

21. If the price of good X rises and it leads to an increase in demand for good Y, how are the two goods related? (NCERT)
22. If the price of good X rises and it leads to decrease in demand for good Y, how are the two goods related? (NCERT)
23. What is meant by cross price effects? (NCERT)
24. How will an increase in the price of coffee affect the demand for tea? (NCERT)
25. How will an increase in the price of tea affect the demand for sugar? (NCERT)
26. Give two examples of normal goods and two examples of inferior goods. (NCERT)
27. How does an increase in income affect the demand curve for a normal good? (NCERT)
28. How does an increase in income affect the demand curve for an inferior good? (NCERT)
29. How the market demand curve is derived from the individual demand curves? (NCERT)
30. What are the determinants of market demand curve? (NCERT)
31. What is market demand?
32. Give examples of substitute goods.
33. Give examples of complimentary goods.
34. What is demand curve?
35. What is meant by the phrase—‘Ceteris paribus’?
36. What are the assumptions of law of demand?
37. Explain the terms-Income effect and Substitution effect.
38. What are the important exceptions to the law of demand?
39. What is Giffen Paradox?
40. What is conspicuous consumption?
41. Distinguish between movement along the demand curve and shifts in the demand curve.
42. What is meant by a change in quantity demanded?
43. What do you mean by extension in the demand curve?
44. Distinguish between extension and increase in demand curve.
45. Distinguish between contraction and decrease in demand curve.
46. What are the causes of increase in the demand curve?
47. What are the causes of decrease in the demand curve?
48. Show with the help of diagrams, shifts in the demand curve and movement along then demand curve.

# 5

## ELASTICITY OF DEMAND

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### MEANING OF PRICE ELASTICITY OF DEMAND

Elasticity, roughly, means responsiveness. What response demand of a commodity shows when there is either increase or decrease in its price, is explained with the help of elasticity. Managers have great advantages by knowing elasticity of the products he is selling. Greater response means greater elasticity and small response indicates less elasticity. A manager is very interested in knowing whether sales will increase by 4 percent, 10 percent or more by cutting down price by 8 percent. Elasticity of demand, thus, measures the degree of responsiveness of demand to a change in price of the commodity. Prof. Alfred Marshall had introduced the concept of elasticity of demand in the economic theory. In his words, *“The elasticity (or responsiveness) of demand in a market is great or small according as the amount demanded increases much or little for a given fall in price and diminishes much or little for a given rise in price.”* We may thus define elasticity of demand as the ratio of the percentage change in quantity demanded to the percentage change in price.

Demand may be elastic or inelastic. When due to a small change in price, there is a great change in demand, it is said that demand is elastic. If a 5 percent cut in prices of car results in an increase in 30 percent in sales, demand is said to be highly elastic. In other words, demand has responded greatly. On the other hand, if a great change in price is followed by a small change in demand, it is inelastic demand. For example, the demand for salt is said to be inelastic because same quantity of it will be purchased even if price rises or declines. Whereas, demand for a car is elastic because a small rise/fall in price may greatly reduce/increase its demand. Price elasticity of demand is expressed as under:

$$E_p = \frac{\text{Percentage change in demand}}{\text{Percentage change in price}}$$

There are five **cases/kinds of price elasticity of demand**. These are as follows:

- 1. Perfectly Inelastic Demand:** Demand for a commodity will be said to be perfectly inelastic, if the quantity demanded does not change at all in response to a given change in price. If 10 percent change in price results in zero percent change in demand, it is exactly inelastic demand. The demand curve, in this case, is vertical straight line perpendicular to Y-axis as shown in Fig. 5.1.

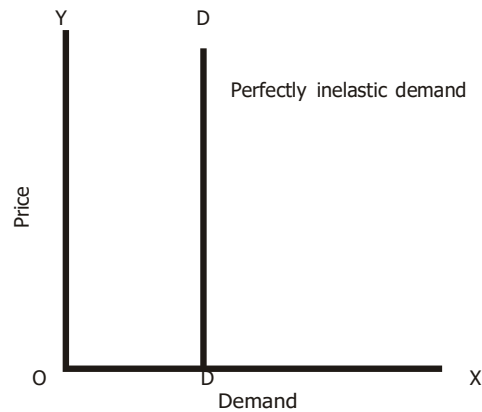


Fig. 5.1

2. **Inelastic or less than Unit Elastic Demand:** Demand for commodity will be said to be inelastic (or less than unit elastic) if the percentage change in quantity demanded is less than the percentage change in price. If 10 percent change in price results in 6 percent change in demand, it is inelastic demand. This is shown in Fig. 5.2.

