

Introduction to economics and theory of production

→ Introduction to economics:

economics was originally introduced as a science if satisfactory. It was concerned with the collection of revenue for the state (i.e; government). advisers to the government were also required to point out the best possible way of spending the revenue.

The growth of trade, industry and commerce after industrial revolution in the 19th century required that the functions of the state should be specified. Political economy emerged as the result of the efforts to define functions of the state if wealth was identified as the source and means to satisfy our various wants so wealth is emphasised.

Definitions of economics:

→ Wealth concept: during the 18th and the early part of 19th century classical economist such as adam's smith, JB say and walkar defined economics as the science of wealth. adam's smith systemises the concept in the form of the book which was entitled as an Enquiry into the nature and causes of the wealth of nations. These economist stated that economics is related to an concerned with wealth.

→ welfare concept:

according to this concept economics is not the science of wealth but it is concerned with human welfare. It studies and emphasises wealth as a means of satisfying human wants not as an end of human activities.

→ Alfred marshall was the pioneer of welfare thought.

→ According to him political economy (or) economics is the study of mankind in the of known auditory business of life. does it is on the one side a study of wealth and on the other end more important side a part of the study of man.

Scarcity concept:

Lionel Charles Robbins

Leonard Robins was the cofounder of this concept. According to him economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses.

Development concept:

The cofounder of this concept is Samuelson who presented the growth of this economics according to him economics is the study of how man and society choose, with or without the uses of money to employ scarce productive resources which could have alternative uses to produce various commodities, over time and distribute them for consumption now and in the future among various people and groups of society.

1) Adam's Smith wealth definition:

In the 18th century, Adam's Smith, the father of economics defined economics as the study of nature and uses of national wealth.

2) Alfred Marshall welfare definition:

Alfred Marshall one of the greatest economists of the 19th century, he defined economics as the study of human being actions in the ordinary business of life, especially for the sake of himself known as welfare.

3) Robins (Leonard Robins) scar means Definition:

Leonard Robins defined economics as the science which studies human behaviour as a relationship between ends [wants] and scarce means [limited sources] which have alternative uses.

Significance / advantages of economics

Theoretical advantages

- 1) Increase in knowledge
- 2) developing analytical attitude
- 3) better understanding of economic behaviour
- 4) planning skills for management
- 5) better opportunities in job market
- 6) educational opportunities

practical advantages

- 1) significance for consumers
- 2) significance for producers
- 3) significance for workers
- 4) better skills for politicians
- 5) better skills for academicians
- 6) better opportunities for administrators
- 7) effective manpower planning
- 8) helpful in fixing price
- 9) solving distribution problems
- 10) role of economics in engineering industry

Economics is a study about how individuals, businesses and governments make choices on allocating resources to satisfy their needs. These groups determine how the resources are organised and coordinated to achieve maximum output. They are mostly concerned with the production, distribution and consumption of goods and services.

Micro and Macro Economics:

Economics divided into two important sections which are Micro Economics and Macro Economics.

Micro Economics focuses on individual consumers and businesses. Macro Economics deals with the behaviour of the aggregate economy.

Micro Economics:

Micro Economics is a study of decisions made by people and businesses regarding the allocation of resources and prices of goods and services. The government decides regulation

of taxes. Micro Economics focuses on the supply that determines the price level of economy.

Macro Economics:

Macro Economics is the branch of Economics that depicts a substantial picture. It scrutinises itself with the economy at a massive scale and several issues of an economy are considered. The issues confronted by an economy and the headway that it makes are measured and apprehended as a part and parcel of macro economics.

Scope of micro and macro Economics:

Scope of micro economics:

It uses the bottom-up strategy to analyse the economy. In other words micro economics tries to understand humans' choices and allocation of resources. It doesn't decide what are the changes taking place in the market, instead it explains why there are changes happening in the market.

The key role of micro economics is to examine how a company could maximise its production and capacity, so that it could lower the prices and compete in its industry. A lot of micro economics information can be obtained from the financial statements. The key factors of microeconomics are as follows

- 1) Demand, supply and equilibrium
- 2) Production theory
- 3) costs of production
- 4) Labour economics

e.g:- individual demand and price of a product.

Scope of macro economics :-

In macro economics we normally survey the association of the nations total manufacture and degree of employment with certain features like cost prices, wage rates, rate of interest, profits etc. By concentrating on a single imaginary good and what happens to it is the important concepts covered under macro economics are as follows:-

- 1) Capitalist nation.
- 2) Investment Expenditure.
- 3) Revenue.

e.g:- aggregate demand and national income;

Managerial economics :-

Introduction :

In the general terminology the managerial economics is the process of applying economic principles in a particular organisation is known as managerial economics.

Definition :

According to spence and siegelman defines, managerial economics has the integration of economics theory with business practice for the purpose of facilitating decision making and forward planning by management.

Nature of managerial economics :

- 1) close to micro economics.
- 2) It operates against the backdrop of macro economics.
- 3) Normative statements.
- 4) Perspective actions.
- 5) Applied in nature.
- 6) It offers scope to evaluate each alternative.
- 7) Interdisciplinary.
- 8) Assumptions and Limitations.

Scope of Managerial economics

concepts and
Techniques of
Managerial
economics

→ applied
to

Management Referring Area

- Production
- Reduction (or) control of costs
- determination of price of a given product (or) service
- Make (or) Buy decisions
- Inventory decisions
- strategies
- Capital Management
- Profit Planning and Management
- Investment decisions
- Profit maximisation

for

Optimum
Solutions

Demand Concepts:-

Differences b/w Micro and Macro Economics:

Basis of Difference	Micro Economics	Macro Economics
Meaning	It is the study of particular industry and segment of the economy.	It is the study of the economy as a <u>whole</u> .
Purpose	The purpose of microeconomics is to analyse the market and determine the price levels of commodities.	The purpose of macroeconomics is to maximise national income and economic growth.
Deals with	It deals with supply, demand, production, price levels and consumption etc.	It deals with national income, distribution of income, employment and money etc.
Main determinant	Its main determinant is the price.	Its main determinant is the income.
Approach	It uses bottom-up approach strategy to analyse the company.	It uses top-down approach strategy to analyse the economy.
Provides soln to	It provides the solution to the problem of what, how and for whom to produce.	It provides the soln to the problem of full utilisation of resources in the economy.

Equilibrium situation	It is based on the principle that the markets create equilibrium by itself in a short period.	It assumes that the economy can be in this equilibrium for a longer period of time i.e. during the recession or boom period.
Significance	It is useful in regulating the prices of goods and services as well as the factors of production.	It is useful in solving the major issues in the economy like inflation, unemployment, and poverty.
Accounts for	It accounts for factors such as demand and supply of a specific commodity to determine its price.	It accounts for the aggregate demand and aggregate supply to determine the general price level.
scope	It has a narrow scope as it is related to a specific segment of the economy.	It has a broader scope as it is related to the whole economy.
Main tools	Demand and Supply are the main tools.	Aggregate demand and aggregate supply are its main tools.
Examples	Some examples of its components are individual income and savings, price determination of a commodity, individual firms output and consumers equilibrium etc.	Some examples of its components are national income, general price level, aggregate supply, aggregate demand, unemployment etc.

Concept of Demand :-

Introduction :

In economics demand is the quantity of goods that consumers are willing and able to purchase at various prices during a given time.

Demand simply means a consumer's desire to buy goods and services without any hesitation and pay the price for it.

In simple words demand is the no. of goods that the customers are ready and willing to buy at several prices during a given time frame.

Definition:- If a product or service is said to have demand when the product satisfy the following three conditions:-

- 1) Desire
- 2) Willingness
- 3) Ability

Desire:

Desire on the part of the buyer to buy any product.

Willingness:

The customer has mainly the willingness to pay for it.

Ability:

Ability to pay specified price for it.

Unless all these conditions are fulfilled the product is said to have any demand.

any demand.

Nature / Types of Demand:

The following are the main and important types of demand

and they are treated as nature of demand also.

1) Consumer good demand and producer good demand.

2) Autonomous demand and derived demand.

3) Durable good demand and perishable demand.

4) Firm demand and industry demand.

5) Short run demand and long run demand.

6) New demand and replacement demand.

7) Total market demand and segment market demand.

Factors determining demands / Determinants of Demand :-

Factors which changes the demand by changing itself are known as determining factors of demand or demand determinant or influencing factors of demand. The demand for a particular product depends on these determining factors. They are as follows

1) Price (P)

2) Income (I)

3) Taste & Preferences (T)

4) Price of related Goods (Pr)

- 5) Expectations about the price in Future (Ep)
- 6) Expectations about the Income in future (EI)
- 7) Size of population (Sp)
- 8) Distribution of consumers over different regions (Dc)
- 9) Advertisements (A)
- 10) Other Factors (O)

Demand function:

The functional relationship between the demand and its determinants is represents demand function.

$$D = f(P, I, T, Pr, Ep, EI, Sp, Dc, A, O)$$

D = Demand , f = functional relationship

P = Price

I = Income

T = Taste and preferences

Pr = Price of related goods.

Ep = Expectations about the price in future.

EI = Expectations about the income in future

Sp = Size of population

Dc = Distribution of consumers over different regions.

A = Advertisement

O = Other factors.

Demand schedule:

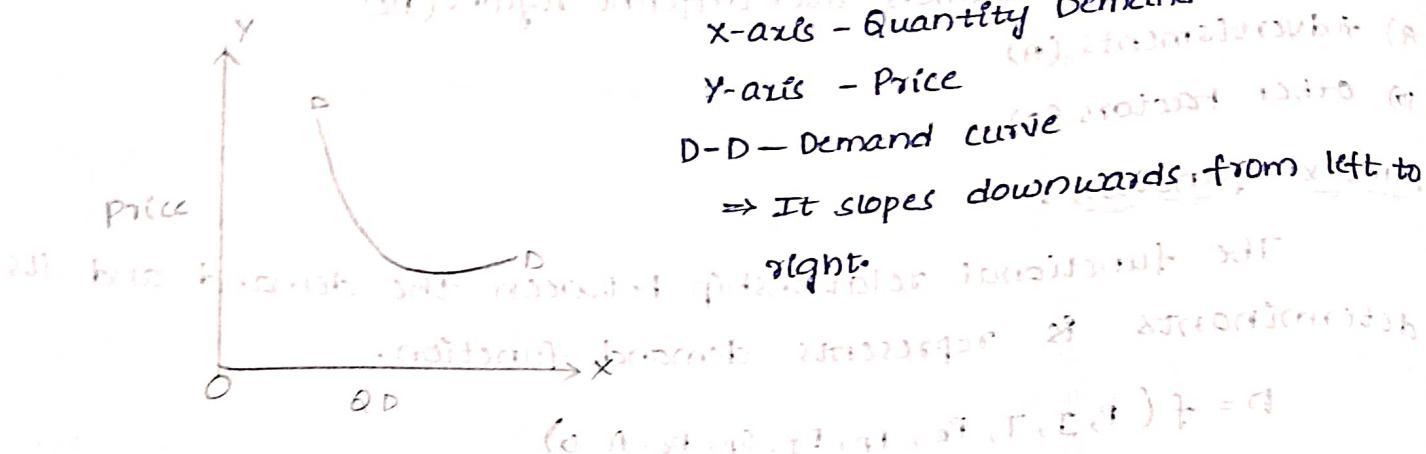
Price (₹)	Quantity demanded (in units)
15	10
16	12
17	15
18	18
19	20
20	22
21	25
22	28

As the demand shows if price rises Demand ~~decreases~~ increases.

Price ~~decreases~~ Demand ~~increases~~ increases.

(2) Relationship between Price & Demand :-

Demand Curve :-



Law of Demand :-

Law of Demand states that the other things remaining the same or constant the amount of quantity demanded raises with every falling price and the amount of quantity demanded falls with every raise in price.

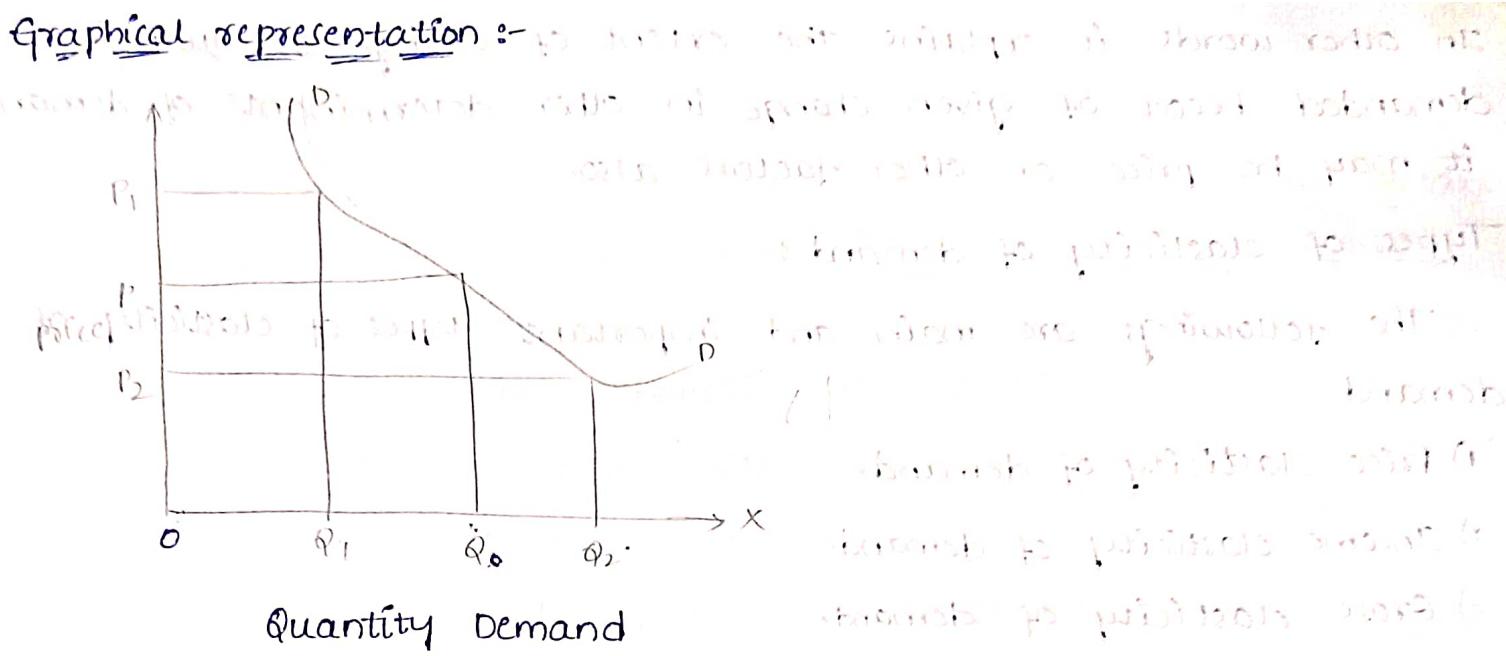
It states that the relationship b/w price and demand which represents if the price increases demand decreases and price decreases demand ~~increases~~ when other things are remaining the same or constant.

Here, the other things of treated as the assumptions of law of demand.

Assumptions :-

Law of demand applies when other things remaining same or constant. Here the other things means determinants of demand. They are as follows.

1. price
2. Income
3. Taste & preferences
4. Expectations about price in future.
5. Expectations about income in future.
6. Price of related goods.
7. Size of population
8. Distribution of consumers over different regions.
9. Advertisements
10. other factors



From the above diagram,

- When the price is P_1 , quantity demanded is Q_1 .
- If the price is P_2 from P_1 , then quantity demanded increases from Q_1 to Q_2 .
- If the price goes from P_1 to P_3 , the quantity demanded increases from Q_1 to Q_3 .
- Here, the condition of law of demand is applied, but when other things are remaining the same (or) constant (other things means determinants of demand / Assumption expect price).

Exceptions of the law of demand : where there is a shortage of necessity feared, where the product is such that it confess the distinction.

Giffen Paradox: In case of ignorance of price changes.

Elasticity of demand :-

The rate of responsiveness of change is known as elasticity.

The term elasticity is defined as the responsiveness of the change in something.

The elasticity of demand is defined as the rate of responsiveness in the demand of a commodity, for a given change in price or any other determinants of demand.

In other words it explains the extent of change in quantity demanded becoz of given change in other determinants of demand it may be price or other factors also.

Types of elasticity of demand :-

The followings are main and important types of elasticity of demand

- 1) Price elasticity of demand.
- 2) Income elasticity of demand.
- 3) Gross elasticity of demand.
- 4) Advertising elasticity of demand.

Price Elasticity of Demand

The price elasticity of demand is responsiveness of the quantity demanded for a product to a given change in price. In other words, the price elasticity of demand refers the proportionate change in quantity demanded with responsiveness of the proportionate change in price. Price Elasticity is always negative which indicates that the customer tends to buy more with every fall in the price. The relationship between price and demand is inverse.

Price Elasticity of = _____ for product X

Demand _____, Proportionate price change in the prices of product X

It can be expressed as follows

$$EDP = \frac{(Q_2 - Q_1)/Q_1}{(P_2 - P_1)/P_1}$$

where, Q_1 = Quantity demanded before price change

Q_2 = Quantity demanded after price change.

P_1 = Price before change

P_2 = Price after change

2. Income Elasticity of Demand :-

The income elasticity of demand refers to the quantity demanded of a commodity in response to a given change in income of a consumer. The income elasticity of demand represents the proportionate change in quantity demanded with the responsiveness of the proportionate change in the income of the consumer. Income elasticity is normal positive which indicates that the consumer tends to buy more and more with every rise in income. It is measured as follows

$$\text{Income Elasticity of Demand} = \frac{\frac{\text{Proportionate change in quantity demanded for product } X}{\text{Proportionate change in income of the consumer}}}{}$$

It can be expressed as follows

$$EDI = \frac{(Q_2 - Q_1) / Q_1}{(I_2 - I_1) / I_1}$$

where,

Q_1 = Quantity demanded before income change.

Q_2 = Quantity demanded after income change.

I_1 = Income before change

I_2 = Income after change

The relationship between income and demand is direct.

Cross Elasticity of Demand :-

The cross elasticity of demand refers to the quantity demanded of a commodity in response to a change in the price of related good which may be substitute good or complementary good. In other words, cross elasticity of demand represents the proportionate change in quantity

demanded of the product X which the responsiveness of the proportionate change in the price of the product Y which are related goods. Cross Elasticity is normally positive which indicates that the consumer tends to buy the substitution good with the rise of that related or substitution goods.

It can be measured as

Proportionate change in quantity demanded of Product X

$$\text{Cross Elasticity of Demand} = \frac{\text{Proportionate change in price of the product } Y}{\text{Proportionate change in quantity demanded of Product X}}$$

The relationship b/w price and demand of substitution good is direct.

$$\text{It can be expressed as } ED_{CX} = \frac{(XQ_2 - XQ_1) / XQ_1}{(Yp_2 - Yp_1) / Yp_1}$$

where,

XQ_1 = quantity demanded before the change of price of product X

XQ_2 = quantity demanded after the change of price of product X

Yp_1 = Price before change of the product Y

Yp_2 = Price after change of the product Y

4. Advertising elasticity of demand :-

Advertising elasticity of Demand refers to an increase in sales revenue because of change in the advertising expenditure. In other words the proportionate change in quantity demanded with the responsiveness of proportionate change in advertisement expenditure. Advertising elasticity is always positive which indicates consumers tend to buy more with a effective advertisement.

It can be measured as follows

Proportionate change in quantity demanded
for product X

$$EDA = \frac{\text{Proportionate change in quantity demanded for product } X}{\text{Proportionate change in advertisement cost.}}$$

It can be expressed as

$$EDA = \frac{(Q_2 - Q_1) / Q_1}{(A_2 - A_1) / A_1}$$

where,

Q_1 = Quantity demanded before change in advertisement cost

Q_2 = " after " "

A_1 = Advertisement cost before change

A_2 = Advertisement cost after change.

Elasticity of Demand

Measurements of Elasticity of Demand :-

The following are main and important measures of the elasticity of demands:

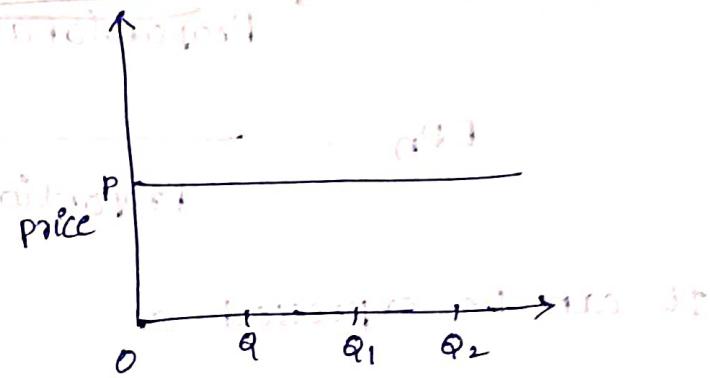
1. Perfectly elastic Demand.
2. Perfectly Inelastic Demand.
3. Relatively Elastic Demand.
4. Relatively Inelastic Demand.
5. Unity / Unitary / Unit Elastic Demand.



Perfectly Elastic Demand: The perfectly elastic demand represents slight change in price and heavy change in demand.

e.g.: Gold

High change in product demand
No change in price i.e. Demand is unitary
 $Ed = \infty$
High change in gold rate



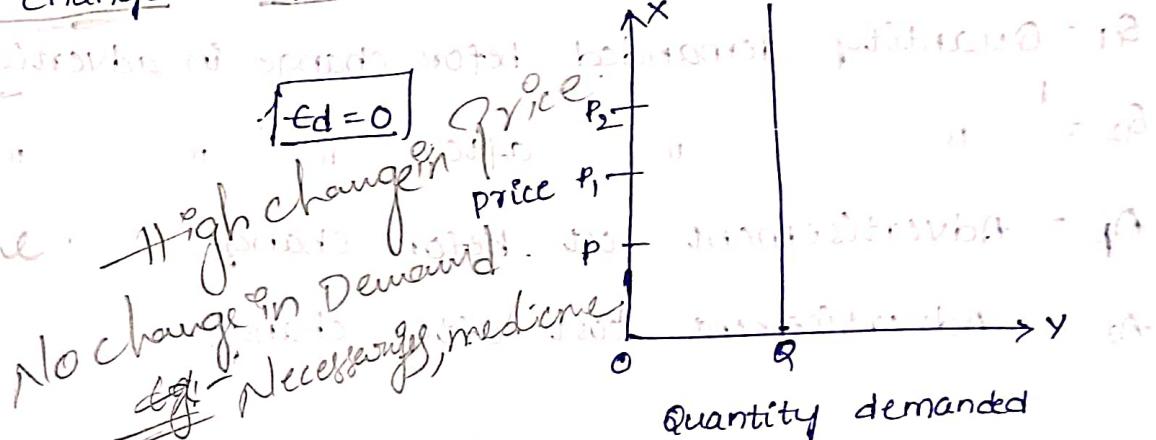
Perfectly Inelastic Demand:

The perfectly inelastic demand represents even though there is a high change in price, there is no change in demand.

e.g.: salt

Gas

medicine

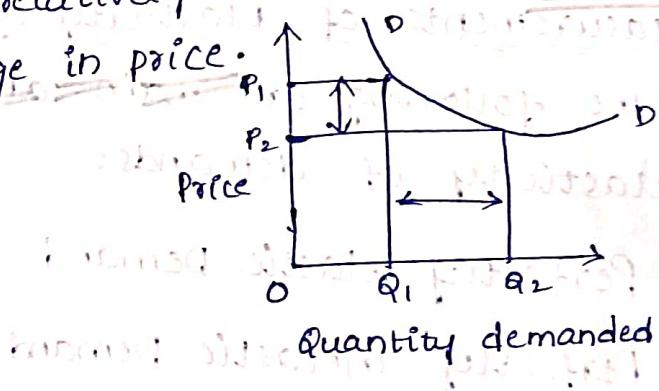


Relatively elastic Demand:

The demand is said to be relatively elastic when change in demand is more than the change in price.

e.g.: Petrol

less change in price
more change in petrol
 $Ed > 1$

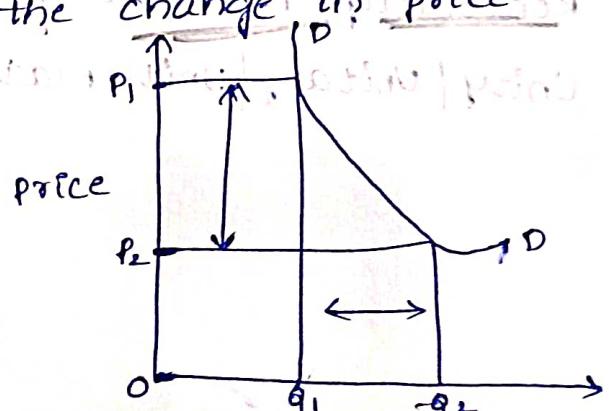


Relatively Inelastic Demand:

The demand is said to be relatively inelastic when the change in demand is less than the change in price.

e.g.: sugar

more change in price
less change in demand
 $Ed < 1$
e.g.: sugar



Unit Elastic Demand :-

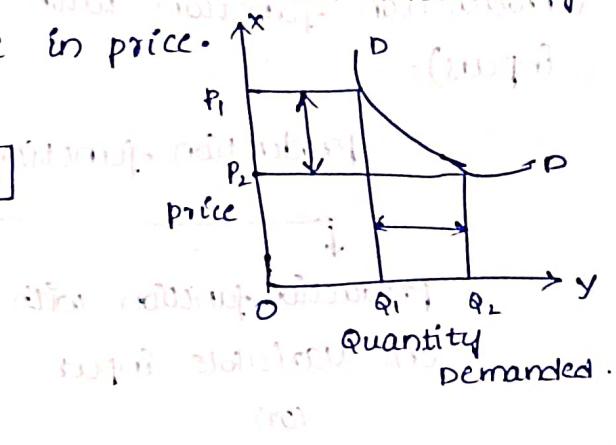
The elasticity of demand is said to be unit when the change in demand is equal to the change in price.

e.g.: cloth

Fruits, Vegetables, etc.

and the change in price
in elasticity of demand.

$$Ed = 1$$



Theory of Production :-

Introduction to production: In general terms, production means the process of conversion of raw materials into finished goods.

Definition: Samuelson defines the production function as the technical relationship which reveals the maximum amount of output capable of being produced by each and every set of inputs.

Michael R. Baye defines production function as that f^n which defines the maximum amount of output that can be produced with a given set of inputs.

Production functions: The production function expresses the functional relationship b/w physical inputs and physical outputs of a firm at any particular time period. So, it is mathematical represented as

$$Q = f(L_1, L_2, C, O, T)$$

Here,

$$Q = \text{Quantity of Output}$$

f = functional relationship b/w input and output.

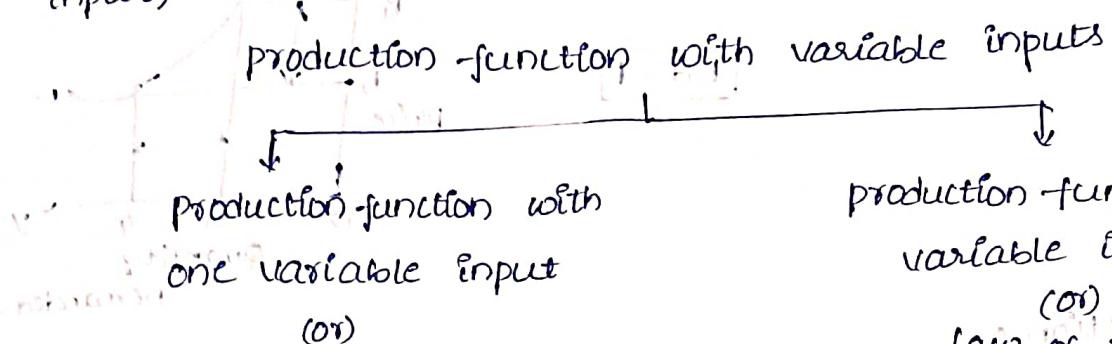
L_1 = Land, L_2 = Labour, C = Capital

O = Organisation, T = Technology

Here the output becomes dependent variable and inputs are independent variables.

Law of Variable Proportions Theory :-

(Production function with one variable inputs & two variable inputs).



Production function with one variable input :-

The law of returns in short run are production function with one variable input states that when 1 factor of production (or only 1 factor of input is variable and all other remaining factors are fixed or constant). Then the total input in the initial stages is uses at rising rate in the 2nd stage the total o/p is uses at decreasing rate and gradually at a point of time the total o/p will become zero.

In the third stage the total o/p will be uses (or) negative. This law can be shown by the following tabular representation.

(निम्नलिखित)

Units of Labour	Total Production (TP)	Marginal production (MP)	Average production (AP)	stage
0	0	0	0	1
1	10	10	10	1
2	22	12	11	1
3	33	11	11	2
4	40	7	10	2
5	45	5	9	2
6	48	3	8	2
7	48	0	6.85	3
8	45	-3	5.62	3

Explanation :- What will happen with respect to the stages?

stage 1 :-

From the above table in stage 1 total production increases at increasing rate, marginal production increases at increasing rate, average production increases at increasing rate.

stage 2 :-

In the second stage the total production increases at decreasing rate, marginal production decreases at decreasing rate and average production decreases at decreasing rate and at particular point it will becomes zero.

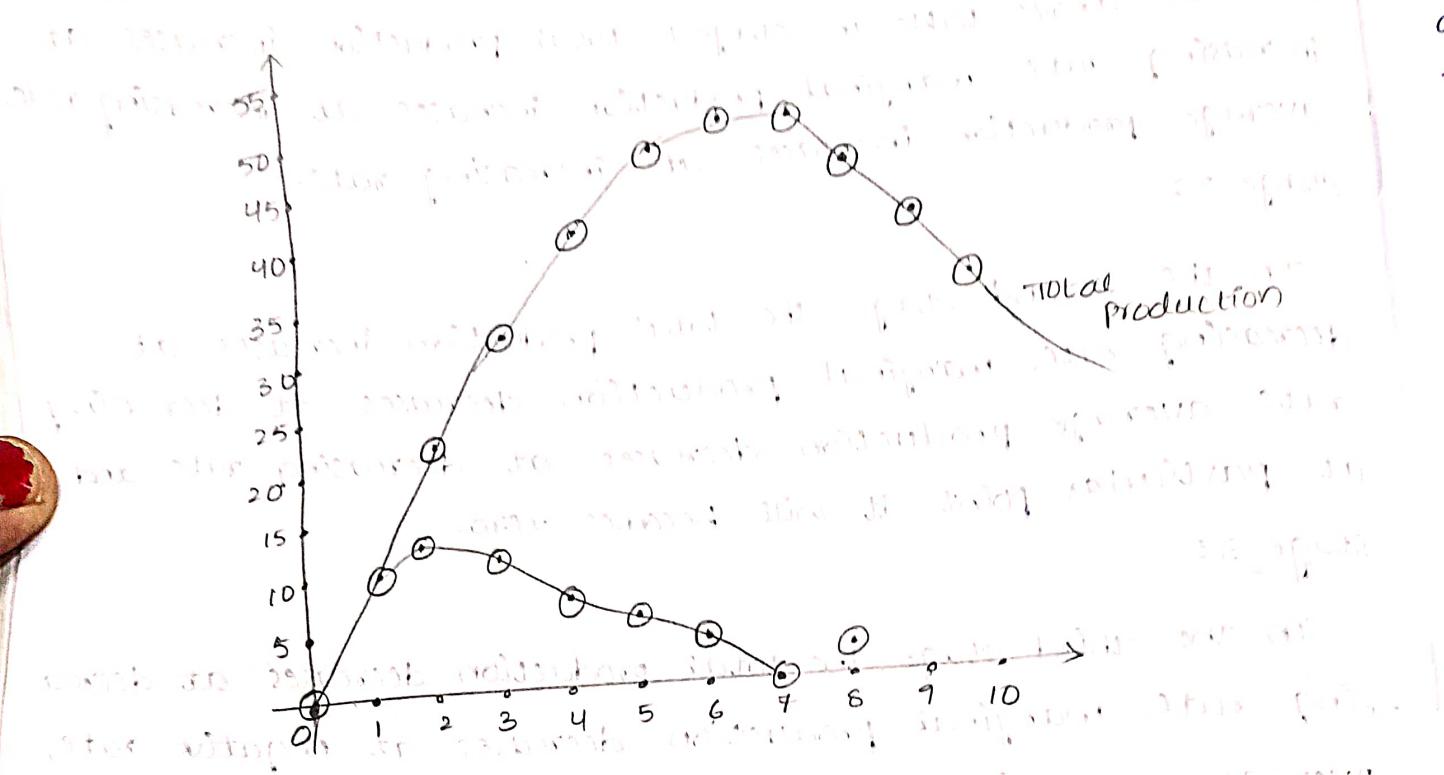
stage 3 :-

In the third stage the total production decreases at decreasing rate, marginal production decreases at negative rate, average production decreases at decreasing rate and gradually it will also entered into negative stage.

The output of the production is increasing in the stage-1, decreasing in the stage-2, becomes zero and becoming negative in the stage-3.

Graphical Representation production function with 1 variable :-

input :-



NOTE:-
a prod
substit
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nor
or

* Assumptions of law :-

* This theory is related to short run production, only.

* In this law all the remaining factors of the production are

The same i.e. constant, except labour.

* This law applies on field only.

disadvantages of production of agriculture soil pollution soil

widening of roads etc. & loss of forest all due to pollution.

Production function with two variables :-

In this production function with 2 variable inputs, the production process requires 2 inputs capital and labour & there would be more than 2 variables in real life situation, but for a sample analysis we restrict the no. of inputs two only. This can be represented by following functional form

$$Q = f(C, L)$$

where,

Q = quality of output

C = Capital, L = Labour, f = functional relation

Normally both capital and labour are required to produce a product to some extent level. These two inputs can be substitute for each other. Hence, the producer may choose any combination of labour and capital or capital and labour that gives him the required no. of units of output.

Cost concept:-

cost: Cost refers to the expenditure incurred or spent to produce a particular product or service. The cost may be monetary or non-monetary, tangible or intangible, determine subjectively or objectively. There are some types of cost are as follows

i) Opportunity cost

ii) Explicit cost & implicit cost

iii) (Implicit) fixed cost, and variable cost

iv) Long run cost and short run cost

v) Total cost

vi) Average cost

vii) Marginal cost.

Opportunity cost: Opportunity cost is a concept defined as those values (are benefits) that loses by a business, business own or organisation when they chooses one option or an alternative over another option in the course of making business decisions.

The opportunity cost of a source, they mean the value of next highest valued alternative use of that resource.

Explicit cost & Implicit cost:

Explicit cost are normal business cost that appear in a companies general ledger and directly effects its profitability.

Explicit costs known as out of pocket cost. payments that are actually made.

Eg:- Wages, lease payments, utilities and raw materials

An implicit cost is a non-monetary opportunity cost that is the result of a business rather than incurring a direct monetary expense utilising an asset or resource that it already owns.
 e.g.: loss of interest income on funds, depreciation of missionary labour of owner who works for the company but does not draw a salary. The use of owner's car, computers etc.

Fixed cost and variable cost:

Fixed cost: Fixed cost is referred to as the cost that does not register a change with an increase or decrease in the quantity of goods produced by a firm. Fixed cost remain the same throughout a specific period.

e.g.: rent, taxes and insurances.

Variable cost: Variable cost is referred to as the type of cost that will show variations as per the changes in the levels of production. Variable cost can rise or fall based on the output of the business.

e.g.: credit card bills, direct labour and commission.

Long run and short run cost:

The long run is a spell of time in which all factors of manufacturing are variable. In the long run enterprises are capable of modifying all cost prices. In long run all the factors of production are variable. e.g.: Land, equipment & infrastructure.

The short run cost is the cost of price which has short term influences in manufacturing procedures. These are utilised over a short degree of end results. In the short run at least one factor of production is fixed. e.g.: Labour and raw material.

Total cost:

The sum of all costs incurred by a firm in producing a certain level of output.

$$\text{Total cost} = \text{Fixed cost} + \text{Variable cost}$$

Marginal cost :-

The marginal cost refers to the rise in the production cost generated by the production of additional product units.

$$\text{Marginal cost} = \frac{\text{change in cost}}{\text{change in quantity}}$$

Average cost :-

Average cost is also known as unit cost. It is the minimum quantity of production produced by an individual.

$$\text{Average cost} = \frac{\text{Total cost}}{\text{No. of units}}$$

Break even analysis :-

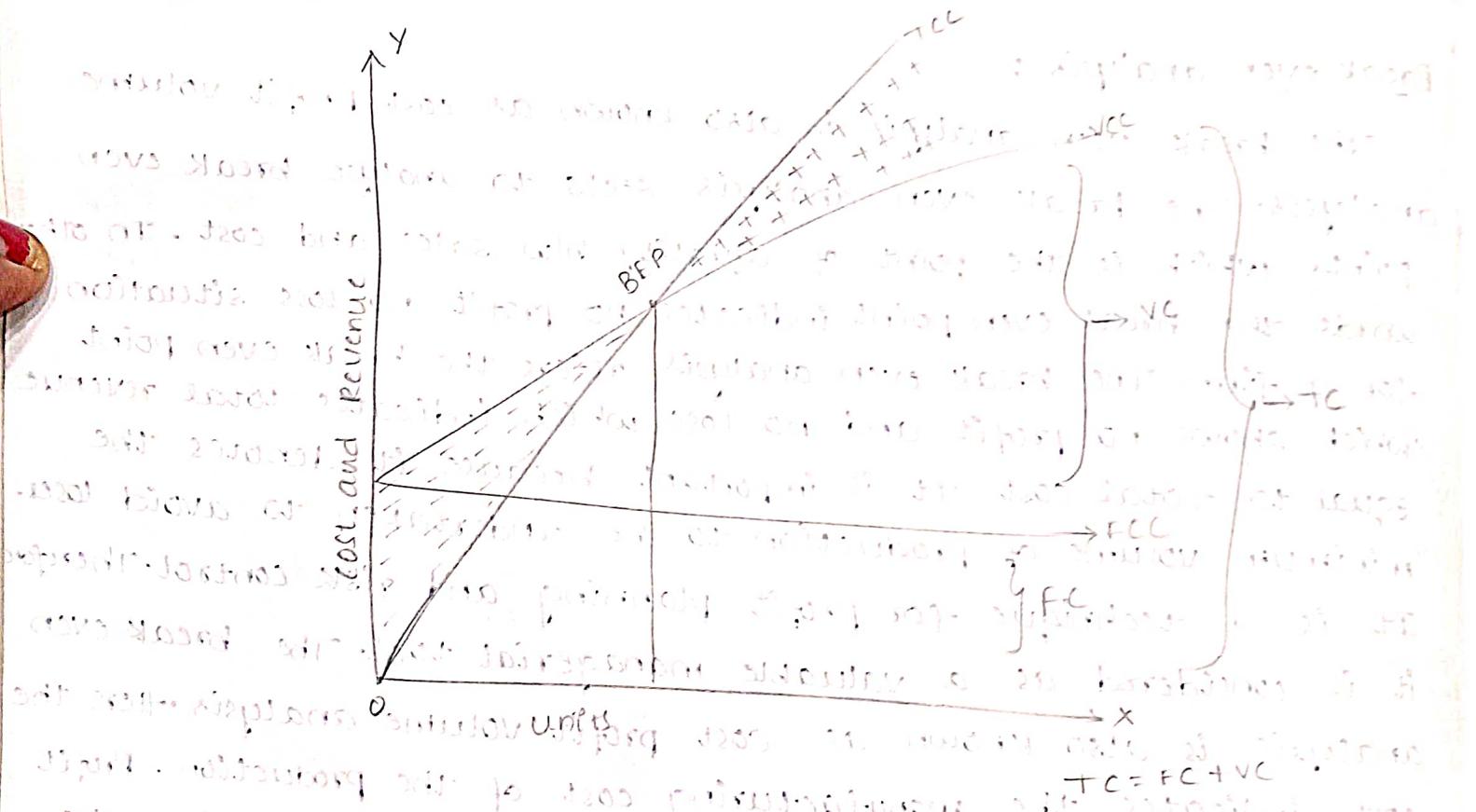
The break even analysis is also known as cost profit volume analysis. The break even analysis seeks to analyse break even point which is the point of equality b/w sales and cost. In other words the break even point indicates no profit no loss situation for a firm. The break even analysis refers the break even point which shows no profit and no loss which indicates total revenue equal to total cost. It is important because it denotes the minimum volume of production to be undertaken to avoid losses. It is a technique for profit planning and risk control. Therefore it is considered as a valuable managerial tool. The break even analysis is also known as cost profit volume analysis where the cost indicates the manufacturing cost of the production. Profit indicates the return to the firm. and the volume refers the size of production or quantity of production.

Significance of break even analysis :-

- 1) To ascertain the profit on a particular level of sales volume or a given capacity of production.
- 2) To calculate sales required to earn a particular desired level of profit.

- 3) To compare the product line, sales area, methods of sales for individual firm.
- 4) To compare the efficiency of different firms.
- 5) To decide whether to add a particular product to the existing product line or to drop from it.
- 6) To decide to make or buy a given component.
- 7) To decide what position of mix will add to yield optimum sales.
- 8) To assist the impact of changes in fixed cost, variable cost or selling price on BEP and profits during a given period.

Graphical representation of break even analysis :-



Assumptions of break even analysis :-

- 1) cost can be perfectly classified into 2 types-
 - 1) fixed cost
 - 2) variable cost
 - 2) selling price does not change with volume changes it remains fixed it doesn't consider the price discounts or cash discounts.
- $\boxed{\text{Price} = \text{cost} + \text{Profit}}$

- 3) All the goods produced are sold - there is no closing stock.
- 4) There is only one product available for sale.
- 5) In case of multiproduct firm the product mix does not change.
- Limitations :-
- 1) BEP is based on fixed cost, variable cost and total revenue. A change in one variable is going to affect the BEP.
 - 2) All costs cannot be classified into fixed and variable cost - we have semi variable cost also.
 - 3) In case of multiproduct firm, a single chart cannot be useful.
 - 4) It is based on fixed cost concept and hence it applies in the short run only.
 - 5) Total cost and Total revenue lines are not always straight.
 - 6) The quantity and price discounts are the usual phenomenon affecting the total revenue line.
 - 7) Where the business conditions are volatile, the BEP cannot give stable reasons.

Formulas of BEP :-

1) Break even point in units :-

$$BEP = \frac{\text{Fixed cost}}{\text{Contribution Margin per unit}}$$

Here,

Contribution margin per unit = selling price per unit - variable cost per unit

2) Break even point in value (₹) :-

$$BEP = \frac{\text{Fixed cost}}{\text{Contribution margin ratio}}$$

Here,

Contribution margin ratio = $\frac{\text{Selling price} - \text{Variable cost}}{\text{Selling price}}$