

# MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS

## Online Lecture Series Topic: Elasticity of Demand Lecture-07



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# ***TOPICS TO BE COVERED***

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- Concept of Elasticity of Demand
- Types of Elasticity of Demand
- Measurements of Elasticity of Demand
- Determinants of Elasticity of Demand

# STATE OF BUSINESS

The level of demand for different commodities also depends upon the **business conditions** in the country. If the country is passing through boom conditions, there will be a marked increase in demand. On the other hand, the level of demand goes down during depression.



# Meaning of Elasticity of Demand

## Elastic Demand



## ***DEFINITION OF ELASTICITY OF DEMAND***

**“The elasticity (or responsiveness) of demand in 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”**

**– Dr.Marshall**

# Elasticity – the concept

- The responsiveness of one variable to changes in another
- When price rises, what happens to demand?
- Demand falls
- BUT!
- How much does demand fall?

# ELASTICITY OF DEMAND

- In the words of “Marshall”, “The elasticity of demand in a market is great or small according as the amount demanded increases much or little for a given fall in the price and diminishes much or little for a given rise in Price”
- **Elastic demand:** A small change in price may lead to a great change in quantity demanded. In this case, demand is elastic.
- **In-elastic demand:** If a big change in price is followed by a small change in demanded then the demand is “inelastic”.

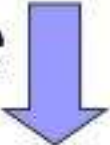

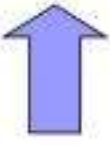
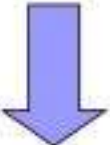
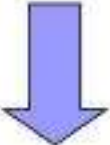
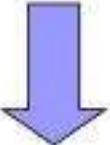
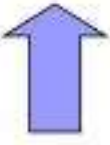



# **TOTAL REVENUE**

**Total Revenue (TR)=  
Price x Quantity Sold**



# Total Revenue and Elasticity

- If price  and TR  = Elastic Demand
- If price  and TR  = Elastic Demand
- If price  and TR  = Inelastic Demand
- If price  and TR  = Inelastic Demand

# ELASTICITY - The Concept

- If price rises by 10% - what happens to demand?
- We know demand will fall.
- By more than 10% ?
- By less than 10% ?
- Elasticity measures the extent to which demand will change.



# **Characteristic of Elastic Products**

- Demand is very responsive to price change
- Usually luxury items (wants); Not necessities (needs)
- Many substitutes for the product; Consumers have a variety of choices
- Takes up large part of budget (sometimes)
- Long run demand – more time to react to price changes

# Elasticity of Demand

**According to the source of the change, the following types of elasticity of demand can be mentioned:**

- Price Elasticity of Demand
- Cross Elasticity of Demand (the elasticity in relation to the change of the price of other good and services)
- Income Elasticity of Demand
- Advertisement Elasticity of Demand (the elasticity in relation to the advertisement expenditure)

**According to the degree of the change in the demand, the elasticity can be classified in:**

- Perfectly Elastic
- Relatively Elastic
- Unitary Elasticity
- Relatively Inelastic
- Perfect Inelastic



# Classification of Elasticity of Demand



The diagram illustrates the classification of elasticity of demand. It features a central word 'Types' in red, flanked by two yellow boxes with dashed black borders. The left box is labeled 'Elastic Demand' and has a dashed arrow pointing towards the center. The right box is labeled 'Inelastic Demand' and has a dashed arrow pointing towards the center. The entire diagram is set against a white background.

**Elastic  
Demand**

**Types**

**Inelastic  
Demand**

# Measurements of Elasticity of Demand

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- ***Price Elasticity of Demand***
- ***Income Elasticity of Demand***
- ***Cross Elasticity of Demand***
- ***Advertising Elasticity of Demand***

# Price Elasticity

- Measures the relative responsiveness of the change in quantity demanded as a result of a change in the product's price
- $PED = \frac{\% \Delta \text{ quantity demanded}}{\% \Delta \text{ in price}}$

# Price Elastic or Inelastic?

■  $PED = \frac{\% \Delta \text{ quantity demanded}}{\% \Delta \text{ in price}}$

- If price elasticity is GREATER than 1, then it is classified as being price elastic.
  - $> 1 =$  price elastic
- If price elasticity is LESS than 1, then it is classified as being inelastic.
  - $< 1 =$  price inelastic



## Example

- If the price of a car wash increased 10 percent and the quantity demanded decreased 20 percent, the elasticity would be:

$$\text{Price Elasticity} = \frac{20\%}{10\%} = 2$$

$2 > 1$ , so the demand for a car wash is price elastic

# Practical Importance of the Concept of Price Elasticity Of Demand

- The concept is helpful in taking Business Decisions
- Importance of the concept in formulating Tax Policy of the government
- For determining the rewards of the Factors of Production
- To determine the Terms of Trade Between the Two Countries