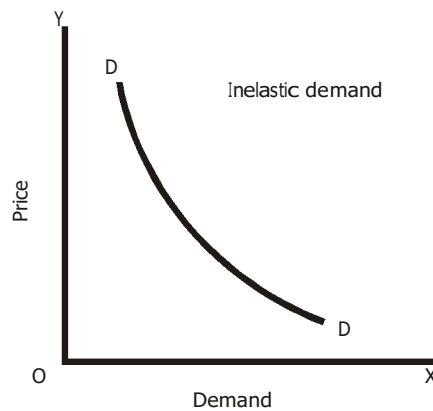


Fig. 5.2

3. **Unitary Elastic Demand:** Demand for a commodity will be said to be unit elastic if the percentage change in quantity demanded equals the percentage change in price. If 10 percent change in price results in 10 percent change in demand, it is unit elastic demand. The demand curve in such case is called rectangular hyperbola shown in the adjacent Fig. 5.3.

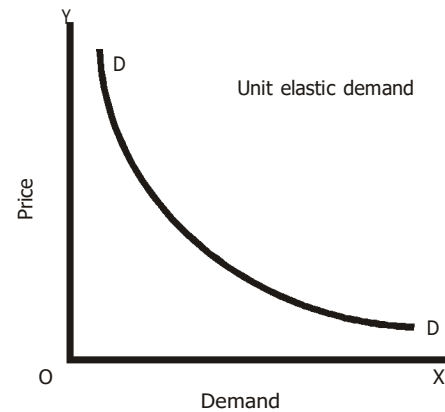


Fig. 5.3

4. **More than Unit Elastic:** Demand for a commodity will be said to be more than unit elastic if a change in price results in a significant change in demand for this commodity. If 10 percent change in price results in 14 percent change in demand, it is elastic demand. Figure 5.4 below shows elastic demand.

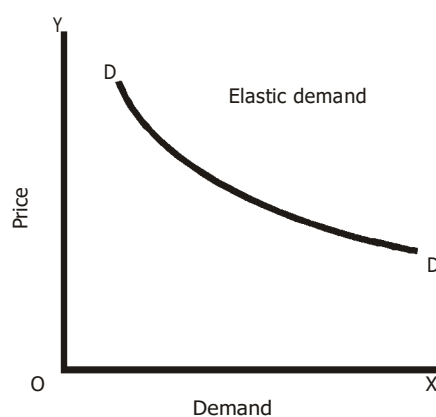


Fig. 5.4

5. **Perfectly Elastic Demand:** Demand for a commodity is said to be perfectly elastic, when a small change in its price results in an infinite change in its quantity demanded. If 10 percent change in price results in ( $\alpha$ ) percent change in demand, it is exactly elastic demand. In this case, demand curve is horizontal straight line parallel to X-axis as shown in Fig. 5.5. The first and the last cases are rare in real life.

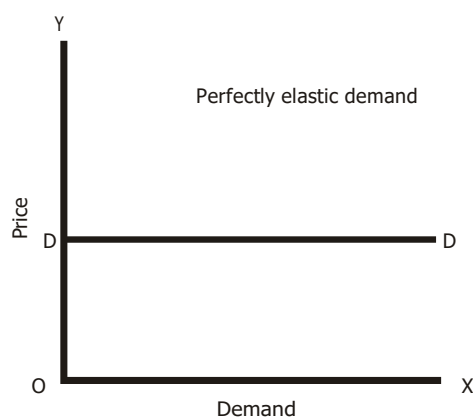


Fig. 5.5

Thus, we can summarize the types of elasticity in the table below:

<i>Percentage change in price</i>	<i>Percentage change in demand</i>	<i>Types</i>	<i>Coefficient of elasticity</i>
10	0	Perfectly inelastic	$e = 0$
10	6	Inelastic	$e < 1$

*Contd....*

10	10	Unit elastic	$e = 1$
10	14	Elastic	$e > 1$
10	$\alpha$	Perfectly elastic	$e = \alpha$

The table shows how a 10% change in price of a good influences quantity demanded. If there is no change or zero change in quantity demanded, elasticity is perfectly inelastic. Likewise, if the change is relatively less, demand is inelastic. In case of same change and more changes in demand, elasticity is unitary and elastic demand respectively. When there is very great change, demand is perfectly elastic.

