

Measurement of price elasticity

Total outlay method:

- This method was introduced by Dr. Alfred Marshall.
- According to this method, the price elasticity of a product is measured on the basis of the total amount of money spent by consumers on the consumption of that product.
- Price elasticity is determined by comparing consumers' expenditure before change in the price with that of after change in the price.
- By comparing, three cases are considered:
- If the total expenditure remains unchanged after there is a change in the price of the good, the price elasticity equals one ($e_p = 1$).

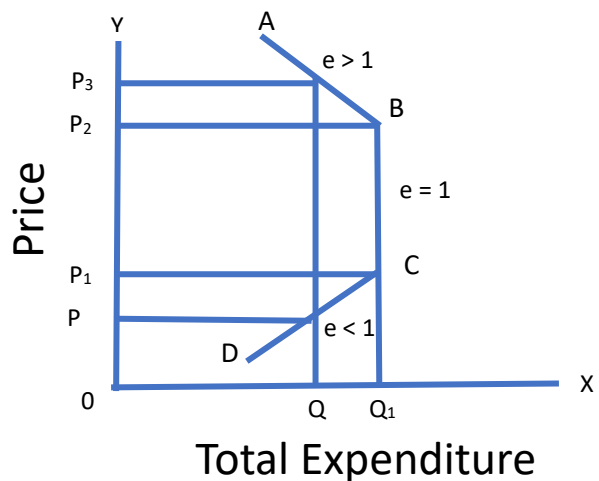
Price	Quantity	Total Expenditure
4	50	200
2	100	200
1	200	200

- If the total expenditure reduces after an increase in the price of the good and vice-versa, the elasticity of demand is more than one ($e_p > 1$).

Price	Quantity	Total Expenditure
4	25	100
2	100	200
1	250	250

- If the total expenditure reduces after a decrease in the price of the good and vice-versa, the elasticity of demand is less than one ($e_p < 1$).

Price	Quantity	Total Expenditure
4	75	300
2	100	200
1	150	150



Percentage method:

- It is also known as the ratio method.
- A ratio of proportionate change in quantity demanded to the price of the product is calculated to determine the price elasticity.

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

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

- If the answer is 1, elasticity is unit elastic.
- If the answer is more than 1, elasticity is more than unit.
- If the answer is less than 1, elasticity is less than unit.

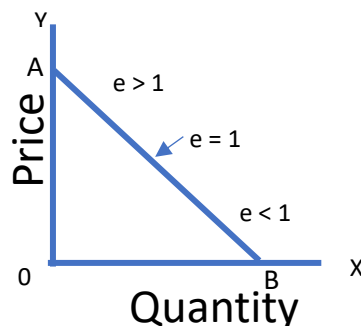
Point elasticity method:

This method is used to measure the elasticity at a specific point on a demand curve.

The point elasticity method is also known as geometric method or slope method.

In this method, different points are taken on the demand curve to find the price elasticity of demand at different prices.

The points at which elasticity is measured are lower and upper segments of the curve.



$$E_p = \frac{\text{Lower Segment}}{\text{Upper Segment}}$$