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Supply and Demand: Elasticity

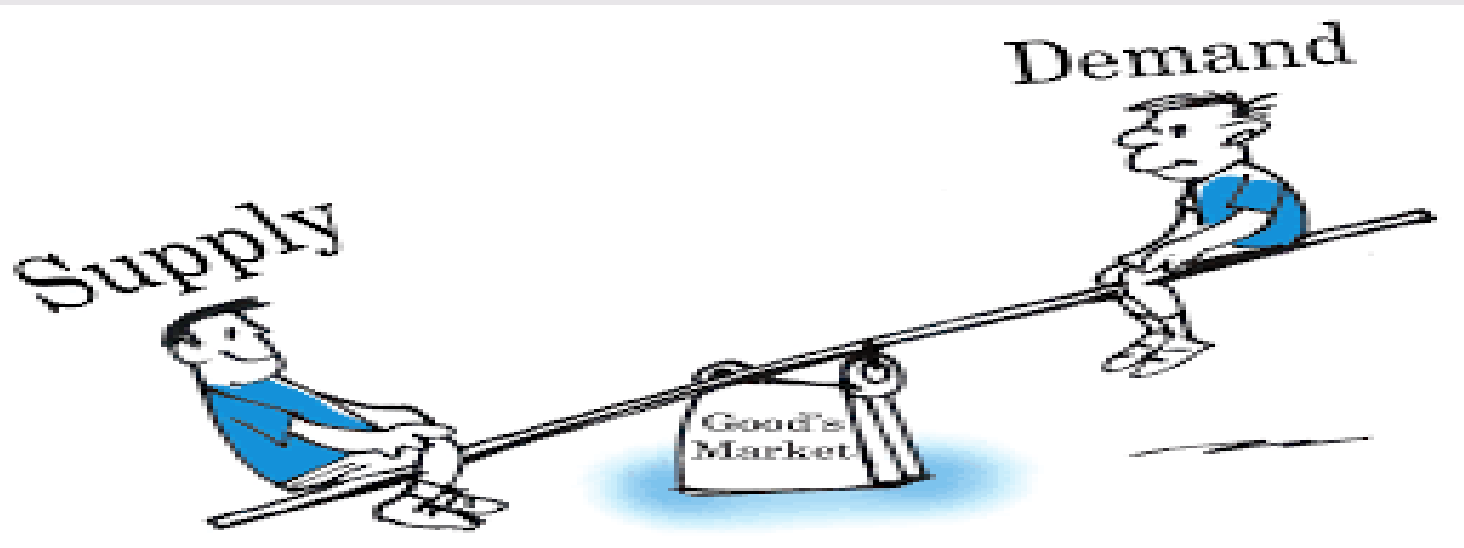
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Introduction

- Supply and demand can often tell us whether certain forces increase or decrease quantities
- But how would we know *how much* supply and demand respond to changes in price?





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Let take this Quiz

- If prices of vacation travel will come down, How will you respond?
- If prices of food or electricity go up, how will you respond?





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Elasticity

The quantitative relationship between price and quantity purchased is analyzed using the crucial concept of *elasticity*

Different Types of Elasticity in Demand:

- Price Elasticity of Demand
- Income Elasticity of Demand
- Cross Price Elasticity of Demand
- Promotional Elasticity of Demand



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Price Elasticity of Demand

- Price is the most important variables that affect the demand of any commodity
- Price Elasticity of Demand of demand (E_p) is considered to be the most important elasticity
- It implies the sensitivity of quantity demanded of a commodity to a given change in its price



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Degrees of Price Elasticity of Demand

- Perfectly Elastic Demand
- Highly Elastic Demand
- Unitary Elastic Demand
- Relatively Inelastic Demand
- Perfectly Inelastic demand