# Practical Importance of the Concept of Price Elasticity Of Demand

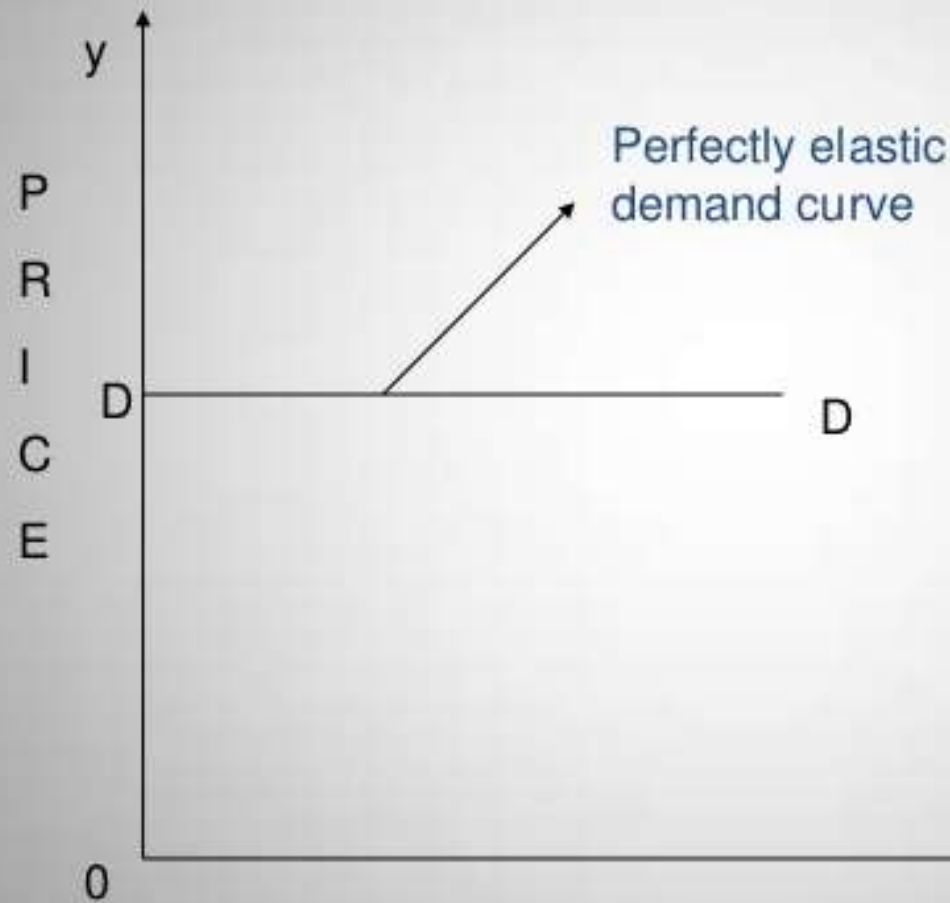
- Determination of Rates of Foreign Exchange
- For Nationalization of Certain Industries
- In economic Analysis ,the concept of price elasticity of demand helps in explaining the irony of poverty in the midst of plenty.

# TYPES OF PRICE ELASTICITY

- There are five cases of price elasticity of demand.  
They are:
- Perfectly elastic demand
- Perfectly inelastic demand
- Relatively elastic demand
- Relatively inelastic demand
- Unity elastic demand

