E_d = \frac{\Delta Q}{\Delta P} * \frac{P}{Q} \dots\dots\dots (1)$$

Now since there exists inverse relation between the price and quantity of a product therefore as the price increases the quantity demanded falls, therefore, the value of price elasticity will always be negative. In order to overcome this, we add minus sign in the above equation (1) itself, so as to get positive elasticity (because it is easier to apply further applications on positive numbers).

Hence the new and final elasticity formula becomes:

$$E_d = - \frac{\Delta Q}{\Delta P} * \frac{P}{Q} \dots\dots\dots (2)$$

According to *Lipsey and Crystal*, 'Demand elasticity is measured by a ratio: the percentage change in quantity demanded divided by the percentage change in price that bought it about. For normal, negatively sloped demand curves, elasticity is negative, but the relative size of the two elasticities is usually assessed by comparing their absolute values'.

The larger value of elasticity indicates that the quantity demanded is highly responsive to a little change in the price i.e. quantity demanded changes more than as compare to the change in the price on the other hand, the smaller elasticity indicates that the quantity demanded is relatively unresponsive to a change in the price i.e. the quantity demanded have a little change as compare to a change in the price.

The value of price elasticity of demand varies from zero to infinity. According to *Lipsey and Crystal*, 'Elasticity depends on the slope of the demand curve and the point at which the measurement is made.

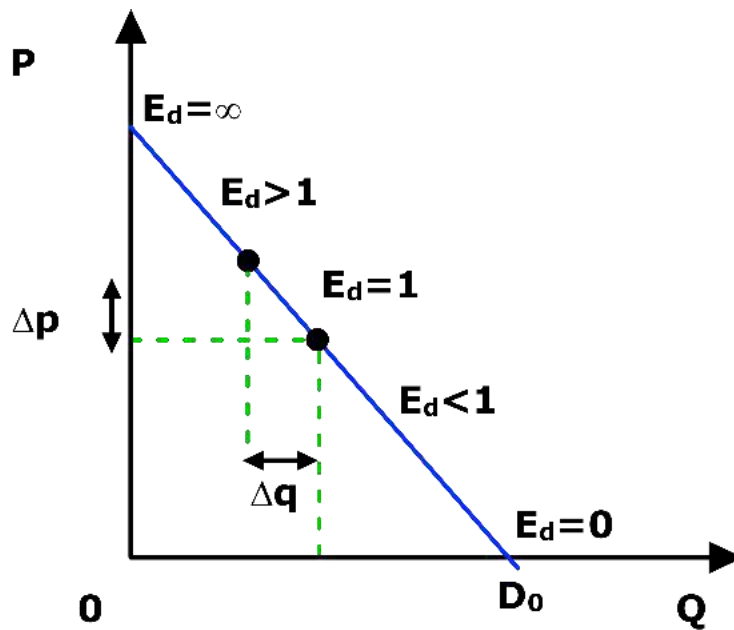


Fig 1: Elasticity on a linear Demand Curve Zero elasticity implies that the quantity demanded does not change with a change in the price, i.e. quantity demanded is completely unresponsive to a change in the price of the commodity. In such case the demand curve is said to be perfectly inelastic.

Infinite elasticity implies that the quantity demanded is highly responsive to a change in the price, i.e. even with a very little price change the change in quantity demanded is huge. In such case the demand curve is said to be perfectly elastic.

If the value of elasticity is one, then it represents that the quantity demanded is equally responsive to a change in its price, i.e. quantity demanded changes in the same proportion in which price changes. In such case the demand curve is said to be unit elastic.