

Unit-2

Date

Consumer is one who consume goods and services for the satisfaction of his wants.

Consumer Equilibrium

Cardinal Approach
(Traditional)

Ordinal Approach
(Modern)

Consumer Equilibrium refers to a point where consumer gains maximum satisfaction from the goods or services he consumes.

Utility is the want satisfying capacity of a commodity.

Cardinal Approach

- Utility can be measured in utils (money or numbers)
- Total Utility refers to sum of all satisfaction derived after consumption of all units of a commodity
- Marginal Utility refers to change in TU due to consumption of additional units.
$$MU_n = TU_n - TU_{n-1}$$

Q	U	TU	MU
1	10	10	10
2	9	19	9
3	8	27	8
4	7	34	7

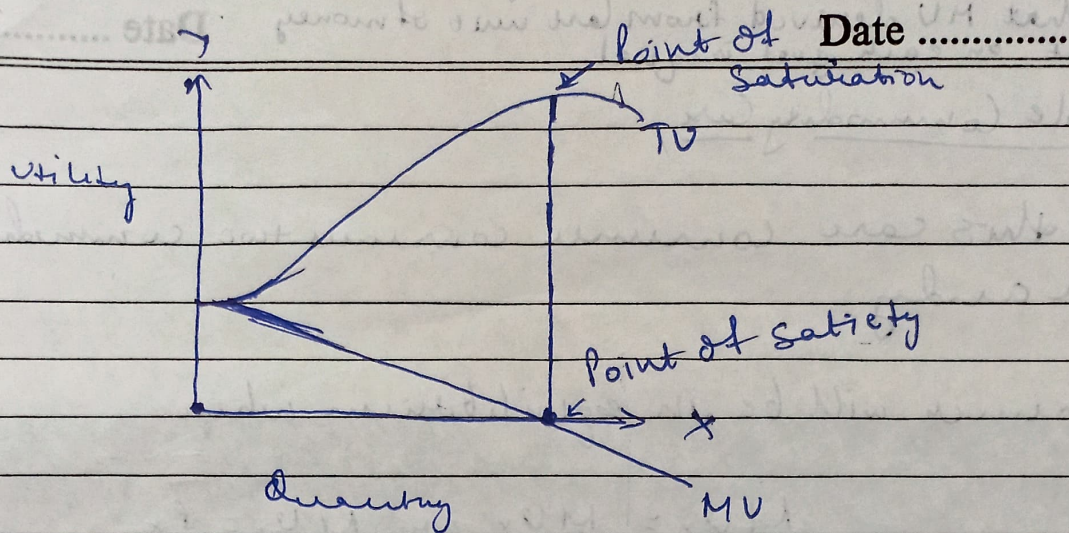
Law of DMU

- As we consume more and more units of a commodity then the marginal utility derived from each additional unit goes on diminishing.
- MU always falls until it becomes 0 and then negative.

Assumptions

1. Consumer is rational
2. Only standard units of commodity are consumed like cup of tea, not spoon of tea.
3. Continuous and consumption of homogeneous commodity, variety of commodity should not change and no gap b/w consumption.

Q	TU	MU
0	0	-
1	8	8
2	14	6
3	18	4
4	20	2
5	20	0
6	18	-2



Relation b/w TU and MU

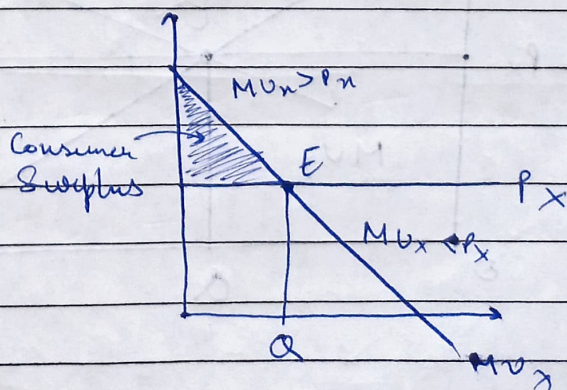
- 1) TU increase. MU is positive
- 2) As TU $\downarrow$ MU is negative
- 3) As TU is Maximum, $MU = 0$

Single Commodity Case

- consumer only consumes one commodity, x
- consumer is in equilibrium, where MU from x is equal to price of x .

$$MU_x = P_x$$

Q	MU_x	P_x
1	10	6
2	8	6
3	6	6
4	4	6



Law of Egi-Marginal Utility states that consumer should spend his money in such a way that MU derived from last unit of money spent on each good is equal.

Date

Double Commodity Case

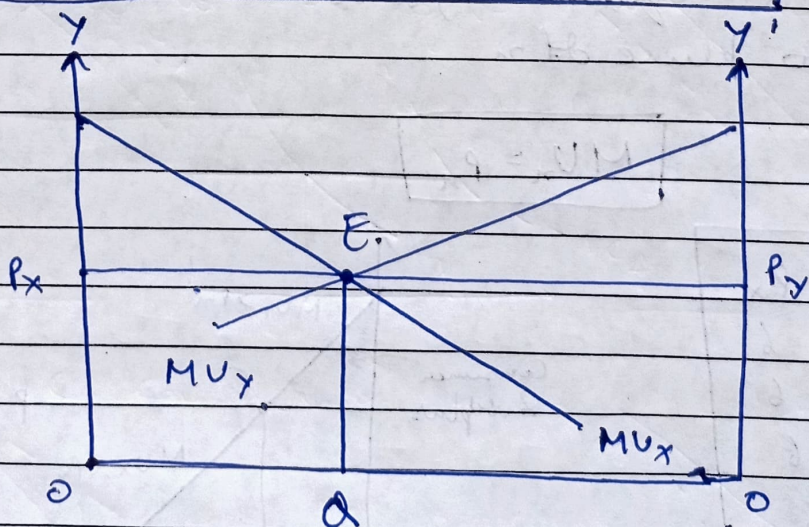
→ In this case consumer consumes two commodities namely

→ Consumer will be in equilibrium when

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

→ A consumer is in equilibrium when the ratio of ~~Marginal~~ MU of x commodity to its price is equal to the ratio of MU of y commodity to its price.

Q	P_x	MU_x	MU_y	P_y
1	4	7	8	4
2	4	5	6	4
3	4	4	4	4
4	4	2	3	4
5	4	1	2	4



if $\frac{MU_x}{P_x} > \frac{MU_y}{P_y}$

→ consumer gets more satisfaction from x and will consume more x until it decreases and $\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$

if $\frac{MU_x}{P_x} < \frac{MU_y}{P_y}$

→ consumer gets more satisfaction from y and will consume more y until $\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$

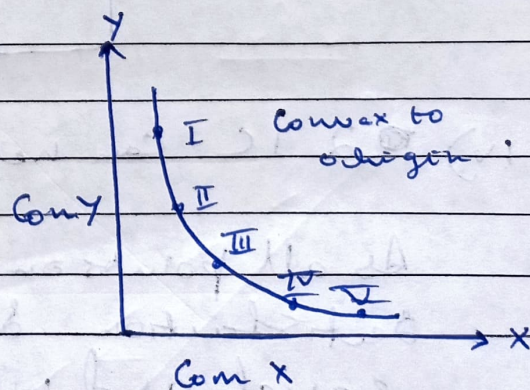
Ordinal Approach

→ Indifference curve refers to various combinations of two commodities which gives the same level of satisfaction to consumer.

Assumptions

- i) Consumer is rational
- ii) Income is constant
- iii) based on ordinal approach
- iv) consumer takes the combination of two commodities

	X	Y	MRS
I	1	15	-
II	2	11	4y:1x
III	3	8	3y:1x
IV	4	6	2y:1x
V	5	5	1y:1x



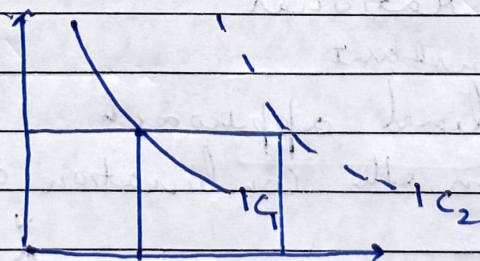
MRS: It refers to units of commodity Y forgone to obtain an additional unit of X. It falls continuously.

$$MRS = \frac{\Delta Y}{\Delta X}$$

At each level of combination i.e. I, II, III, IV or V the level of total satisfaction is equal.

Properties of IC

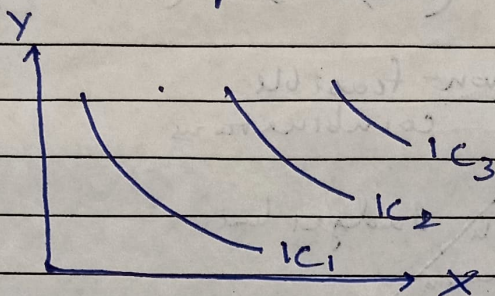
- i) Slopes downward to right or convex to origin, as a ~~unit~~ to obtain an additional unit of X some units of Y has to be given. MRS is slope of IC.
- ii) All combinations on IC gives same level of satisfaction.
- iii) IC on right side gives more satisfaction.



- iv) 2 IC can never intersect each other

As all points on IC gives same level of satisfaction. So both curves will become equal and will be same and can't intersect.

v) There are infinite no. of IC for consumer which is called family of IC or Indifference Map

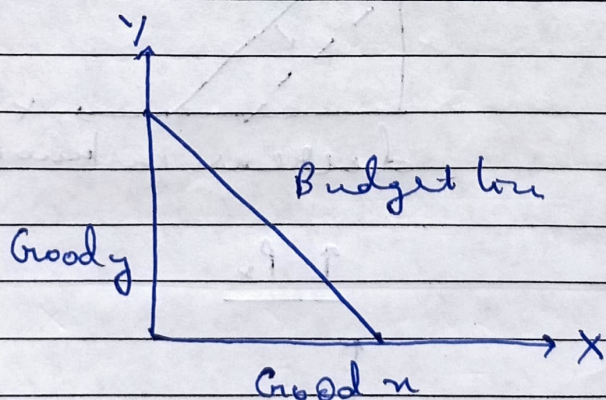


vi) ends of IC never touch axis.

