



CA - Foundation

CA - Intermediate

CA - Final

CA-FOUNDATION

CRASH COURSE MATERIAL

Business Economics

Chapter 2 – Demand, Supply & Consumer Behaviour

By Prof. Shashi Kiran.M



Advait Learning



9353164696 / 8660386382

www.advaitlearning.com

Unit 1- Demand

Demand constitutes 3 important elements :

- Desire to buy
- Ability to pay
- Willingness to spend

Any commodity at a given point of **time**, **for a given price** if a customer is **ready to purchase** it constitutes Demand.

Or

Desire Backed by a purchasing capacity with a willingness to spend.

Determinants of Demand:

Demand is influenced by lot of factors through which demand changes from time to time hence it is referred as determinants.

1. Price:

PRICE is the most important determinant which influences demand to a **maximum extent**.

When Price \uparrow Demand \downarrow
Price \downarrow Demand \uparrow } Main THUMB RULE of Demand Unit

i.e. Price is primary factor & Demand is secondary factor

or

Demand is dependent on price (When price changes Demand also changes)

The Relationship between price & demand is expressed in a mathematical equation known as **$D = f(p)$**

Direct **Indirect**

D = Demand (Dependent factor)

P = Price (Independent factor)

f = functional relationship

Direct (+) relationship

When Price \uparrow Demand \uparrow
Price \downarrow Demand \downarrow

Indirect(-) relationship

When Price \uparrow Demand \downarrow
Price \downarrow Demand \uparrow

2. Income

Income represents purchasing capacity.

When Y \uparrow D \uparrow

Y \downarrow D \downarrow

3. TAX

When Tax rate increases, Demand decreases

DISPOSABLE PERSONAL INCOME (DPI)

DPI= Income – Tax

4. Climatic Condition (Summer, winter & rainy)

Depending upon Climatic condition demand for a particular commodity varies

Ex. CoCo Cola, Rain Coat, Clothing.

5. Advertisement

Advertisement is an one effective tool through which the information about a Good or Services is passed, it creates an urgeness over consumers to purchase a product.

6. Taste & Preferences

Taste – It is an important factor which creates a repeated demand for a product if one provides a desired taste to a consumer.

Ex- Hotels & chat shops.

Preference – Customs & usage of a person depending upon the needs.

Ex- Veg & Non-veg food.

7. Population

When the population of an nation is more even the demanding capacity will be more & vies-versa, Demand can be based on Age group, class of society, religion, industry etc.

8. Complementary & Substitute goods

Complementary goods – are those goods which are consumed together.

Ex: Bike & petrol

Note : “Complementary goods are always negatively/ Indirectly related”. HOW????

If Price of PETROL \uparrow Demand for BIKE \downarrow & vice-versa.

Substitute goods – are those goods which are next best alternative goods.

Ex: Coffee & tea (or) Diary milk & Gon mad/kit-kat/perk

Note : “Substitute goods are always positively/ directly related”. HOW????

Assuming price of COFFEE & TEA both are Rs.10/-

when price of coffee increases to Rs.12/- & Tea price still remains Rs.10/-

Automatically people shifts from COFFEE to TEA due to increase in price of COFFEE.

Hence, When PRICE of Coffee \uparrow DEMAND for Tea \uparrow & vice-versa.

There are still many more factors which influences the demand but these 8 determinants are important.

SHORT CUT to remember determinants of demand - **PIT CAT PC's**

P- Price,

I- Income,

T- Tax,

C- Climatic Condition,

A- Advertisement,

T- Taste & Preferences,

P- Population

C's – Complementary & Substitute goods

Law of Demand

According to **Ceteris Paribus**, All things remains constant when price \uparrow demand \downarrow
when price \downarrow demand \uparrow (Indirect/ Negative relationship)

i.e. in **PIT CAT PC's** only the first **P- Price** is variable factor & all others **IT CAT PC's** are fixed factors (Only PRICE changes due to which DEMAND also changes)

“Law of Demand tell us only a direction of Change, So it is called as Qualitative statement”.
It fails to tell us, How much more the customer is going to buy when price ↓ (or) how much less the customer is going to buy when price ↑.

Exception to LAW OF DEMAND (Direct/Positive relationship)

1. Conspicuous consumption

It refers to a prestigious/ Luxury goods, where consumer measures the utility of a commodity by its price, i.e. if the commodity is expensive they think it has got more utility.

Ex: Gold/Diamonds , even if Price ↑ people still demands those prestigious goods, they don't decrease purchasing of it.

2. Giffen goods

Are those goods which are inferior (low quality) in nature on which customers spends major part of their income.

Ex: PUMA & POMA (or) Normal Rice & Biryani rice.

3. Conspicuous necessities (Demonstration/ Band wagon effect)

Are those goods for which demand is determined by usage of others.

Ex: cloths , cell phone etc.

4. Expectation of future change in price

Ex: Festivals , Share market etc.

5. Emergencies

Ex: Food articles in highway, Virus out break , natural destructions etc.

6. Speculation activity

Ex: Auction sale , Betting , Gambling etc.

7. Basic Necessities for life.

Ex: Cooking gas, food etc.

8. Trends & Changes (Torn jeans)

Demand Schedule & Demand Curve

Demand Schedule- Representing Demand in a form of a table.

Price	Total Demand	Batman	Superman	Ironman
10	55	22	15	18
8	65	27	18	20
6	75	30	20	25
4	85	32	25	28
2	95	35	28	32

When, Price ↑ Demand ↓

Price ↓ Demand ↑

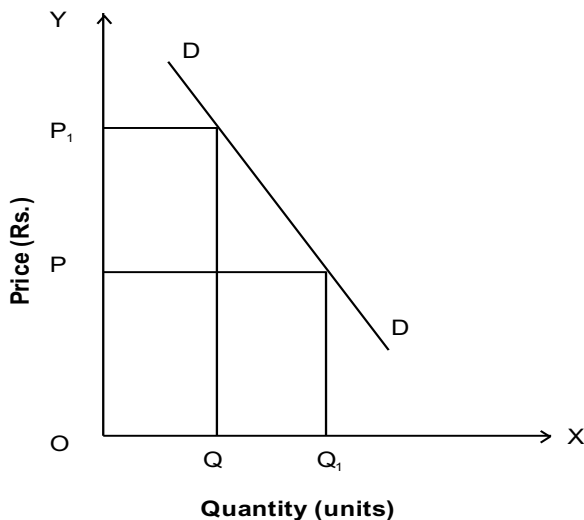
Economics Chapter 2

Types of Demand Schedule :

- Individual demand schedule : It represents demand created by an individual customer with relation to change in price.
- Market demand schedule : It represents demand created by all the customers in a market with relation to change in price.

Demand Curve- Representing demand schedule in a form of graph is known as demand curve .

Types of Demand curve : Individual & Market demand curve.



P & Q represents original Price & Quantity
P1 & Q1 is a change in price & Quantity
D represents Demand curve

When, $P_1 \uparrow D(Q_1) \downarrow$

“Demand Curve is downward sloping curve from left to right”(Negative slope). WHY????

- LDMU – Law of diminishing marginal utility
- Substitution effect
- New Consumer
- Alternative/ Multiple uses

Elasticity of Demand

It is a responsiveness or change in quantity demanded due to change in some determinants of demand.

Some determinants are (Types of Elasticity of demand)

1. Price Elasticity of demand (P_eD)
2. Income Elasticity of demand (I_eD)
3. Cross Elasticity of Demand (C_eD)
4. Advertisement Elasticity of demand (A_eD)

“Elasticity of Demand not only tell us a direction of Change it also tell us how much quantity/ numerical change in form of percentage, So it is also called as Quantative statement”.

Economics Chapter 2

$$E_D = \frac{\% \Delta \text{ in 'Q' Demanded}}{\% \Delta \text{ in Price}}$$

Difference between Law of Demand & Elasticity of Demand

Law of Demand	Elasticity of Demand
It only represents direction of change in price & quantity	It represents Numerical/ percentage change along with direction of change in price & quantity
It is Qualitative statement	It is Quantitive Statement

- PRICE ELASTICITY OF DEMAND**

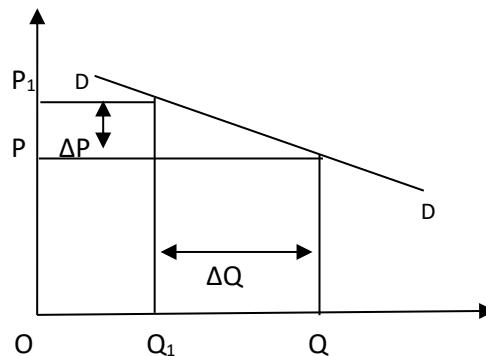
It is a responsiveness or change in quantity demanded due to change in price of a commodity.

$$E_D = \frac{\% \Delta \text{ in 'Q' Demanded}}{\% \Delta \text{ in Price}}$$

Types of price elasticity	Numerical value	Nature of demand curve
Relatively elastic	$e > 1$	Flatter demand curve
Relatively in-elastic	$e < 1$	Steeper demand curve
Unitary elastic	$e = 1$	Downwards sloping demand curve
Perfectly in-elastic.	$e = 0$	Vertical demand curve or Parallel to 'Y' axis
Perfectly elastic.	$e = \infty$	Horizontal demand curve or Parallel to 'X' axis

RELATIVELY ELASTICITY OF DEMAND

A small change in price leads to a large change in quantity demanded. ($e > 1$)



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

P = Previous price
 Q = Previous Quantity
 ΔP = Difference between old & new Price
 ΔQ = Difference between old & new Quantity

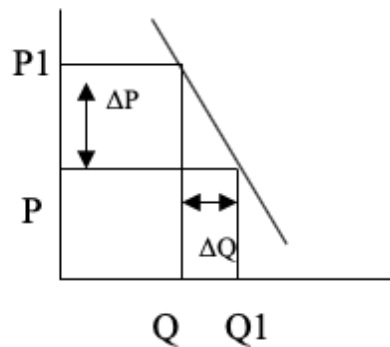
Price	Quantity	
10	100	
15	160	$\rightarrow \frac{10^1}{100_{10}} \times \frac{60^{12}}{5_1} \rightarrow \frac{12}{10} \rightarrow 1.2$

Conclusion : If price increases by 1% , Quantity demanded decreases by 1.2% & vice- versa

Economics Chapter 2

RELATIVELY IN-ELASTICITY OF DEMAND

A Large change in price leads to a small change in quantity demanded. ($e < 1$)



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

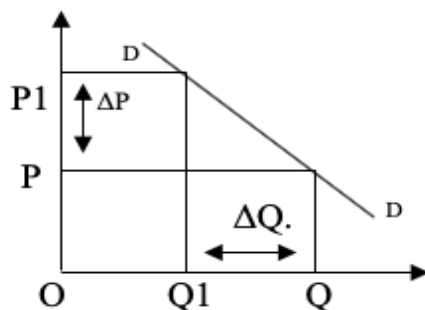
P = Previous price
 Q = Previous Quantity
 ΔP = Difference between old & new Price
 ΔQ = Difference between old & new Quantity

Price	Quantity	
10	100	
5	120	$\rightarrow \frac{10^1}{100_{10}} \times \frac{20^4}{5_1} \rightarrow \frac{04}{10} \rightarrow 0.4$

Conclusion : If price increases by 1% , Quantity demanded decreases by 0.4% & vice- versa

UNITARY ELASTICITY OF DEMAND

Whatever will be the change in price, Quantity demanded will also change in same proportion. ($e = 1$)



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

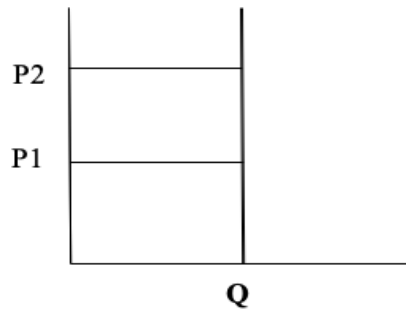
P = Previous price
 Q = Previous Quantity
 ΔP = Difference between old & new Price
 ΔQ = Difference between old & new Quantity

Price	Quantity	
10	100	
5	150	$\rightarrow \frac{10^1}{100_{10}} \times \frac{50^{10}}{5_1} \rightarrow \frac{10}{10} \rightarrow 1$

Conclusion : If price increases by 1% , Quantity demanded decreases by same 1 % & vice- versa

PERFECTLY IN-ELASTICITY OF DEMAND

Whatever may be the change in price, Quantity demanded remains unchanged. (e=0)



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

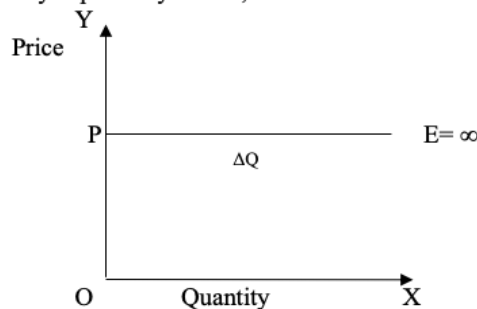
P = Previous price
 Q = Previous Quantity
 ΔP = Difference between old & new Price
 ΔQ = Difference between old & new Quantity

Price	Quantity	
10	100	$\frac{10^1}{100_{10}} \times \frac{00}{05} \Rightarrow \frac{00}{10} \Rightarrow 0$
5	100	

Conclusion : If price changes by 1% , Quantity demanded decreases by 0 %

PERFECTLY ELASTICITY OF DEMAND (Unrealistic/ myth)

Whatever may be the change in price, Quantity demanded cannot be determined. (e=∞)



Measurements of Price Elasticity of Demand

1. **Formula Method :**

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

Already done

2. **ARC Method**

It was developed to overcome the problems of Formula method.

$$: \frac{\Delta Q}{\Delta P} \times \frac{(P + P1)}{(Q + Q1)}$$

Solve the below mentioned two problems to understand the disadvantage of Formula method.

Economics Chapter 2

Problem 1-

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

P = Previous price
 Q = Previous Quantity
 ΔP = Difference between old & new Price
 ΔQ = Difference between old & new Quantity

Price	Quantity	
10	100	
15	70	➔

$$\frac{10^1 \times 30^6}{100_{10} \ 05_1} \text{ ➔ } \frac{06}{10} \text{ ➔ } \mathbf{0.6}$$

Conclusion: As the outcome of a problem is 0.6 i.e. $e < 1$, It is Relatively In-elastic.

Problem 2-

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

P = Previous price
 Q = Previous Quantity
 ΔP = Difference between old & new Price
 ΔQ = Difference between old & new Quantity

Price	Quantity	
15	70	
10	100	➔

$$\frac{15^3 \times 30}{70 \ 05_1} \text{ ➔ } \frac{90}{70} \text{ ➔ } \mathbf{1.29}$$

Conclusion: As the outcome of a problem is 1.29 i.e. $e > 1$, It is Relatively Elastic.

Observation:

Problem 1 is reversed and made it as Problem 2 but the outcome of both the problems are different (Problem 1 is Relatively In-elastic & Problem 2 is Relatively Elastic).

In mathematics even if problem is reversed the outcome of a problem should be same.

Formula method is not so appropriate & it contains disadvantage as above stated with example, Hence ARC Method was introduced.

ARC Method Formula

$$\frac{\Delta Q}{\Delta P} \times \frac{(P + P_1)}{(Q + Q_1)}$$

$P_1 + P_2$ = Previous price + New price
 $Q_1 + Q_2$ = Previous Quantity + New Quantity
 ΔP = Difference between old & new Price
 ΔQ = Difference between old & new Quantity

Price	Quantity	
15	70	
10	100	➔

$$\frac{30 \times (15+10)}{05 \ (70+100)} \text{ ➔ } \frac{30 \times 25^5}{05_1 \ 170} \text{ ➔ } \frac{15}{17} \text{ ➔ } \mathbf{0.89}$$

Conclusion: The outcome of a problem is 0.89 i.e. $e < 1$, It is Relatively In-elastic.

Note: In an exam if a numerical problem is given without specifying which method to be use (Formula or ARC), Use Formula method initially you will get an answer which matches with given 4 option,

Suppose if you cannot find the answer in any off the 4 options given, then try ARC method. Most of the problems will be in Formula method

Economics Chapter 2

3. Point Method (Unrealistic/ Myth)

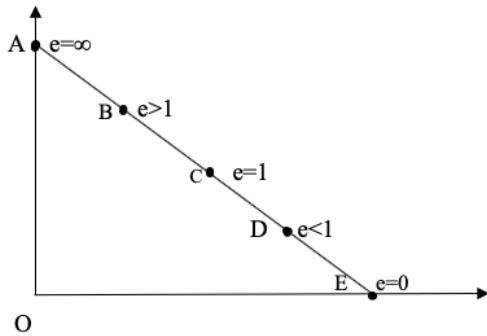
It is used to find those changes which is extremely small.

$$EP = \frac{\text{Lower Segmentation the demand curve (LS)}}{\text{Upper Segment on the demand curve (US)}}$$

Space between A,B,C,D & E is Considered as Segments.

i.e. Space between A & B is one segment,

Space between A to E has 4 segments.



A=	$\frac{AE}{0} \rightarrow \frac{04}{0} \rightarrow \infty$	E=∞
B=	$\frac{BE}{BA} \rightarrow \frac{3}{1} \rightarrow 3$	E>1
C=	$\frac{CE}{CA} \rightarrow \frac{2}{2} \rightarrow 1$	E=1
D=	$\frac{DE}{DA} \rightarrow \frac{1}{3} \rightarrow 0.3$	E<1
E=	$\frac{0}{EA} \rightarrow \frac{0}{4} \rightarrow 0$	E=0

4. Total Outlay method

As a result of change in price, Whether customer is going to spend more or less is what we are interested.

We are considering spending capacity of a consume due to change in price.

Person	Price	Quantity	Outlay (P*Q)	P _e D	Conclusion
Batman	6 *	10	60 ↑	E>1	Due to change in price, spending nature of Batman is increasing.
	5 *	15	75 ↑		
	4 *	20	80 ↓		
Superman	6 *	10	60	E=1	Even though there is change in price, Superman is spending same amount of money.
	5 *	12	60		
	4 *	15	60		
Iron man	6 *	10	60 ↓	E<1	Due to change in price, spending nature of Iron man is decreasing.
	5 *	11	55 ↓		
	4 *	13	52 ↓		

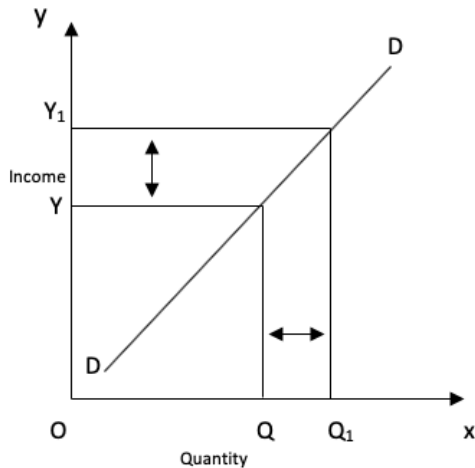
Economics Chapter 2

- INCOME ELASTICITY OF DEMAND**

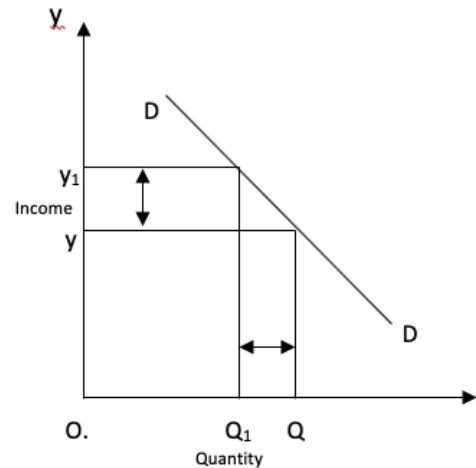
It is change in demand due to change in income of a consumer.

$$I_e D = \frac{\% \Delta \text{ in Demand}}{\% \Delta \text{ in Income}}$$

Engel's Curve: It is a relationship between Income of a consumer & Quantity demanded of a particular commodity.



Normal goods



Inferior goods

- If, $e > 1$ Luxury goods
- $e < 1$ Necessaries/ Normal good
- $e = 1$ luxury/ Necessary goods
- $e = 0$ No change in quantity, irrespective of change in Income

Measurements of Income Elasticity of Demand

1. Formula method

$$E_y = \frac{\Delta Q}{\Delta Y} \times \frac{Y}{Q}$$

2. ARC Method

$$= \frac{\Delta Q}{\Delta Y} \times \frac{Y_1 + Y_2}{Q_1 + Q_2}$$

Note:

	Normal Goods	Inferior Goods
Price	When, Price \uparrow Demand \downarrow Price \downarrow Demand \uparrow (Negative relationship)	When, Price \uparrow Demand \uparrow Price \downarrow Demand \downarrow (Positive relationship)
Income	When, Income \uparrow Demand \uparrow Income \downarrow Demand \downarrow (Positive relationship)	When, Income \uparrow Demand \downarrow Income \downarrow Demand \uparrow (Negative relationship)

Economics Chapter 2

- CROSS ELASTICITY DEMAND**

It is a responsiveness or change in quantity demanded of 'Good A' due to change in price of 'Good B'.

It holds good for Complementary & Substitute goods.

Complementary goods – are those goods which are consumed together.

Ex: Bike & petrol

Note : "Complementary goods are always negatively/ Indirectly related". HOW????

If Price of PETROL \uparrow Demand for BIKE \downarrow & vice-versa.

Substitute goods – are those goods which are next best alternative goods.

Ex: Coffee & tea (or) Dairy milk & Gon mad/kit-kat/perk

Note : "Substitute goods are always positively/ directly related". HOW????

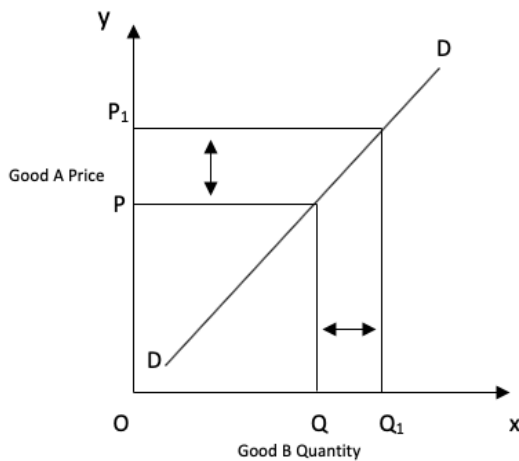
Assuming price of COFFEE & TEA both are Rs.10/-

when price of coffee increases to Rs.12/- & Tea price still remains Rs.10/-

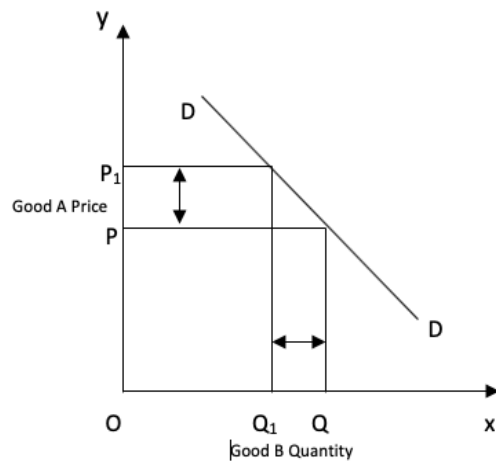
Automatically people shifts from COFFEE to TEA due to increase in price of COFFEE.

Hence, When PRICE of Coffee \uparrow DEMAND for Tea \uparrow & vice-versa.

$$C_e D = \frac{\% \Delta \text{ in Quantity Demanded of 'Good A'}}{\% \Delta \text{ in Price of 'Good B'}}$$



Substitute goods



Complementary goods

Problem 1 :

Miss. Anushka own a coffee shop where she sells 100 coffees per day for Rs.10/- each, due to increase in price of raw materials she increased coffee price to Rs.12/- due to which her sales reduced to 75 coffees per day, An opposite tea shop of Mr.Kholi stated receiving more customers all off a sudden in a recent time where he sells Tea for Rs.10/-each & sales per day increased from 400 cups of tea to 500 cups of tea. Calculate Cross elasticity of demand?

Problem 2:

If Price of INK went up by 25%, Quantity demanded of PEN went down by 20%. Calculate $C_e D$?

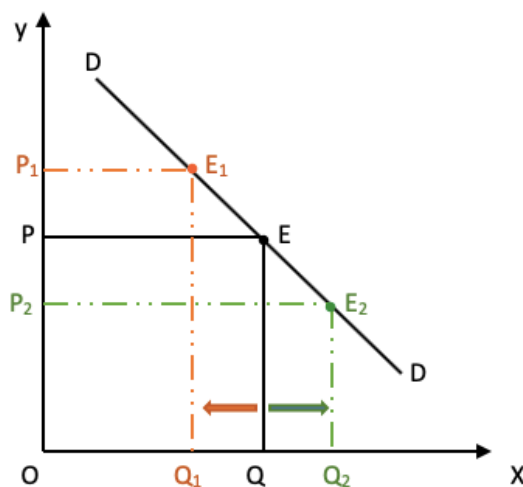
- **ADVERTISEMENT ELASTICITY OF DEMAND**

It is a responsiveness or change in demand due to change in spending's on advertisement.

$$A_e D = \frac{\% \Delta \text{ in Quantity Demanded}}{\% \Delta \text{ in Price of spending's on Advt}}$$

Expansion or Contraction of Demand curve

- It is a change in Demand only due to change in **PRICE**.
i.e. in **PIT CAT PC'S**, only P- Price is going to change a demand
- It is movement on same Demand curve
- When, Price \uparrow Demand **Contracts**
Price \downarrow Demand **Expands**



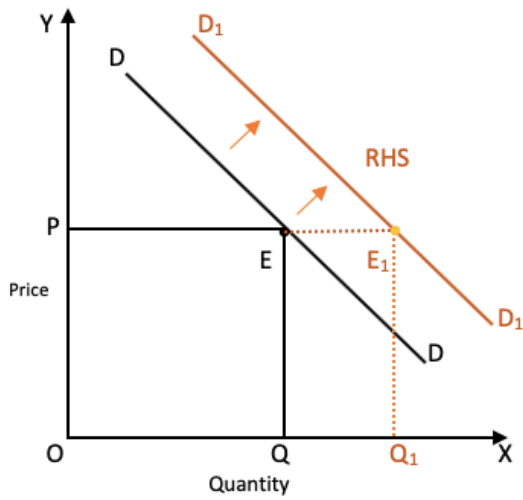
Q to Q_1 = **Contraction**

Q to Q_2 = **Expansion**

Increase or Decrease of Demand curve

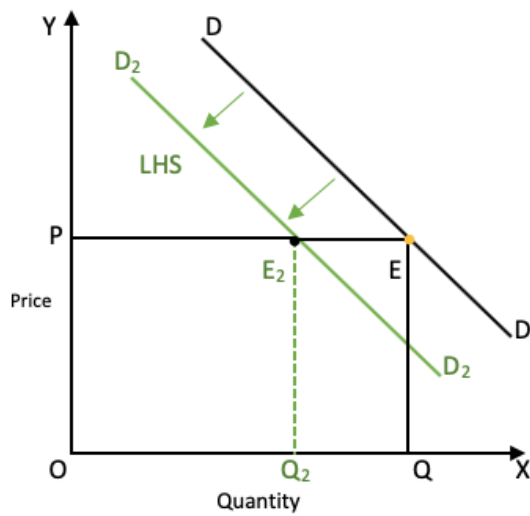
- Increase or Decrease in demand is due to **change in other factors** except PRICE.
i.e. in **PIT CAT PC'S**, only P- Price is going to constant, **IT CAP PC's will change a demand.**
- It is Shift in Demand curve.
- If other factor except price \uparrow demand curve will shift **RHS**
If other factor except price \downarrow demand curve will shift **LHS**

A) Increase in demand



Q to Q_1 = Increase in Demand (RHS)
RHS = Right hand side shift

B) Decrease in demand



Q to Q_2 = Decrease in Demand (LHS)
LHS = Left hand size shift

Note : AR curve is also called as Demand curve.
Demand is a flow concept.
Demand unit is from consumers point of view


Unit- 2 SUPPLY

Supply is a part of stock which is offered for sale, Supply is a flow concept.
Supply is from Manufacturer point of view.

Determinants of Supply:

Supply is influenced by lot of factors through which supply changes from time to time hence it is referred as determinants.

1. Price

When, Price  Supply 
Price  Supply 

2. Price of related goods

3. Technology

4. Factors of Production

5. Govt policies

Law of Supply





All things remains constant, When price  supply  , when price  supply 

The Relationship between price & supply is expressed in a mathematical equation known as **S= f(p)**
It is known as supply function.

Supply Schedule & Supply Curve

Supply Schedule- Representing Supply in a form of a table.

Price	Total Supply	Apple	OPPO	MI
100	1000	500	300	200
150	1200	550	400	250
170	1350	590	450	310
200	1500	650	500	350
250	1850	750	600	500

When, Price  Supply 
Price  Supply 

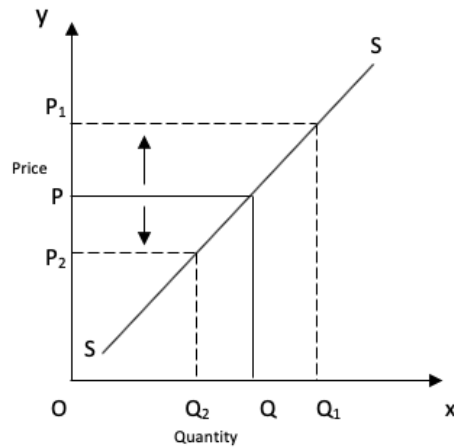
Types of Supply Schedule :

- Individual supply schedule : It represents supply created by an individual customer with relation to change in price.
- Market supply schedule : It represents supply created by all the customers in a market with relation to change in price.

Economics Chapter 2

Supply Curve- Representing Supply schedule in a form of graph is known as Supply curve .

Types of Supply curve: Individual supply curve & Market supply curve.



Elasticity of Supply

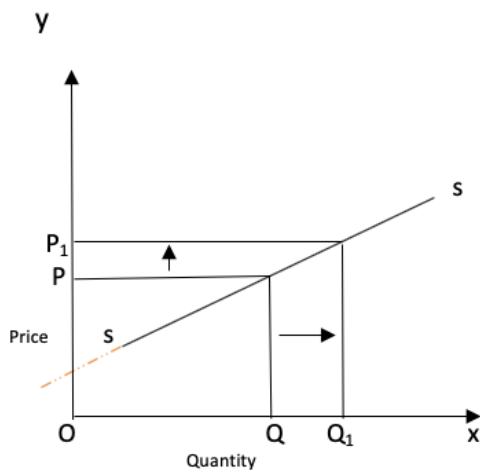
It is a responsiveness or change in quantity supplied due to change in price.

$$E_s = \frac{\% \Delta \text{ in 'Q' Supplied}}{\% \Delta \text{ in Price}}$$

<u>Types of supply elasticity</u>	<u>Numerical value</u>	<u>Nature of supply curve</u>	<u>Extended supply curve cuts</u>
Relatively elastic	$e > 1$	Flatter supply curve	'Y' Axis
Relatively in-elastic	$e < 1$	Steeper supply curve	'X' Axis
Unitary elastic	$e = 1$	Up-wards sloping supply curve	Intersects at Origin
Perfectly in-elastic.	$e = 0$	Vertical supply curve or Parallel to 'Y' axis	
Perfectly elastic.	$e = \infty$	Horizontal supply curve or Parallel to 'X' axis	

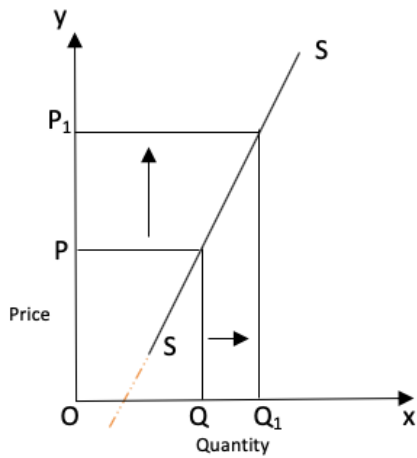
RELATIVELY ELASTICITY OF SUPPLY

A small change in price leads to a large change in quantity supplied. ($e > 1$)



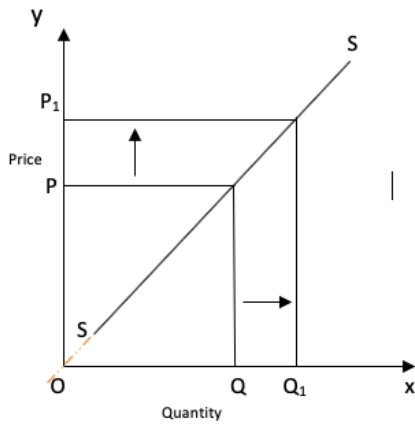
RELATIVELY IN- ELASTICITY OF SUPPLY

A large change in price leads to a small change in quantity supplied. ($e < 1$)



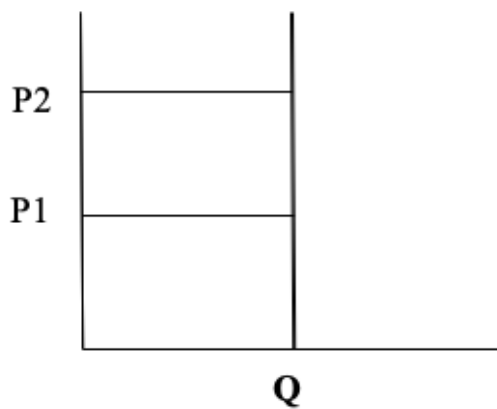
UNITARY ELASTICITY OF SUPPLY

Whatever will be the change in price, Quantity supplied will also change in same proportion. ($e = 1$)



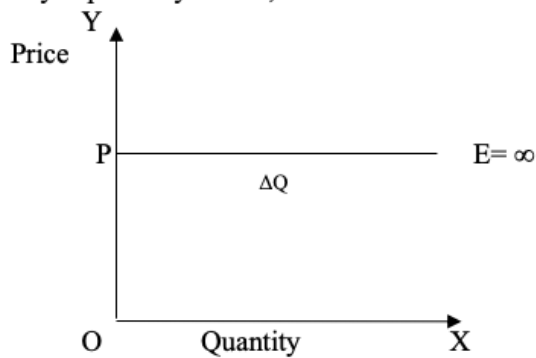
PERFECTLY IN-ELASTICITY OF SUPPLY

Whatever may be the change in price, Quantity supplied remains unchanged. ($e = 0$)



PERFECTLY ELASTICITY OF SUPPLY (Unrealistic/ myth)

Whatever may be the change in price, Quantity supplied cannot be determined. ($e=\infty$)



Measurements of Elasticity of Supply

1. **Formula Method :**

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

2. **ARC Method**

It was developed to overcome the problems of Formula method.

$$\frac{\Delta Q}{\Delta P} \times \frac{(P + P1)}{(Q + Q1)}$$

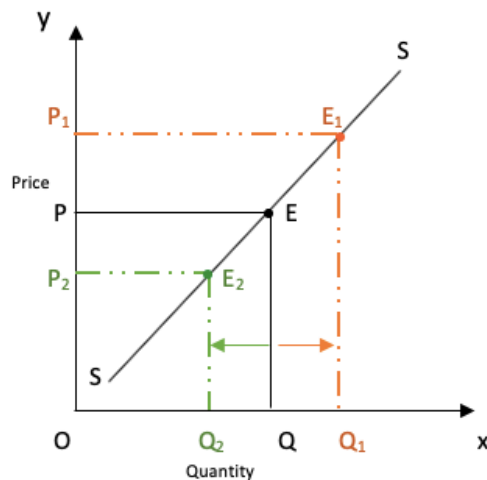
3. **Point method**

4. **Total outlay method**

Note: Measurements is already discussed in Demand & it remains same in supply also.

Expansion or Contraction of Supply curve

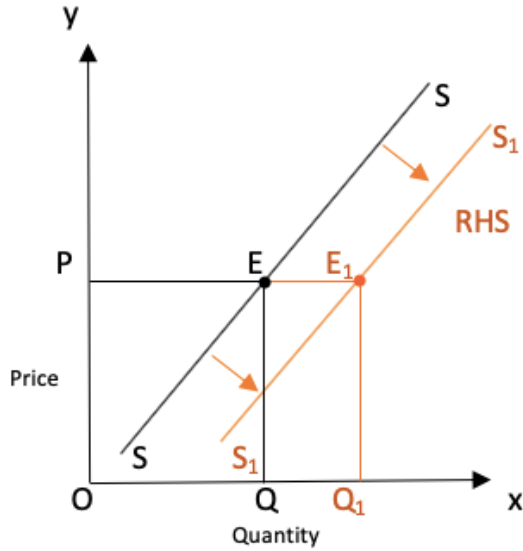
- It is a change in Supply it is only due to change in **PRICE**.
- It is movement on same Supply curve
- When, Price \uparrow Supply **Expands**
 Price \downarrow Supply **Contracts**



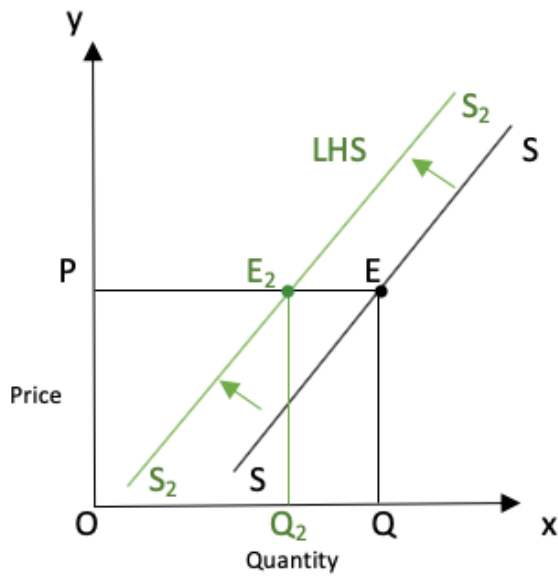
Q to Q_1 = Expansion
 Q to Q_2 = Contraction

Increase or Decrease of Supply curve

- Increase or Decrease in Supply is due to **change in other factors** except PRICE.
- It is Shift in Supply curve.
- If other factor except price \uparrow Supply curve will shift **RHS**
- If other factor except price \downarrow Supply curve will shift **LHS**



Q to Q₁ = Increase in Supply (RHS)
RHS = Right hand side shift



Q to Q₂ = Decrease in Supply (LHS)
LHS = Left hand side shift

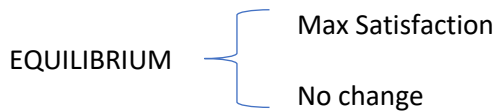
Unit 3- Consumer Behaviour

Fundamental premise of economics is we assume every consumer is Rational Consumer.

Rational consumer- Whose choice is consist with goals, by a limited resources a consumer tries to satisfy their unlimited wants.

This unit explains us at what point a consumer will be satisfied a most.

A particular point/position where consumer is able to satisfy as many wants as possible with the given resources, it is said by EQUILIBRIUM.



When the above two conditions are satisfied, a consumer is set be in equilibrium.

❖ Who are we going to achieve Equilibrium??

There are two different methods which tells us how to achieve equilibrium.

1. CARDINAL APPROACH
2. ORDINAL APPROACH

CARDINAL APPROACH

- It was developed by Prof.Alfrad Marshal.
- This theory is based on one important principle which states “**Cardinal measurability of Utility is possible**” i.e. satisfaction can be measured in terms of numbers (Utils)
UTILITY – It is a want satisfying capacity of a commodity.
UTILS – It is a tool to measure Utility/satisfaction.
- Under this approach we study
 - i. LDMU- Law of diminishing marginal utility
 - ii. Consumer surplus theory

ORDINAL APPROACH

- It was developed by R.J.D Allen & J.R. Hicks.
- Due to the drawbacks of Cardinal approach & to accept in practical ORDINAL APPROACH was developed.
- It is not possible to measure satisfaction in terms on number, instead we can arrange satisfaction in an order of **PREFERENCES/ RANKS**.
- Under this approach we study
 - i. Indifference curve
 - ii. Budget line

Basic concepts

1. Total Utility (TU)

It is a summation/Cumulative of all the utilities derived from a given set of units.

$$TU= U_1+U_2+U_3+U_4+.....U_n$$

Ex: Mr. A purchases a pack of ORIO Biscuits which had 10biscuits in it & consumed all 10 biscuits one by one.

Economics Chapter 2

Cardinal approach says satisfaction can be measured in terms of numbers/utils.

Mr.A after consuming a 1st biscuit got 10 utils of satisfaction

Mr.A after consuming a 2nd biscuit got 30 utils of satisfaction

Mr.A after consuming a 3rd biscuit got 60 utils of satisfaction

Mr.A after consuming a 4th biscuit got 100 utils of satisfaction

Mr.A after consuming a 5th biscuit got 150 utils of satisfaction

Mr.A after consuming all first 10 biscuits he has got 300 utils of satisfaction

It means Total Utility (TU) of 2nd Biscuits is 10+20 (1st + 2nd biscuit put together) i.e.30Utils

TU of 3rd Biscuit is 10+20+30 (1st + 2nd + 3rd biscuits put together) i.e. 60Utils

Note : "TU is Cumulative in nature".