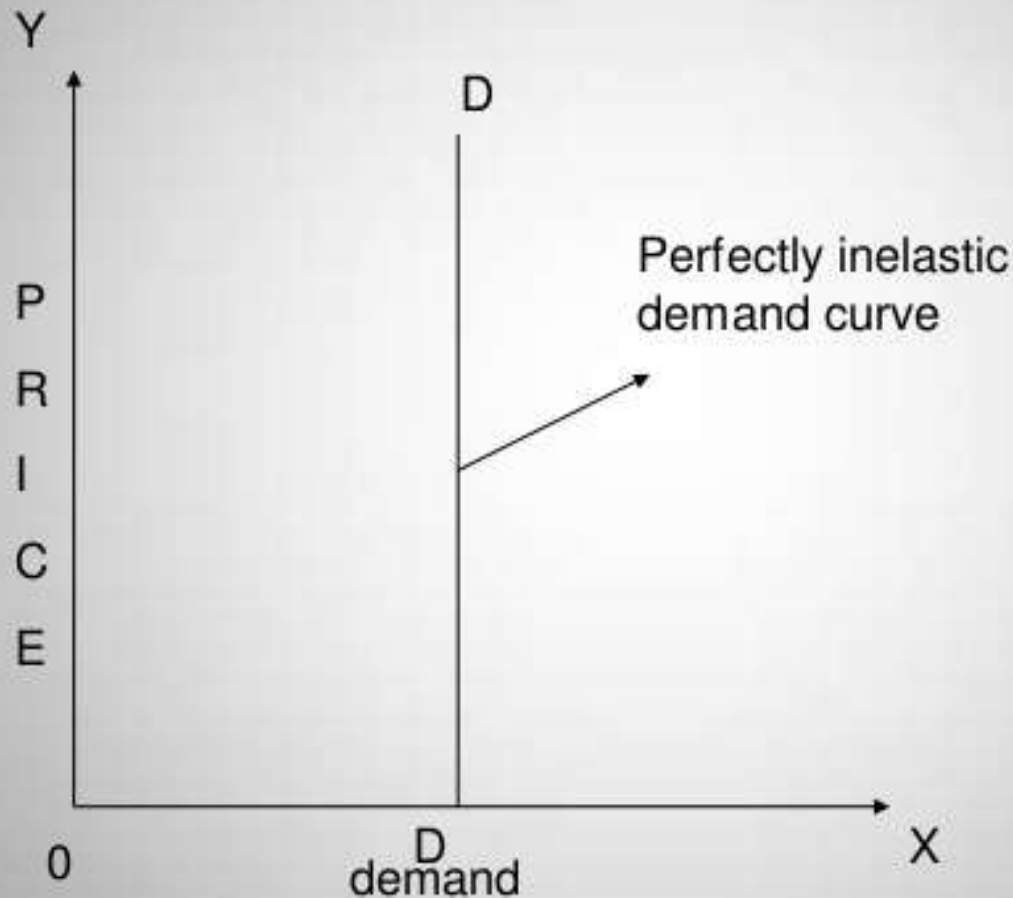


# Perfectly elastic demand



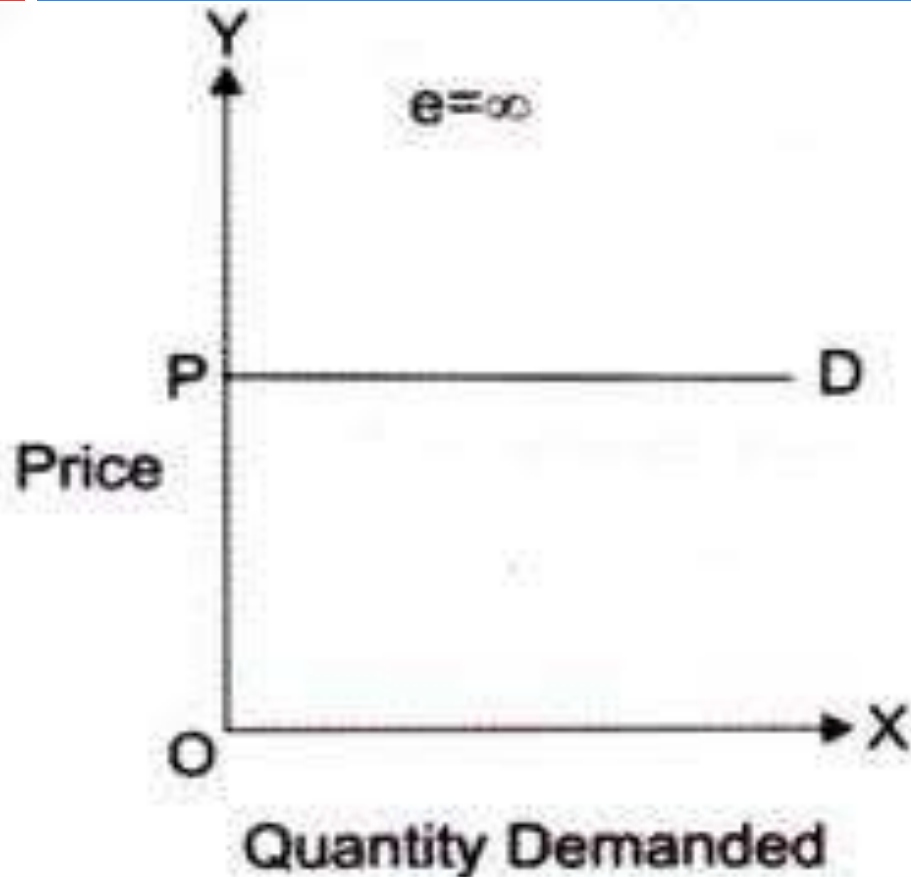
When the demand for a product changes –increases or decreases even when there is no change in price, it is known as perfect elastic demand.