### MEASUREMENT OF PRICE ELASTICITY OF DEMAND

It is very important to know to what extent demand is responsive, that is elastic or inelastic. For this purpose measurement of elasticity is necessary. The important methods to measure elasticity are the following:

1. Percentage method.
2. Arc method.
3. Total outlay method.
4. Point/Geometrical method.
5. Revenue method.

#### Total Outlay/Expenditure Method

Elasticity of demand for a commodity can be measured with the help of the Total Outlay/expenditure incurred by a household on the purchase of a commodity. Total outlay is  $(TQ = p \times q)$  where TQ stands for total outlay,  $p$  and  $q$  for price and quantity respectively. This method provides us with three different measurements of the elasticity of demand, which are as follows:

- (1) Less than Unit Elastic ( $e < 1$ )
- (2) Unit Elastic ( $e = 1$ )
- (3) More than Unit Elastic ( $e > 1$ )

Total outlay method to measure elasticity of demand was primarily used by Prof. Marshall. According to this method, elasticity is measured by comparing the total money spent by the consumer on the goods before and after the changes in price. Elasticity can be measured for the following three situations:

- 1. Unit elasticity ( $e = 1$ ):** When the total money, outlay, or expenditure (TE) remains unchanged even after a change in the price of the commodity, elasticity is said to be unitary. Take for instance the following example, where TE remains the same. It is seen that when price falls to Rs 2 per unit, total expenditure does not change.

Price (Rs. Per unit)	Quantity (Q)	Total Expenditure (TE)
5	10	50
2	25	50

2. **More than unit elastic ( $e > 1$ ):** When the total money expenditure rises with a fall in price and falls with a rise in price, it is the case of elasticity greater than one or elastic demand. This will be clear from the table. When price falls from Rs. 5 to Rs. 2 per unit, total expenditure rises from Rs. 50 to Rs. 60. Thus there is inverse relationship between price and total expenditure.

Price (Rs. Per unit)	Quantity (Q)	Total Expenditure (TE)
5	10	50
2	30	60

3. **Inelastic demand ( $e < 1$ ):** When the total money expenditure rises with an increase in price and falls with a fall in price, it is the case of inelasticity of demand or elasticity less than one. The adjacent table shows this case. In this case, when price decreases, total expenditure also declines. Thus price and total expenditure have direct relationship.

Price (Rs. Per unit)	Quantity (Q)	Total Expenditure (TE)
5	10	50
2	15	30

The Fig. 5.6 below also depicts how price elasticity can be measured with the help of total outlay method. Demand is unit elastic over the price range R and Q; inelastic over the price range S and R and elastic over the price range P and Q.

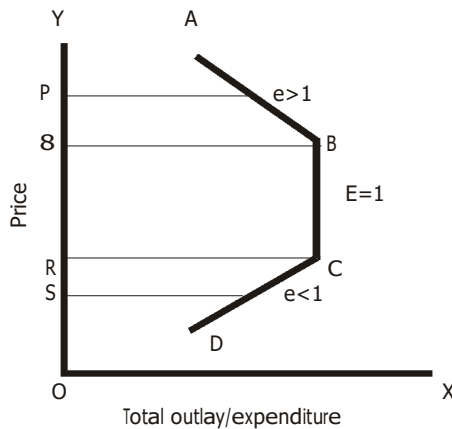


Fig. 5.6

**Percentage Method**

Price elasticity of demand can also be measured with the help of percentage method or proportionate method. According to this method, percentage change in price is compared with the percentage change in demand. Elasticity is the ratio of the percentage change in quantity demanded to the percentage change in price as expressed below: