

Business Economics

Application of economic theory & methods to the analysis of decision making problems faced by business firms.

Economic theory
& Methodology

Decision
problems in
Business.

Business Economics
Use of economic theory &
Methodology techniques of decision
science for solving business decision
Problems.

Optimal Solutions
to
Business problems

According to McNair & Messam

"Business Economics consist of the use of
economic modes of thought to analyse
business situations."

Characteristics

- Micro Economics (Individual business unit)
- Normative Science (Based upon situation)
- Pragmatic (Application oriented)
- Perspective (depends) concentrate on solution
- Uses theory of firm
- Management oriented.
- Multidisciplinary (maths) stats / OR
- Art & science

Objectives

- To integrate economic theory with business practice.
- To apply economic concepts
- To allocate scarce resources in the optimal manner
- To minimize risk & uncertainty
- To help in formulating business policy
- To help in profit maximization.

Scope of BoEo / Subject matter

- Demand Analysis & forecasting
- Cost & Production analysis
- Pricing decisions, policies & practices
- Profit management
- Capital management.

Significance.

BoEo helps in dealing a variety of business decisions in a complicated environment.
Such as

- What products & services should be produced.
- What input & production technique should be used?
- How much output should be produced & at what prices it should be sold?

Demand

in

Demand in economics means desire to buy backed by adequate purchasing power.

Demand = Desire to buy
+ Ability to pay
+ Willingness to pay.

Qualifications of demand.

- It is backed by adequate purchasing power.
- It is always at a price
- It should always be expressed in terms of specific quantity
- It is created in the market
- It is related to a person, place & time.

Features of Demand:

- Difference between desire & demand
- Relationship between demand & price.
- Relationship between demand & time.
- Demand at a point of time.

Determinants of demand.

- Price of Commodity
 - Consumers Income
 - Price of Related goods
 - Taste of consumer
 - Expectation about future
- | | |
|-------------|--------------------|
| Necessities | ↑ |
| | Comfort & Luxuries |
| | Inferior goods |
| Substitute | ↑ |
| | Complementary |
| Fashion | ↑ |
| | Habit |
| | Income |

- Population
- Govt Policy
- Expectation regarding future.
- Change in Savings
- Urgency of demand.

Demand Function.

Describes the relationship between quantities of the commodity which consumers demand during a specific period & the factors which influence its demand.

$$D_x = f \{ Y, P_x, P_s, P_c, T, E_p, F_y, \dots, N, D, U \}$$

D_x — demand for good x

Y — Consumers income

P_x — Price of good x

P_s — Prices of Substitutes

P_c — Prices of complements of x

T — Measure of consumer's tastes & preferences

E_p — Consumers' expectations about future prices

F_y — Consumers' expected future income

N — Number of consumers

D — Distribution of consumers

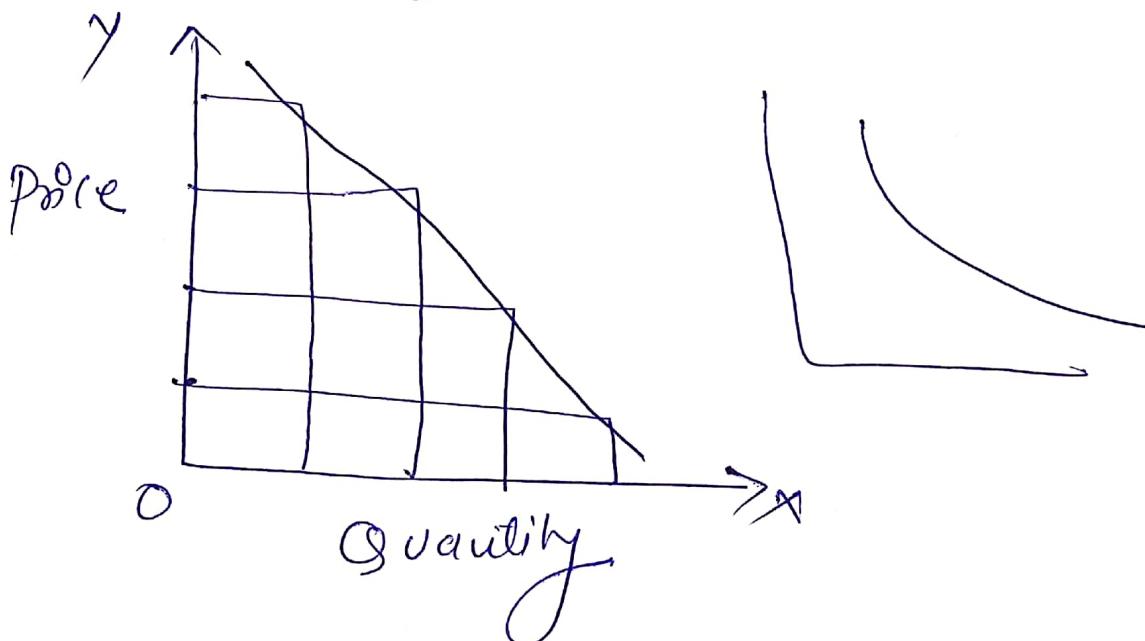
U — "Other" determinants of the demand for "x"