# Perfectly inelastic demand

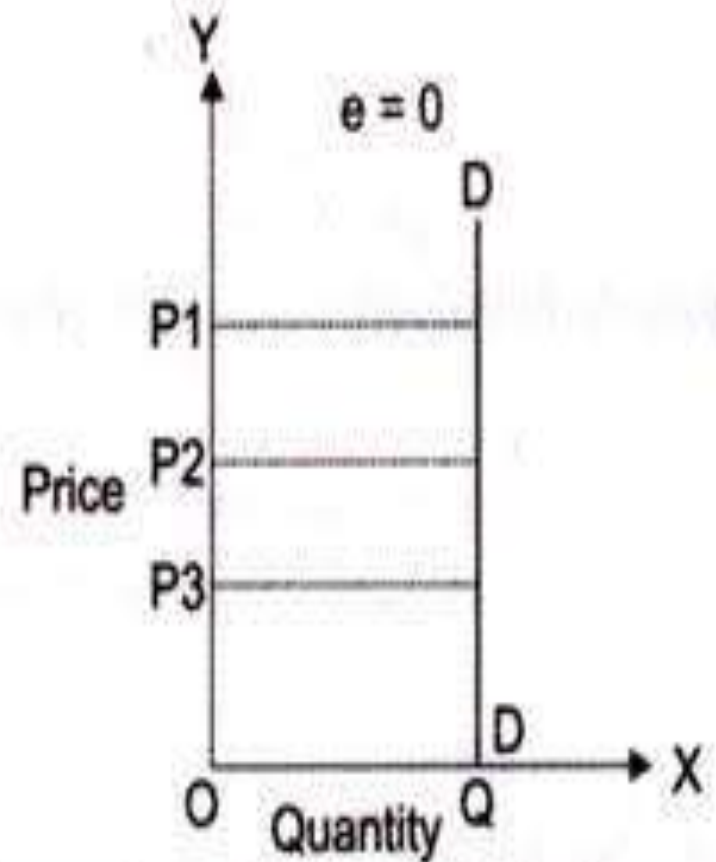


When a change in price, however large, changes no quantity demanded, it is known as perfectly inelastic demand