2. Average Utility (AU)

It is a Utility derived by one single unit of output.

$$AU = TU/Q$$

Lets continue a same above example of Mr.A

Units	TU	AU	AU=TU/Q (Calculation)
1	10	10	10/1
2	30	15	30/2
3	60	20	60/3
4	100	25	100/4
5	150	30	150/5

3. Marginal Utility (MU)

It is a utility derived by **one additional/ one extra** unit of output.

$$MU = TU_n - TU_{n-1} \quad (\text{when output is continuous})$$

$$MU = \Delta TU / \Delta Q \quad (\text{when output is not-continuous})$$

Problem 1: when output is continous

Units	TU	AU	MU	MU = TU _n -TU _{n-1}
1	10	10	10	As MU speaks only about one unit
2	30	15	20	MU=TU ₂ -TU ₁ i.e. MU= 30 - 10
3	60	20	30	MU=TU ₃ -TU ₂ i.e. MU= 60 - 30
4	100	25	40	MU=TU ₄ -TU ₃ i.e. MU= 100 - 60
5	150	30	50	MU=TU ₅ -TU ₄ i.e. MU= 150 - 100

Problem 2: when output is not-continues

Units	TU	MU	MU= $\Delta TU / \Delta Q$ (Δ = present - previous)
0	0	0	When Output is 0 even TU,AU & MU will be zero
2	20	10	($\Delta TU = 20 - 0 = 20$) ($\Delta Q = 2 - 0 = 2$) MU= 20/2= 10
4	80	30	($\Delta TU = 80 - 20 = 60$) ($\Delta Q = 4 - 2 = 2$) MU= 60/2= 30
6	160	40	($\Delta TU = 160 - 80 = 80$) ($\Delta Q = 6 - 4 = 2$) MU= 80/2= 40
8	260	50	($\Delta TU = 260 - 160 = 100$) ($\Delta Q = 8 - 6 = 2$) MU= 100/2= 50
10	380	60	($\Delta TU = 380 - 260 = 120$) ($\Delta Q = 10 - 8 = 2$) MU= 120/2= 60

Law of Diminishing marginal utility

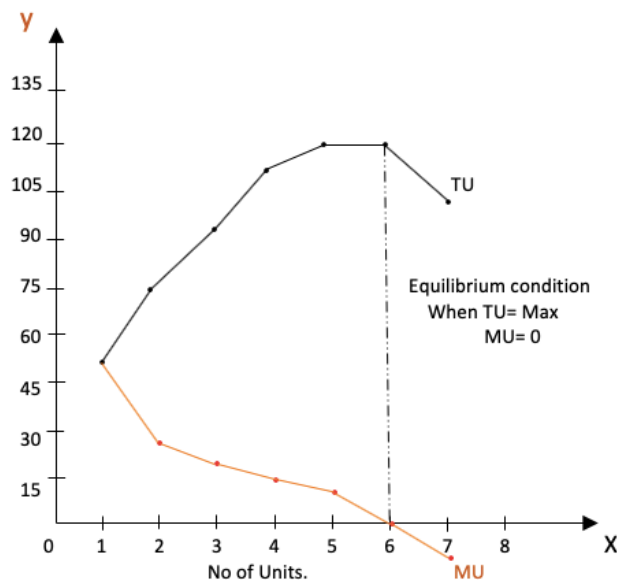
A additional benefit a consumer derives from a given increase in stock of anything, diminishes with the stock he already has.

If a consumer goes on consuming a particular commodity, satisfaction that he gets from a commodity diminishes.

Assumptions of LDMU

1. Should be a rational consumer (Choice are consistent with goals)
2. Continues consumption (without time gap)
3. Homogeneous goods and services (Identical)
4. Commodity should be provided for free of cost
5. Cardinal measurability of utility is possible

Units	TU	MU
1	50	50
2	75	25
3	95	20
4	110	15
5	120	10
6	120	0
7	100	-10



Limitations of LDMU

1. Rare Collections
2. Money
3. Harmful drugs

Consumer surplus theory

Economics Chapter 2

Whatever extra worth of satisfaction that consumer enjoys is known as Consumer surplus.

Consumer surplus = Potential price – Actual price

$$CS=PP-AP$$

Potential Price : Price which customer is ready to pay

Actual price : Price which we pay

The concept of Consumer surplus is subject to LDMU i.e. the price which we are ready to pay (PP) will reduce gradually when we go on consuming a particular commodity.

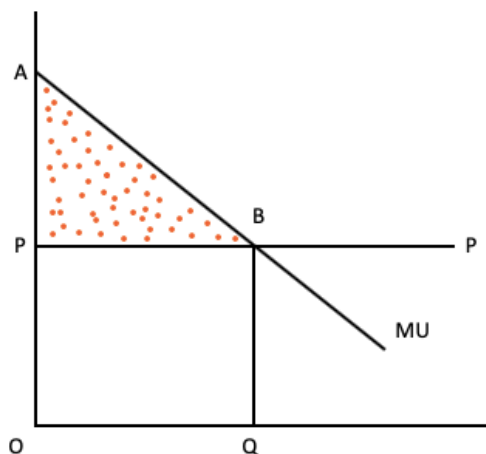
Ex: movie ticket

Units	PP or MU	AP	CS
1	20	10	10
2	15	10	05
3	10	10	00
Total	45	30	15

PP is also known as MU

When $P=MU$ i.e. in Unit 3 a consumer is in equilibrium

In CS customer is going to pay a price for a commodity



The Shaded region represents Consumer surplus, hence it is also called as WELFARE TRIANGLE

$$\begin{aligned}\text{Area of Triangle} &= \frac{1}{2} \times b \times h \\ &= \frac{1}{2} \times 3 \text{ units} \times (20-10) \\ &= \frac{1}{2} \times 3 \times 10 \\ &= \frac{1}{2} \times 30 \\ &= \mathbf{15}\end{aligned}$$

Equilibrium condition

- In case of single commodity **P=MU**
- In case of two commodities

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

- In case of more than two commodities

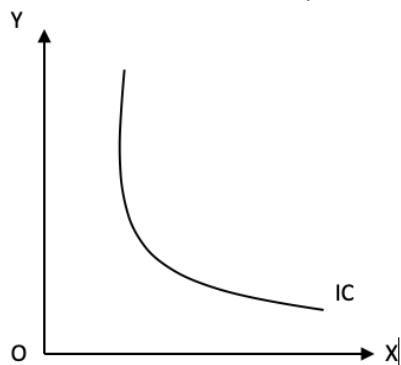
$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} \dots\dots\dots \frac{MU_n}{P_n}$$

Indifference curve

All those combinations of two commodities which give the same level of satisfaction, if they are connected in the form of a curve, are called IC Curves.

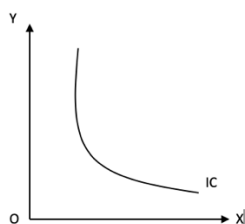
Assumptions

- Having limited income
- He/she completely buys two commodities
- Later it will be a barter system



Features of IC Curve

1. IC Curve always slopes downwards from left to right (Due to limited income)



2. Always CONVEX to origin

Due to diminishing Rate of Substitution (ROS)

ROS- It is a rate at which one commodity is exchanged with another

Rate of Substitution is always diminishing in nature hence IC curve is also known as "Law of diminishing rate of substitution".