$$D_x = f(Y, P_x, P_s, P_c, T, E_p, F_y, N, D, U)$$

Demand Curve

A demand curve is a locus of points showing various alternative price-quality combinations.

- Graphical presentation of the demand schedule is called a demand curve.



- It represents the functional relationship between quantity demanded & prices of a given commodity.
- Negative slope. / downwards towards right.
- Quantity demanded goes on increasing as price falls & vice versa.

The Law of Demand.

The relation of price to sales is known as Law of demand.

→ Higher the Price, lower the demand & vice-versa. Other things remaining

- the same.

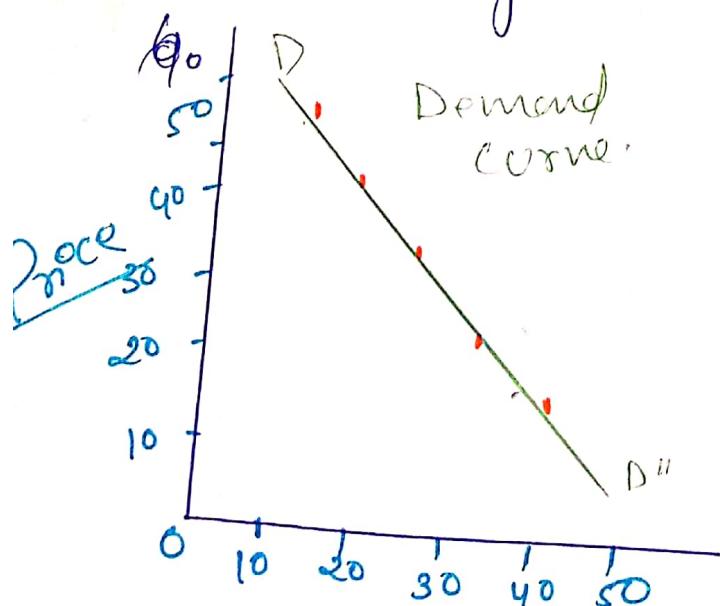
$$Q = f(P)$$

$$\left\{ \begin{array}{l} Q = a - bP + c \\ a = a + b + c \end{array} \right. \quad Q = a - bP$$

for Samuelson writes = "People will buy more at lower prices & buy less at higher prices, other things remaining the same."

Assumptions of the Law

1. No change in tastes & preferences of consumers
2. Consumer's income must remain same
3. The price of the commodities related to the commodity in demand should not change.



| Demand Schedule. | |
|------------------|---------------|
| Price Rs. | Quantity unit |
| 50 | 10 |
| 40 | 20 |
| 30 | 30 |
| 20 | 40 |
| 10 | 50 |

↑ Inverse Relationship

Quantity demanded. ↑ Price is an independent variable & demand is a dependent variable.

Reasons for the Law of Demand

(Why is the demand curve negatively sloped)

- Law of Diminishing Marginal Utility (theoretical utility)
- Substitution Effect (tea & coffee)
- Income Effect (less and ordinary)
- New consumers
- Different uses of the commodity

Exceptions to the Law

- Inferior / Giffen goods
- Veblen effect (diamonds, jewellery)
- Expectations of rise & fall in price in future
- Speculative market
- Emergencies.