# Graphical representation of Elasticity of Demand

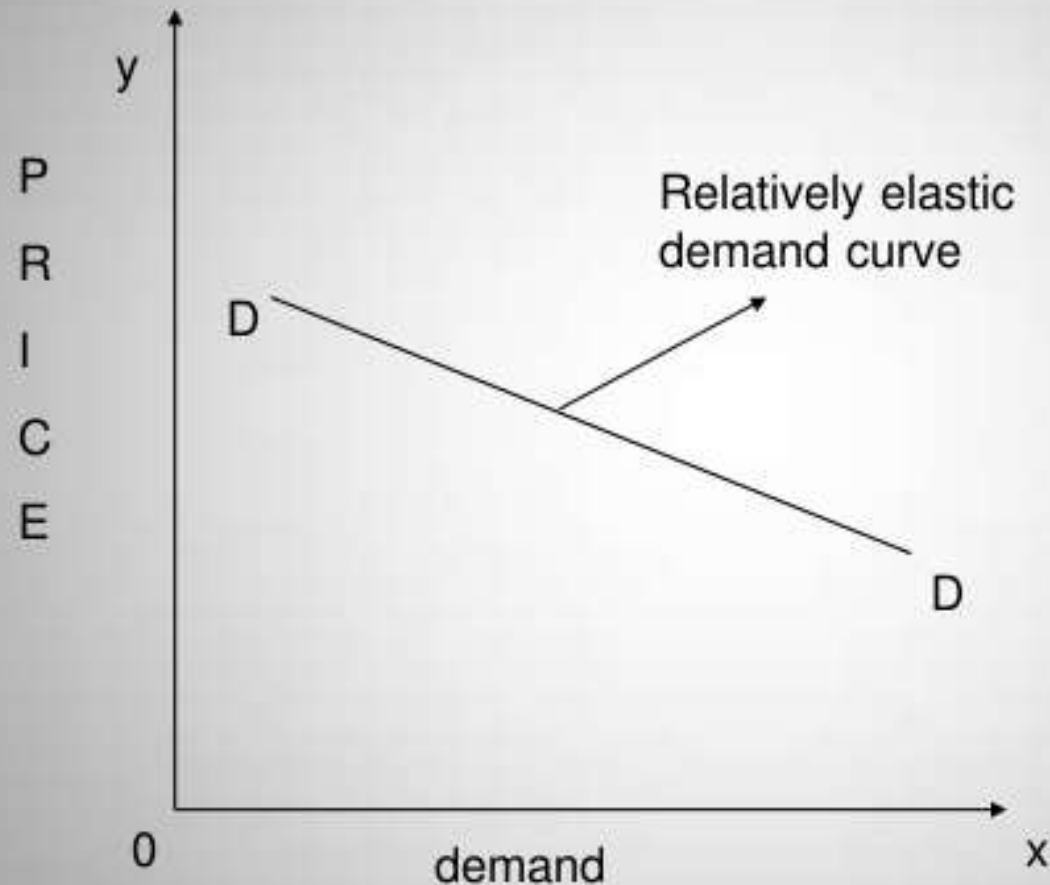


**Figure-2: Perfectly Elastic Demand**



**Figure-3: Perfectly Inelastic Demand**

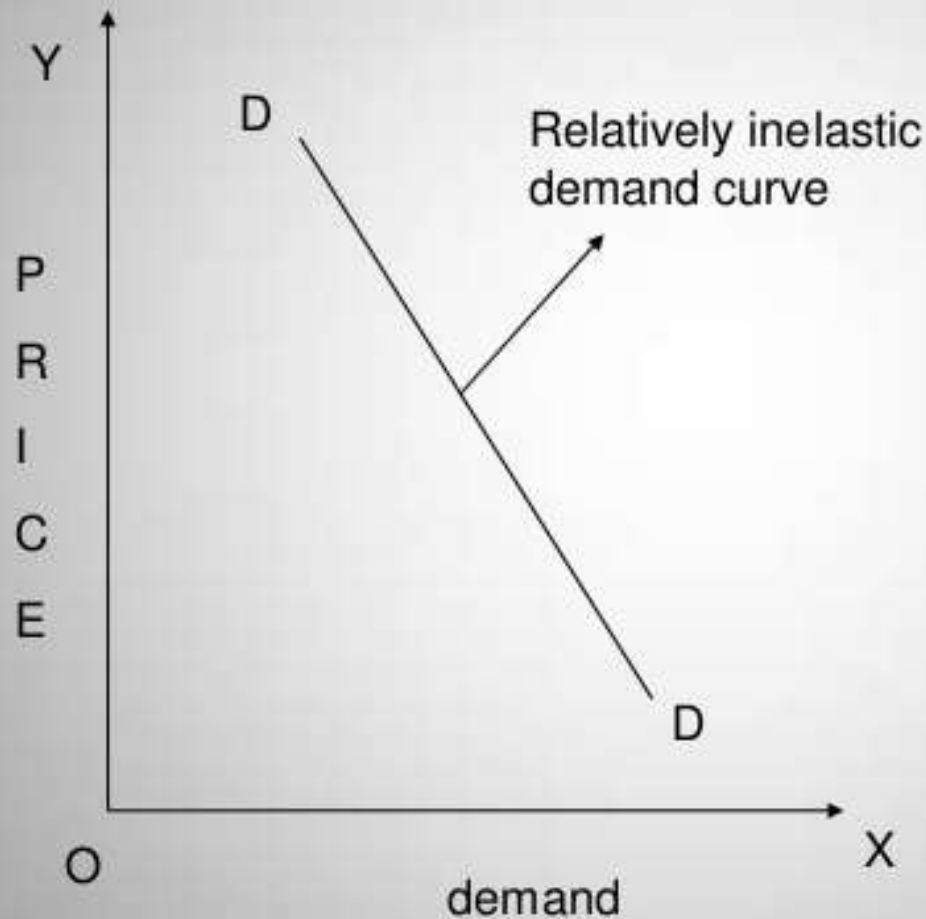
# Relatively elastic demand



When the proportionate change in demand is more than the proportionate changes in price, it is known as relatively elastic demand.