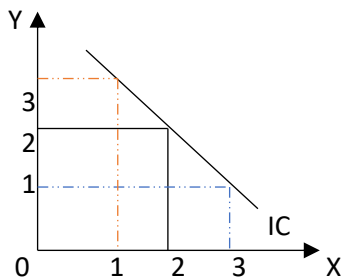
Economics Chapter 2

Combination	Tea	Biscuits	ROS
A	1	12	1:4
B	2	8	
C	3	5	1:3
D	4	3	1:2
E	5	2	1:1

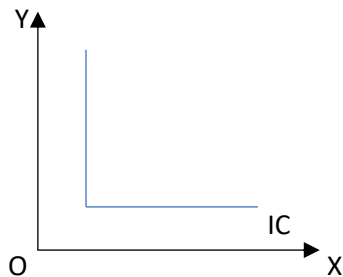
To increase the consumption of one commodity, need to sacrifice the consumption of other commodity

Exception to rule Convex

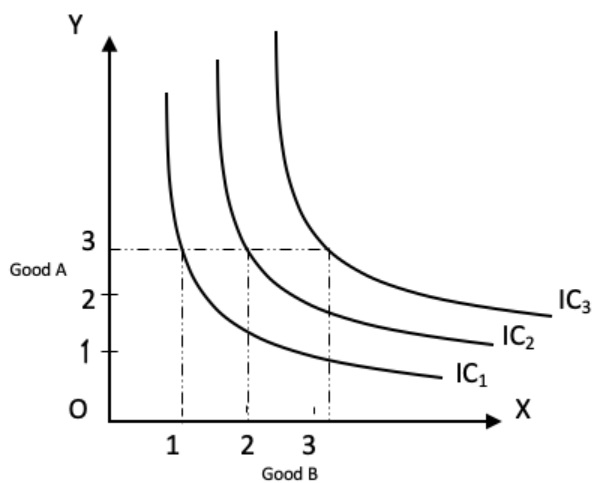
In case of PERFECT SUBSTITUTE



In Case of PERFECT COMPLEMENTARY

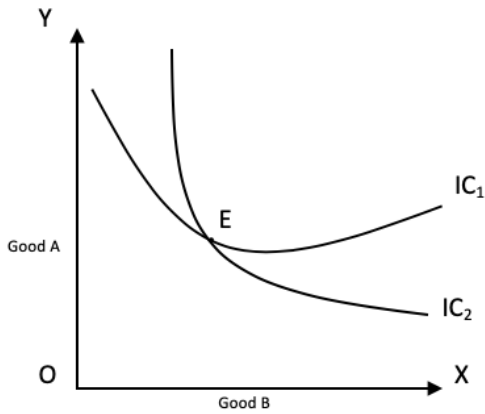


- IC Curve which is away from the origin or RHS has Higher level of satisfaction

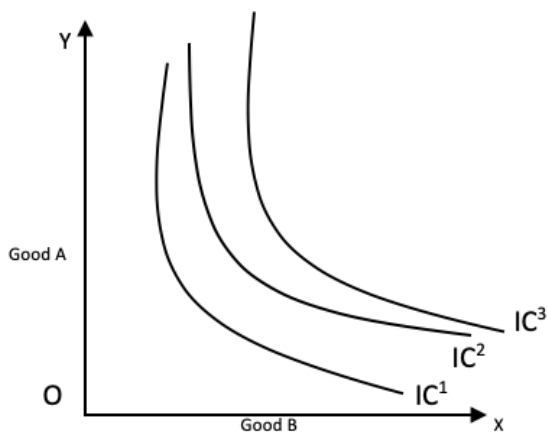


If there is more than one IC curve in a graph, we call it as Indifference map.

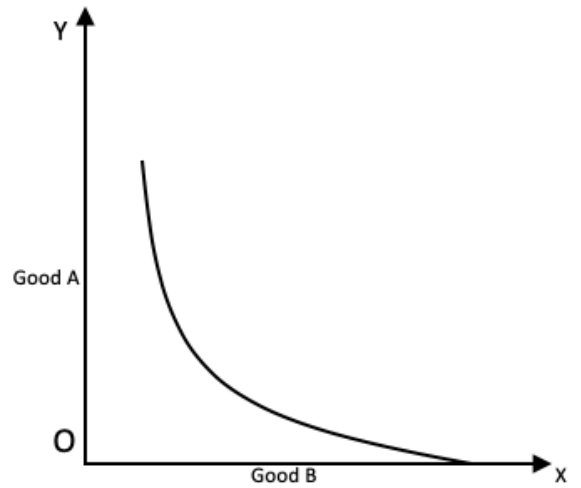
4. No IC Curve will intersect with each other,



5. IC Curve need not be parallel to each other i.e. It may or may not be parallel to each other



6. No IC Curve will touch any of its axis

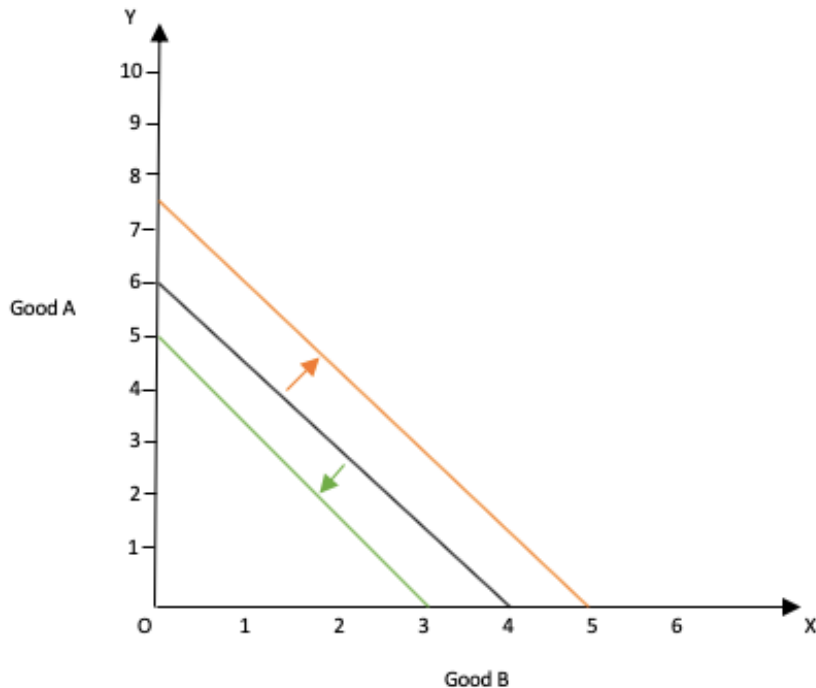


Budget line

All those combination of two commodities that consumer can buy at a given Income & Price level. It is also called as Price line or Income line.

Ex: Assuming Mr.Shashi has Rs.60 & he has to purchase commodity A & B with the existing money.
Commodity A costs Rs.10 each.
Commodity B costs Rs.15 each.

As per above mentioned income & price level, Max of 6 units of product A & 4 units of product B can be purchased. (Black line in a below mentioned graph)



Situation 1: When Income of a consumer has increased & price of a product remains same.

Income Rs.75/-
Commodity A costs Rs.10 each.
Commodity B costs Rs.15 each.

As per above situation 1, with a given income & price level, Max of 7.5 units of product A & 5 units of product B can be purchased. Budget line shifts RHS

Situation 2: When Income of a consumer is constant & price of a product has increased.

Income Rs.60/-
Commodity A costs Rs.12 each.
Commodity B costs Rs.20 each.

As per above situation 2, with a given income & price level, Max of 5 units of product A & 3 units of product B can be purchased. Budget line shifts LHS

Note: Reason for RHS & LHS in Budget line.

Right hand side shift (RHS) – Due to Increase in income or Decrease in price of a product.

Left hand side shift (LHS) – Due to decrease in income or Increase in price of a product.

Condition for Equilibrium under Ordinal approach

1. BUDGET LINE should be tangent to IC curve.
2. At the point of tangency, MRS/ROS should be equal.