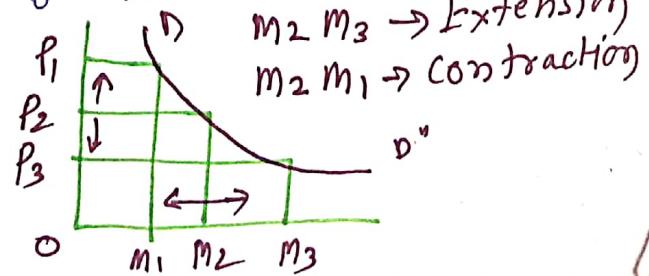
Analysis of changes in Demand

Changes in demand for a commodity can be shown through the demand curve in two ways:

[A] Movement along the demand curve.

If the price rises demand reduces. This reduction in demand is technically called "Contraction of Demand" on the other hand with a fall in price, the quantity demanded goes up. This is called

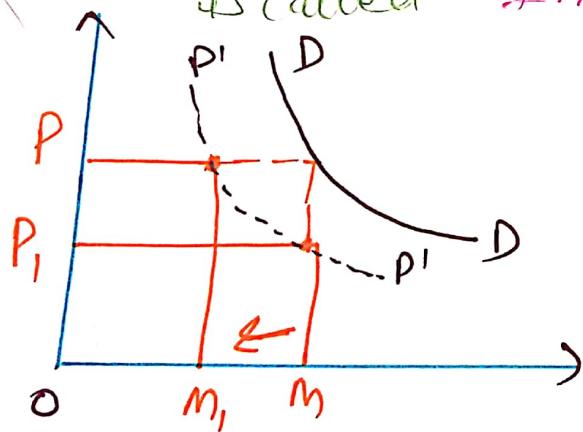
"Extension of demand."



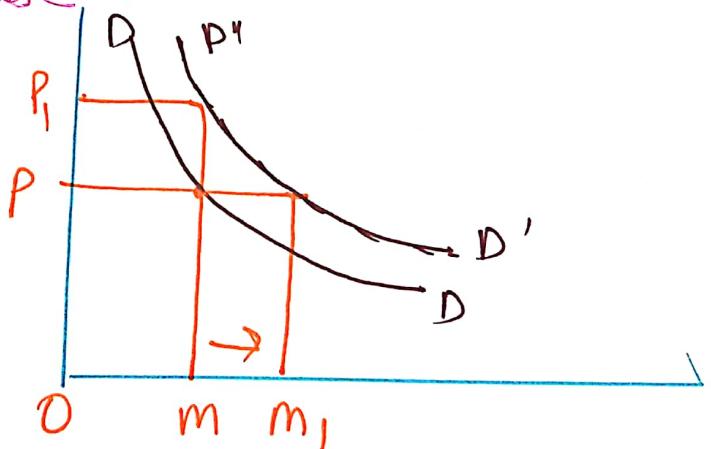
B Shift In Demand curve.

When change of demand, price remain the same, but other factors affecting demand changes. As a result, there is a shifting of the demand curve to the right side or to the left side.

→ If other factors other than price change & there is reduction in demand, it is called "Decrease in Demand". The opposite is called "Increase in Demand".



Decrease in demand



Increase in demand

Individual Demand schedule.

The demand schedule explains the fundamental relationship between price & quantity variation that a consumer is willing to buy & seller to sell at various prices in a given period of time i.e. per day, per week, per month or per annum
 * → ignore the influence of all other determinants

| Price in (Rs) | Quantity demanded in units |
|------------------|-------------------------------|
| 5:00 | 200 |
| 4:00 | 300 |
| 3:00 | 400 |
| 2:00 | 500 |
| 1:00 | 600 |

Market demand schedule

- * — does not indicate any change in demand.
- * — Express consumer's present behavior
- * — Shows variations in demand at varying prices.

Market Demand schedule

It is a tabular statement narrating the quantities of a commodity demanded at aggregate by all the buyers in the market at different prices in a given period of time. It represents the total market demand at various prices. It refers to the aggregate behaviour of the entire market rather than mere totalling of individual demand schedule:

| Price Rs. | A | B | C | Total market Demand: |
|--------------|-----|-----|-----|-------------------------|
| 5 | 100 | 200 | 300 | 600 |
| 4 | 200 | 300 | 400 | 900 |
| 3 | 300 | 400 | 500 | 1200 |
| 2 | 400 | 500 | 600 | 1500 |
| 1 | 500 | 600 | 700 | 1800 |

- It helps in demand forecast
- It helps to understand the demanded quantities at different prices.
- It helps the managers to estimate its production plan in accordance with the market demand.

Elasticity of demand

MEANING

→ The degree of responsiveness of quantity demanded to a change in price of the commodity or some related goods or change in consumer's income.

- Price Elasticity
- Income
- Cross

Price Elasticity of Demand

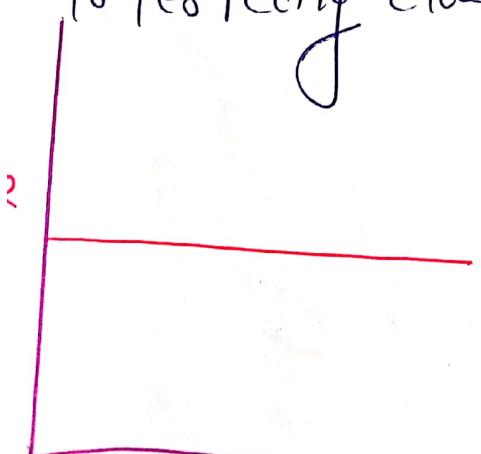
- Commonly called the elasticity of demand.
- "Elasticity of demand measures the responsive new of demand to change in price

$$\text{Elasticity of Demand} = \frac{\text{Proportionate change in demand}}{\text{Proportionate change in price}}$$

$$E_p = \frac{\Delta Q}{Q} \times \frac{P}{\Delta P}$$

Degrees of Price Elasticity of Demand.

1. Perfectly Elastic

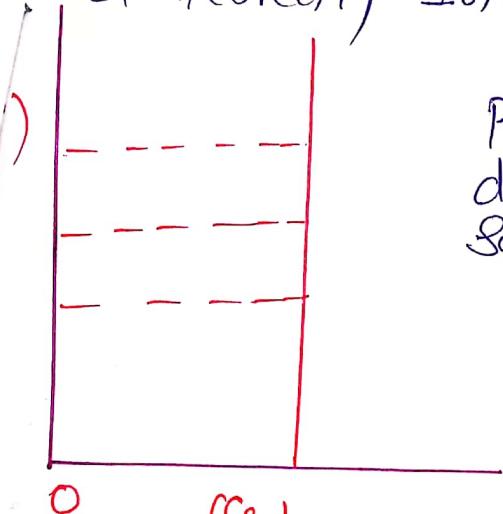


Where no reduction in price is needed to cause an increase in demand.

$$E_d = \infty$$

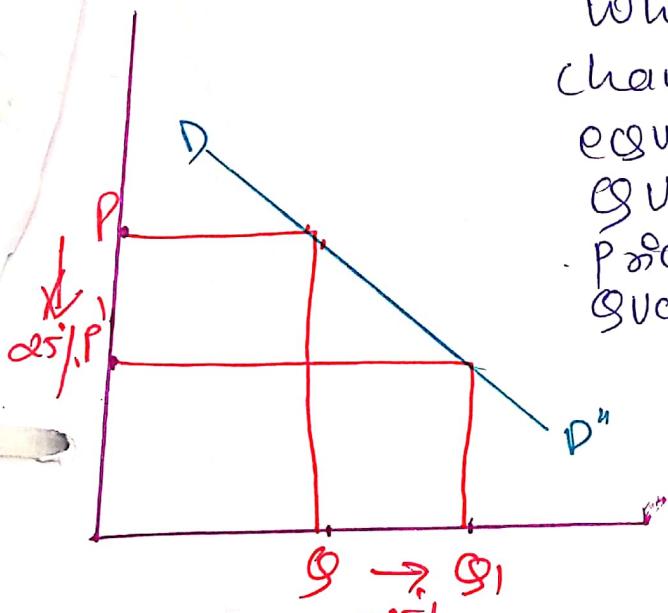
→ ~~REASON~~

Q. Perfectly Inelastic



We had ever the changes in price may be, the amount demanded remains the same. In this case e_d is zero.
 $e_d = 0$

Q. Unitary Elastic Demand. $e = 1$



Where a given proportionate change in price causes an equal proportionate change in quantity demanded.

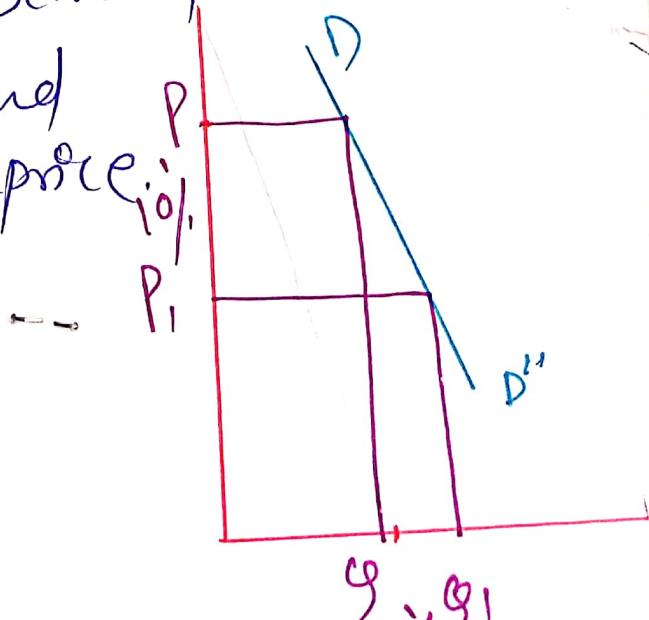
Price fall - 25%
 Quantity demanded = 25%

 $e = 1$

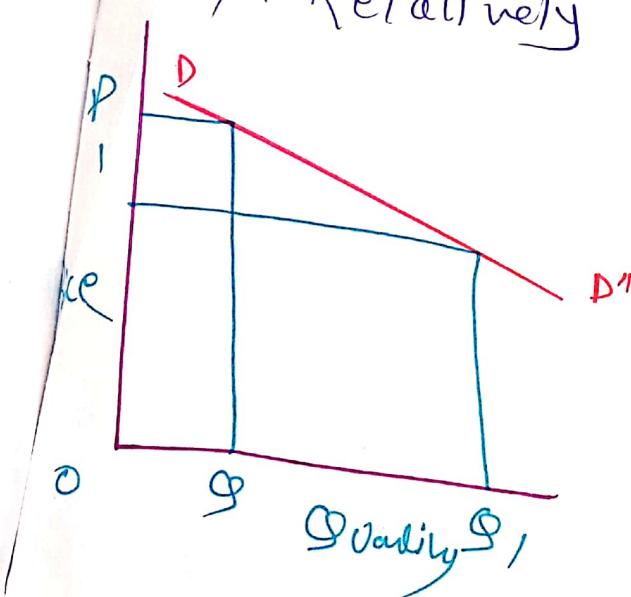
④ Relatively Inelastic Demand

If the % change in demand is less than % change in price
 fall in price - 10%
 Increase in demand 5%.

$$e_d < 1$$



D). Relatively Elastic demand.



Where a reduction in price lead to more than proportionate change in demand:

$$e = > 1$$

Factors determining Price Elasticity

- Availability of Substitute
- Nature of commodity
- Share in total expenditure
- Consumer behaviour
- Durability of commodity
- Income Level
- Possibility of postponing the purchase
- Habitual necessity
- Joint demand

Business Application of Price Elasticity

- Determination of price & output
- Price Discrimination
- Public Utility Pricing
- Taxation Policy of Govt.
- Explanation of the Paradox of Poverty of farmers (good crop being price due)
- Determination of sale policy for Super market.

Measurement of Price Elasticity of Demand

- 1. Total Expenditure Method
- 2. Graphic Method - Point Elasticity
- 3. Mathematical Method.
- 4. Arc Method.

1. Total Expenditure Method.

Elasticity of demand can be measured from the changes in the expenditure of the consumers on the commodity as its price changes. It was given by Marshall. Under this method, the price elasticity is measured by comparing the total expenditure of the consumer before & after the variations in price.

$$\text{Total Expenditure} = \frac{\text{Price per unit} \times \text{Total quantity purchased}}{\text{Total quantity purchased}}$$

| Case. | Price in Rs. | Qty demand. | Total Expenditure | Nature of PED |
|----------|--------------|-------------|-------------------|---------------|
| Case-I | 5 | 2000 | 10000 | |
| | 4 | 3000 | 12000 | >1 |
| | 2 | 7000 | 14000 | |
| Case-II | 5 | 2000 | 10,000 | |
| | 4 | 2500 | 10,000 | =1 |
| | 2 | 5000 | 10,000 | |
| Case-III | 5 | 2000 | 10000 | |
| | 4 | 2200 | 8800 | <1 |
| | 2 | 4200 | 8400 | |