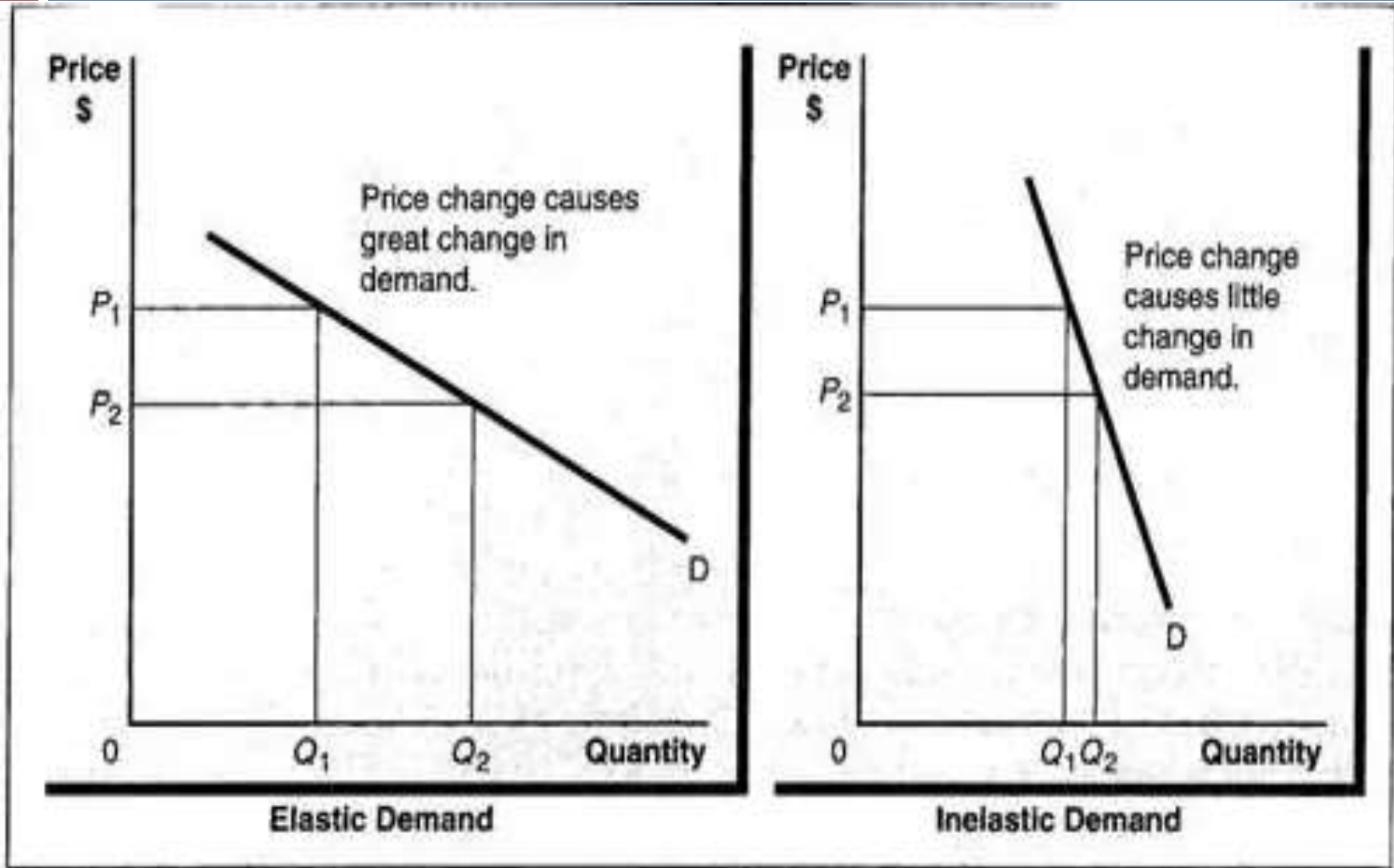


# Relatively inelastic demand



When the proportionate change in demand is less than the proportionate changes in price, it is known as relatively inelastic demand