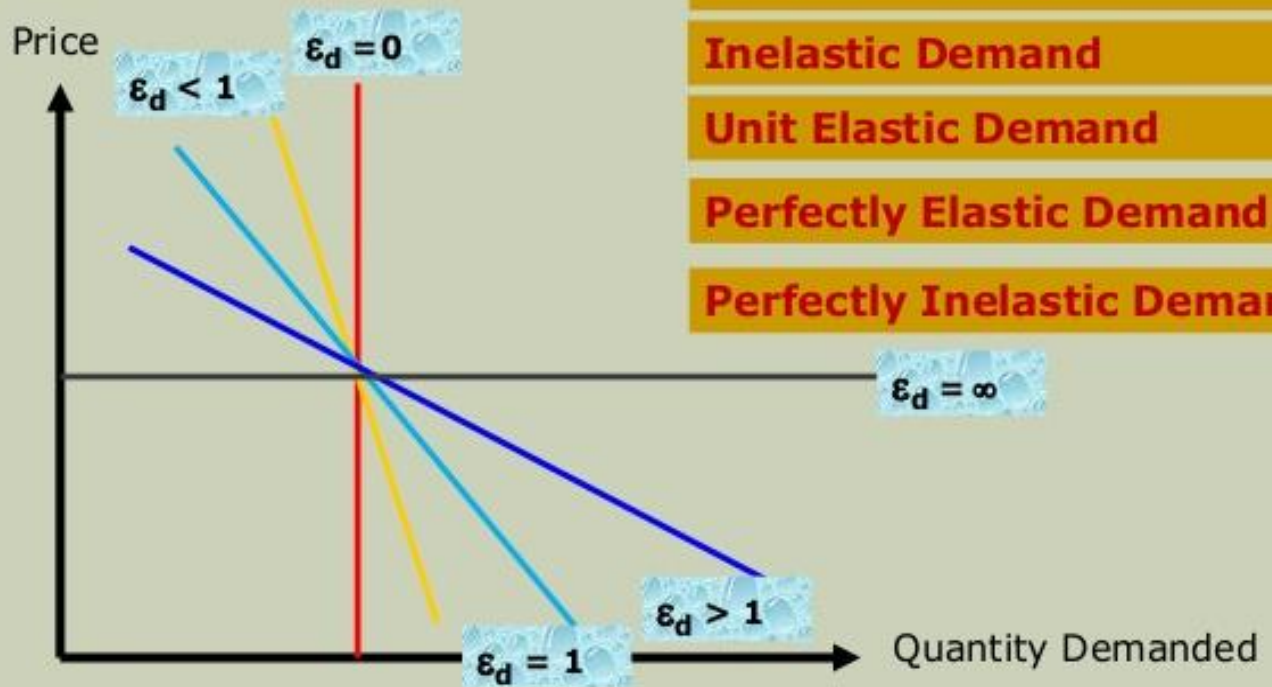


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DEGREES OF ELASTICITY





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Method of Measuring Elasticity

➤ Percentage or Ratio Method-

$$\frac{\text{Percentage change in quantity demanded of commodity } X}{\text{Percentage change in price of commodity } X}$$

or

$$\frac{\Delta Q}{\Delta P} * \frac{P1}{Q1}$$

➤ Arc Elasticity

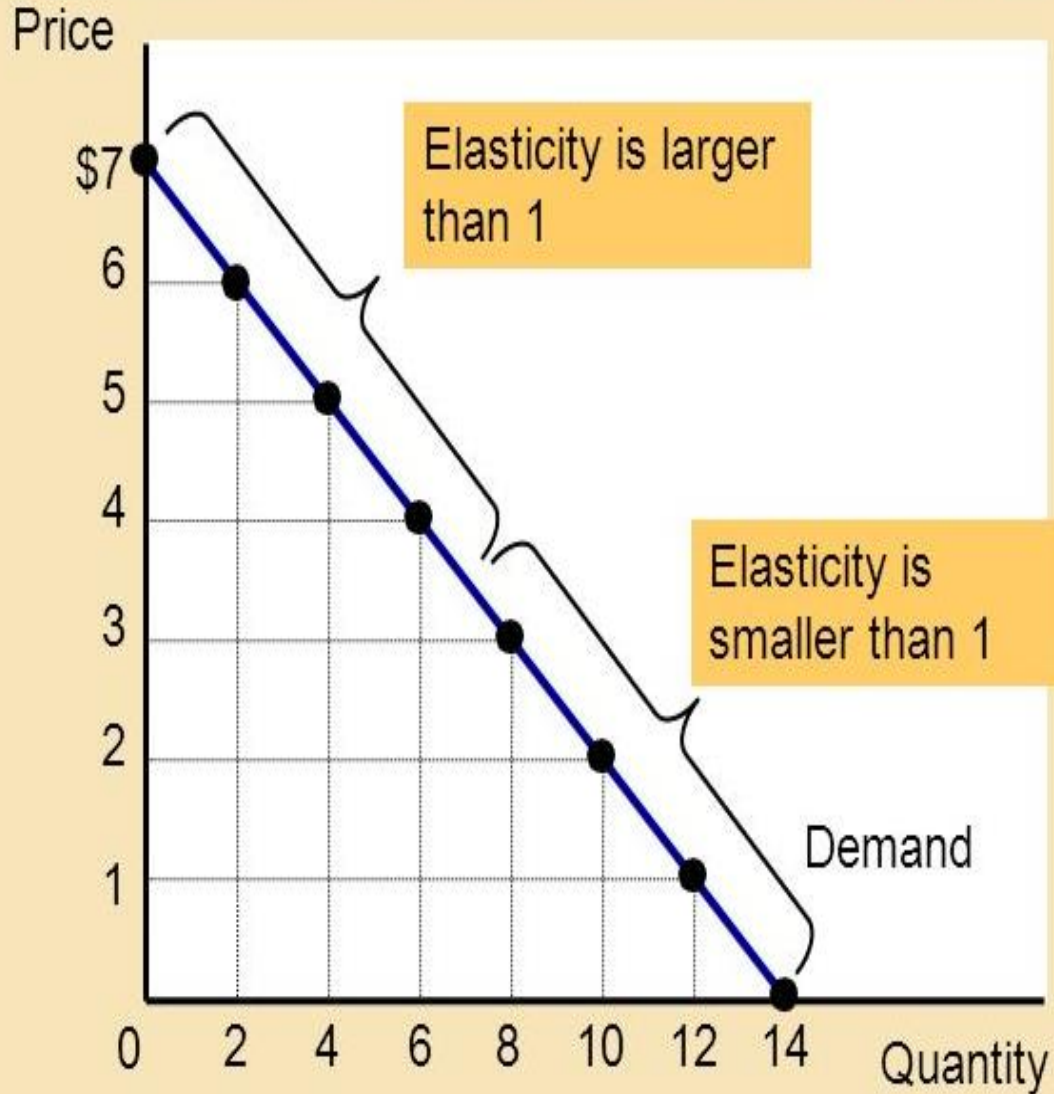
$$\frac{Q2 - Q1}{Q2 + Q1} * \frac{P2 - P1}{P1 + P2}$$



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Elasticity of a Linear Demand Curve (graph)





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Determinants

- Nature of the commodity
- Availability and proximity of substitutes
- Alternative uses of the commodity
- Proportion of income spent on the commodity
- Time
- Durability of the commodity
- Addiction



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Income Elasticity of Demand

It is the degree of responsiveness of demand for a commodity to a given change in the income of the consumer

➤ Percentage or Ratio Method-

$$\frac{\text{Percentage change in quantity demanded of commodity } X}{\text{Percentage change in income}}$$

$$\frac{\Delta Q}{\Delta Y} * \frac{Y_1}{Q_1}$$



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Types

- Positive Income Elasticity
- Zero Income Elasticity
- Negative Income Elasticity



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Cross Elasticity of Demand

It is the responsiveness of demand for one good to changes in the price of another related goods

$$\frac{\text{Percentage change in quantity demanded of commodity X}}{\text{Percentage change in price of commodity Y}}$$

or

$$\frac{\Delta Q_x}{\Delta P_y} * \frac{P_y}{Q_x}$$



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Promotional Elasticity of Demand

It is the degree of responsiveness of demand to a given change in advertising expenditure

$$\frac{\text{Percentage change in quantity demanded of commodity } X}{\text{Percentage change in advertising expenditure}}$$

or

$$\frac{\Delta Q}{\Delta A} * \frac{A_1}{Q_1} W$$



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Elasticity of Supply

- It is the degree of responsiveness of quantity supplied of any commodity to a given change in the price of the commodity
- Percentage or Ratio Method-

$$\frac{\text{Percentage change in quantity supplied of commodity X}}{\text{Percentage change in price of commodity X}}$$

or

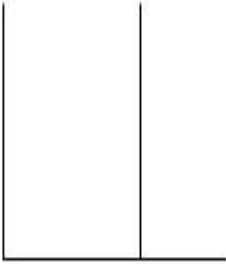
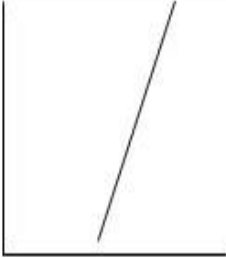
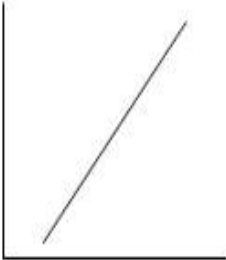
$$\frac{\Delta Q}{\Delta P} * \frac{P1}{Q1}$$

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TYPE	VALUE	GRAPH	DESCRIPTION
Perfectly Inelastic	0		No change in supply no matter what the price i.e. cinema even if the demand increases seat capacity can't be increased in short run
In elastic supply	0-1		Supply is less responsive to change in price
Unitary	1		Supply is equally responsive to change in price



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Determinants

- Nature of goods
- Storage capacity
- Technology
- Time
- Availability of inputs



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Importance of Elasticity

- Determination of price
- Basis of price discrimination
- Determinants of rewards of factors of production
- Government policies of taxation



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Happy Learning