Case II \rightarrow Unit Elastic

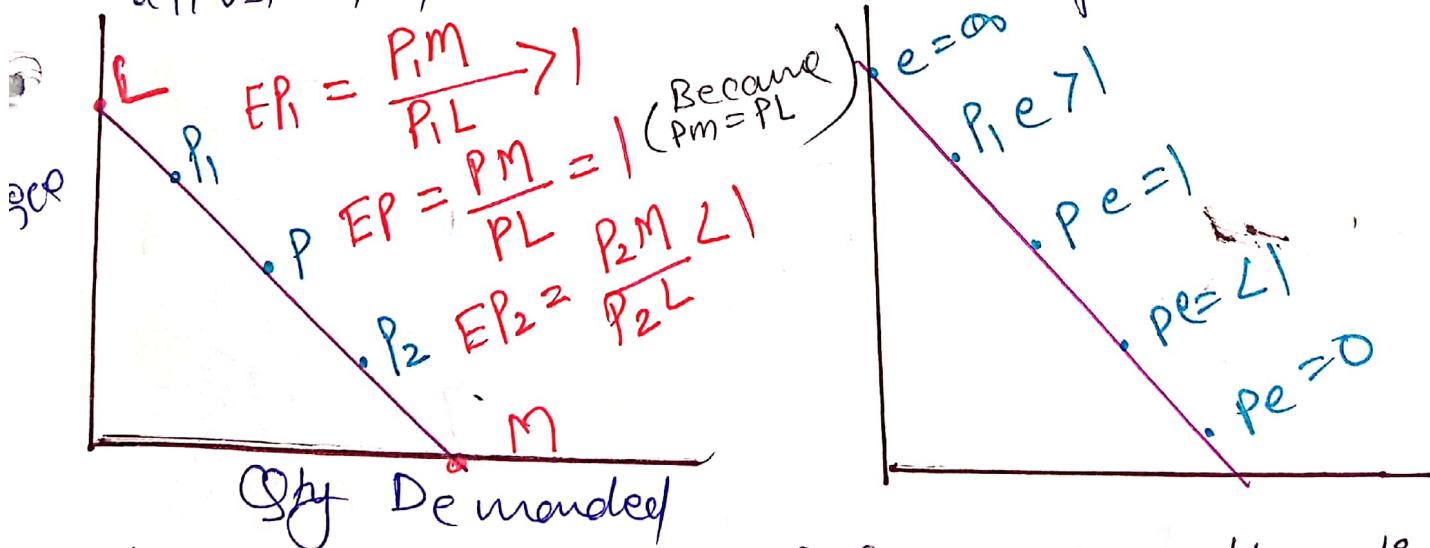
When total outlay does not vary with the change in the price of the commodity.

Case I — Demand is more than Price Elasticity.

Case III — The demand is less than unit elasticity.

Q. Graphic Method - Point Elasticity

The method measures price elasticity of demand at different points on a demand curve. It is measured by the ratio of the lower segment of the curve below the given point to upper segment. The method can be illustrated with the help of diagram.



Elasticity at any point P is equal to the ratio of the distance from the point P to the x-axis & the distance from P to the y-axis.

3. Mathematical Method:-

In this method, price elasticity is estimated by dividing the percentage change in amount demanded by the percentage change in price of the commodity.