# Graphical representation of relatively elastic and inelastic demand



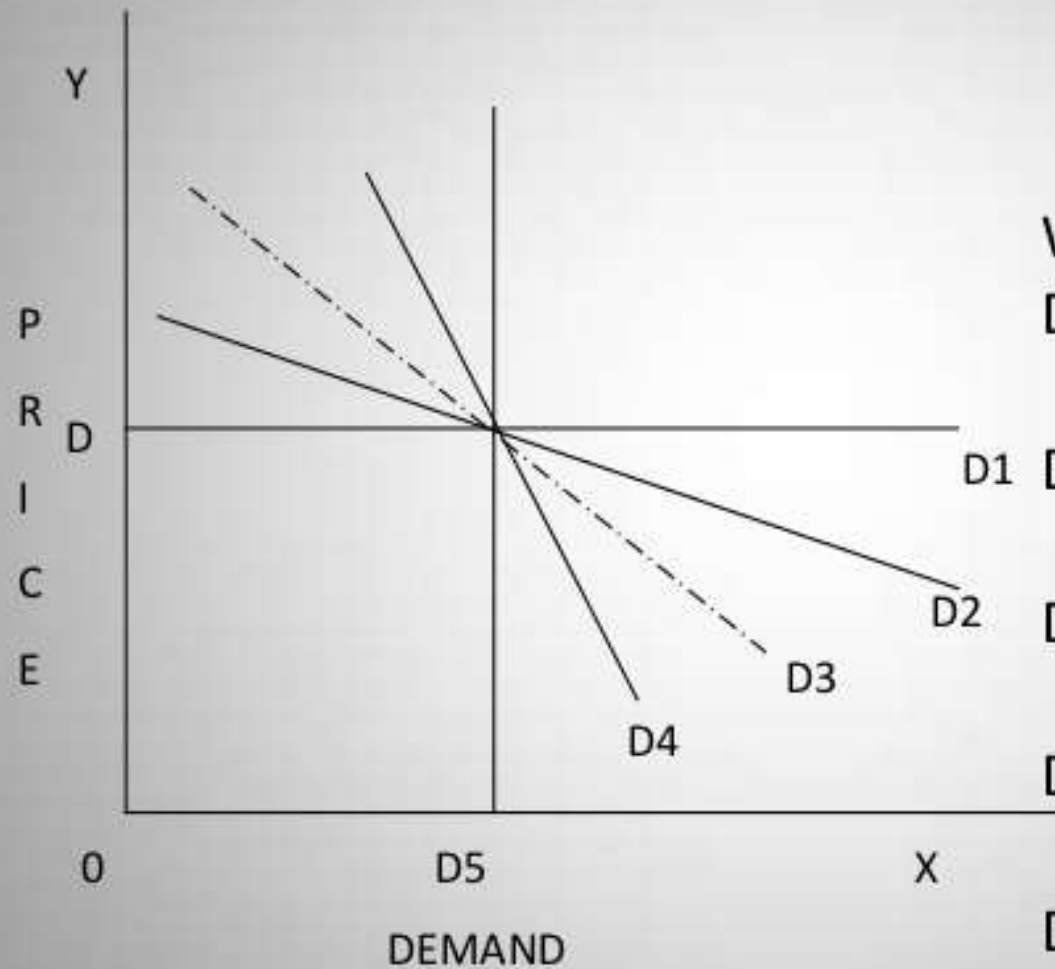
# Unitary Elastic Demand



**Value of Elasticity co-efficients and their Description**

	<b>Value of Elasticity Co-efficient</b>	<b>Degrees of Elasticity</b>	<b>Description</b>
1	$E_d = 0$	Perfectly Inelastic demand	Change in price causes no change in quantity demanded.
2	$E_d < 1$	Less than unitary elastic demand	Percentage change in demand is less than percentage change in price.
3	$E_d = 1$	Unitary elastic demand	Percentage change in demand is equal to percentage change in price.
4	$E_d > 1$	Greater than unitary elastic demand	Percentage change in demand is more than percentage change in price.
5	$E_d = \infty$	Perfectly elastic demand	Little change in price causes an infinite change in demand.

# ALL KINDS OF DEMAND CAN BE SHOWN IN ONE DIAGRAM AS FOLLOW



WHERE

D1) Perfectly elastic demand

D2) Relatively elastic demand

D3) Elasticity of demand equal to utility

D4) Relatively inelastic demand

D5) Perfectly inelastic demand

# Income Elasticity of Demand

- We know the income of the consumer is an important determinant of demand.
- Although income does not vary in the short run, its impact on long term demand analysis is very crucial.
- Therefore it is useful to learn income elasticity of demand ( $e_y$ ).
- Income elasticity of demand measures the degree of responsiveness of demand for a commodity to a given change in consumer's income.
- Assume that all other variables are *ceteris paribus*.

# Measurement Of Income Elasticity Of Demand

$$\text{Income Elasticity Of Demand} = \frac{\text{Proportionate change in Demand}}{\text{Proportionate change in Income}}$$

i.e.

$$\text{Income Elasticity Of Demand} = \frac{\Delta q}{Q} + \frac{\Delta y}{Y}$$

# Cross Elasticity of Demand

- **Cross elasticity of demand express a relationship between the change in the demand for a given product in response to a change in the price of some other product**
- E.g. if the X tea demand reduces tremendously than it effect could be seen in demand of sugar and milk.



# Measurement Cross Elasticity of Demand

$$\text{Cross Elasticity of Demand} = \frac{\text{Proportionate change in Demand for product X}}{\text{Proportionate change in Price of product Y}}$$

i.e.

$$\text{Cross Elasticity of Demand} = \frac{\Delta q_x}{Q_x} + \frac{\Delta p_y}{P_y}$$

# Importance of Cross Elasticity Of Demand

- The concept is of very great importance in changing the price of the products having substitutes and complementary goods .
- In demand forecasting
- Helps in measuring interdependence of price of commodity .
- Multiproduct firms use these concept to measure the effect of change in price of one product on the demand of their other product

# Advertising Elasticity of Demand

- Advertising elasticity of demand is the measure of the rate of change in demand due to change in advertising expenditure
- The amount of change in demand of goods due to advertisement is known as Advertisement Elasticity of Demand .

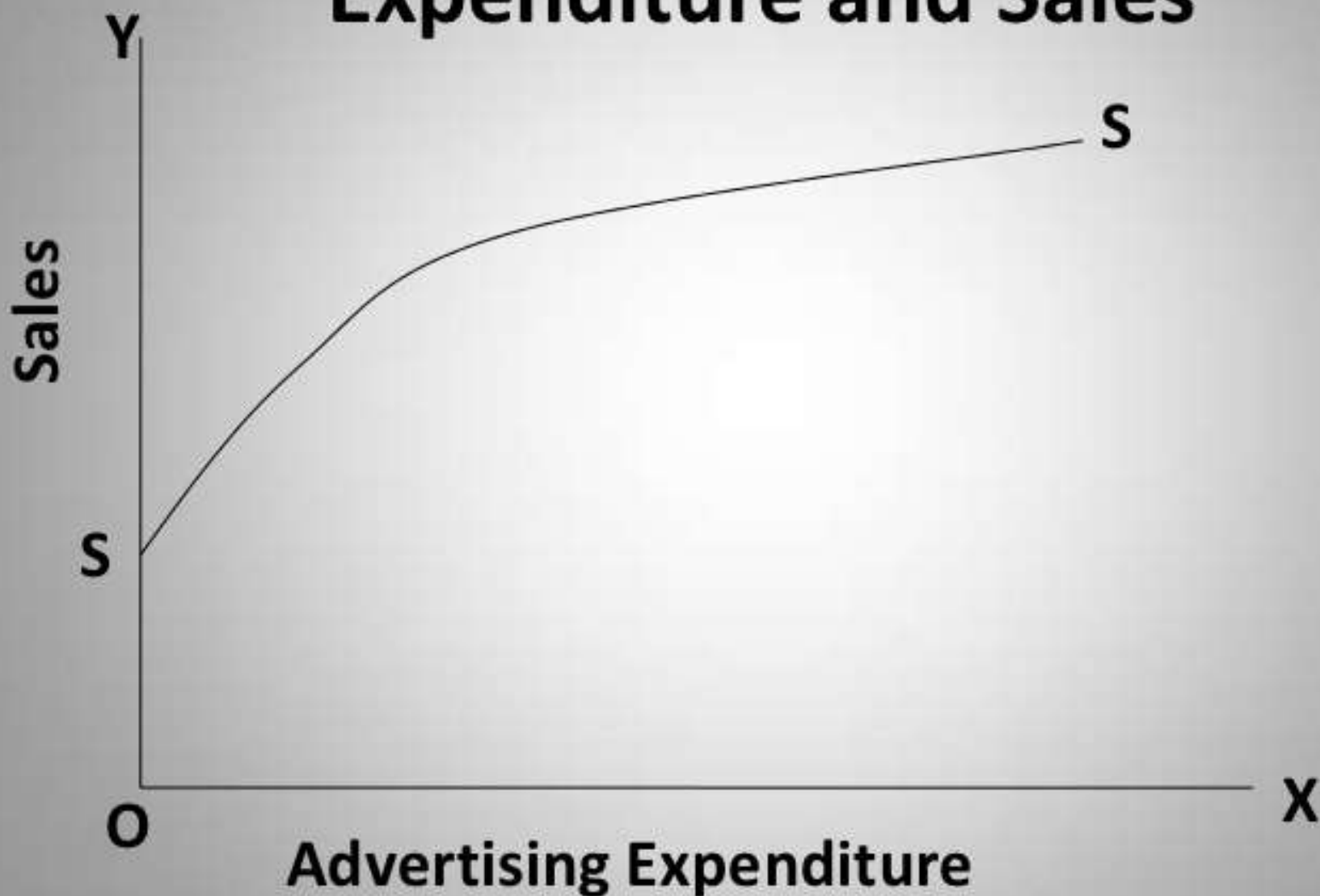
# Advertising Elasticity of Demand

$$\text{Advertising Elasticity of Demand} = \frac{\text{Proportionate change in Demand for product}}{\text{Proportionate change in Advertising expenditure}}$$

i.e.

$$\text{Advertising Elasticity of Demand} = \frac{\Delta q_x}{Q} \div \frac{\Delta a}{A}$$

# Relationship Between Advertising Expenditure and Sales





# FACTORS INFLUENCING ELASTICITY OF DEMAND

- We have seven factors which influence the elasticity of demand. They are:
  - Nature of the commodity
  - Availability of substitutes
  - Variety of uses
  - Postponement of demand
  - Amount of money spent
  - Time
  - Range of prices



**THANK YOU**