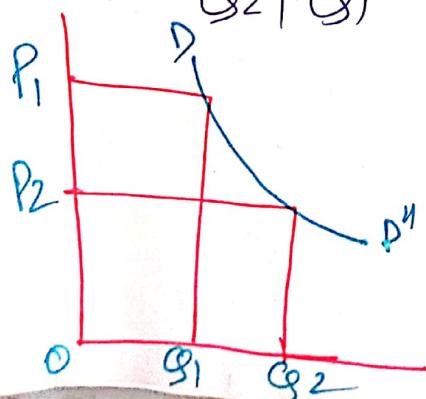
$$E_p = \frac{\text{Price Elasticity of demand}}{\frac{\text{Proportionate change in demand}}{\text{Proportionate change in Price}}} \Rightarrow \frac{\text{Change in Demand}}{\text{Original Demand}} \times \frac{\text{Change in Price}}{\text{Original Price}}$$

$$E_p \Rightarrow \frac{\Delta Q}{Q} \times \frac{P}{\Delta P}$$

4. Arc Method

When elasticity is measured over an interval of a demand curve. It is the average elasticity over a segment of a demand curve.

$$\Rightarrow \frac{Q_2 - Q_1}{Q_2 + Q_1} \times \frac{P_2 + P_1}{P_2 - P_1}$$



- $P_1 \rightarrow$ Original Price
 $P_2 \rightarrow$ New Price
 $Q_1 \rightarrow$ Original Quantity
 $Q_2 \rightarrow$ New Quantity

Income Elasticity

→ Ratio of the percentage change in quantity demanded to the percentage change in income.

$$E_Y = \frac{\text{Proportionate change in demand}}{\text{Proportionate change in income}} \\ = \frac{\Delta Q}{Q} \div \frac{\Delta Y}{Y}$$

E_Y = Income elasticity

$\Delta Q \Rightarrow$ Change in demand

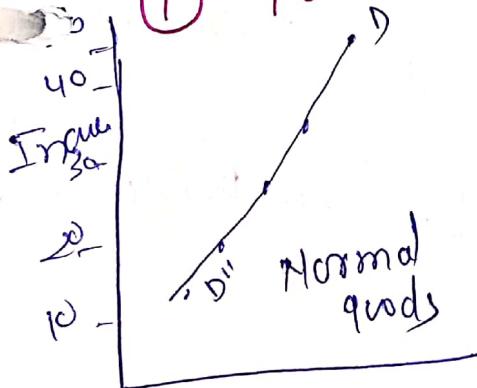
$\Delta Y \Rightarrow$ Change in income

$Q \Rightarrow$ Original demand

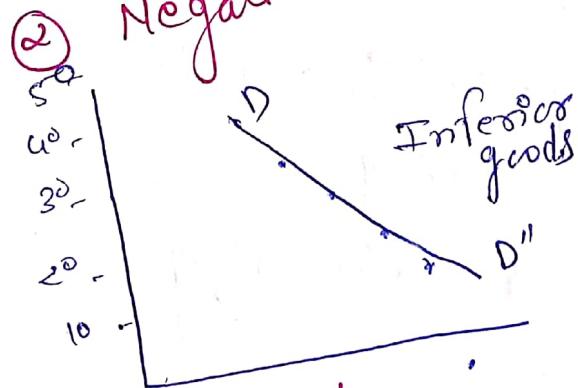
$Y \Rightarrow$ Original income

Types of Income elasticity

① Positive Income elasticity

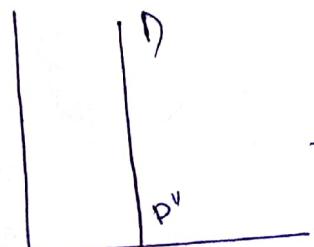


Elasticity



② Negative Income elasticity

③ Zero Income elasticity



→ Commodity price will be nominal, neutral.

③ Mathematical Method

1. If positive — Normal Commodity & used on day to day life.
2. If negative — Inferior goods
3. If positive & greater than one
— Luxury Commodity
4. If positive but less than one
— Essential Commodity
5. If is zero — Commodity is neutral
(salt & matchbox)

Practical Applications of Income Elasticity

1. Helps in determining rate of growth of firm.
2. Helps in the demand forecasting of the firm.
3. Helps in Production planning & marketing.
4. Helps in ensuring stability in production.

Cross Elasticity of Demand.

- When the demand for a commodity changes with a change in the price of another related commodity.
- The cross elasticity of demand is a measure of the responsiveness of the purchase of Y to change in price of X .

$$E_{xy} = \frac{\text{Proportional Change in demand of } X}{\text{Proportional change in the price of } Y}$$
$$= \frac{\Delta Q_x}{Q_x} \div \frac{\Delta P_y}{P_y}$$

- If the cross elasticity is positive then goods are - substitute goods
- No price relation with each other - Independent goods
- C.E is negative - Complementary goods