Budget line

A line showing different combination of two goods which a consumer can purchase with his given income and price of good. It is also called price line.

Budget line :
$$Y = Q_x \cdot P_x + Q_y \cdot P_y$$

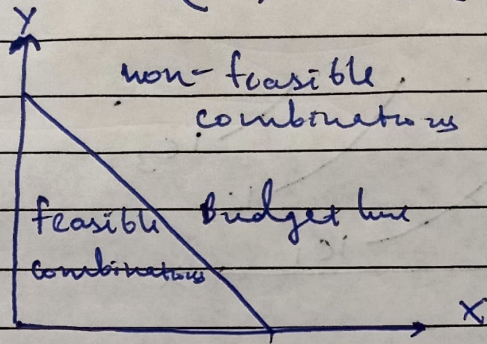


Slope : $\frac{P_x}{P_y}$

Budget Set : It refers to a set of attainable combination of two goods at given market price and income of consumer.

eg: Income is 60. Price of x is 2 and y is 1

Budget Set = $(0, 60), (10, 40), (20, 20)$ etc.

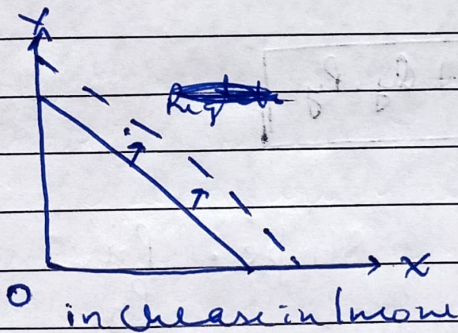


Rotation and Shift

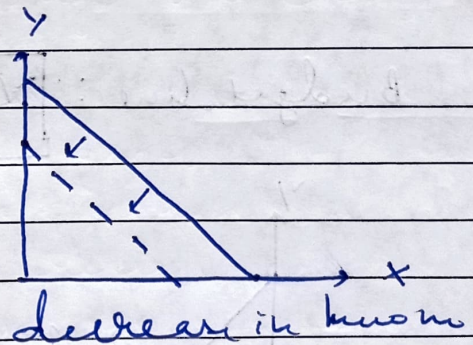
change in
1 commodity

change in both

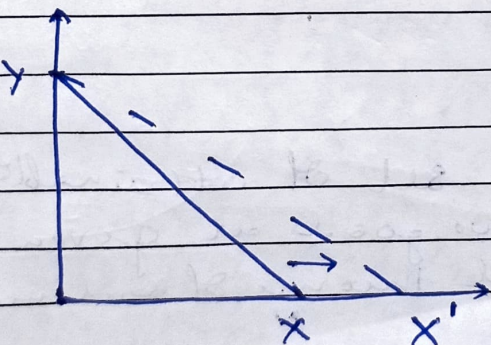
Rightward Shift



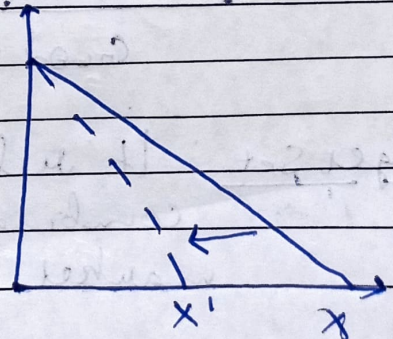
Leftward Shift



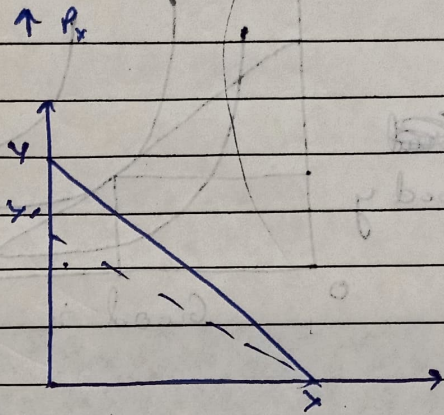
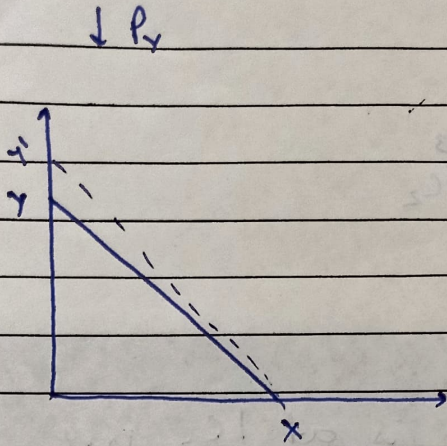
$\downarrow P_x$



$\uparrow P_x$



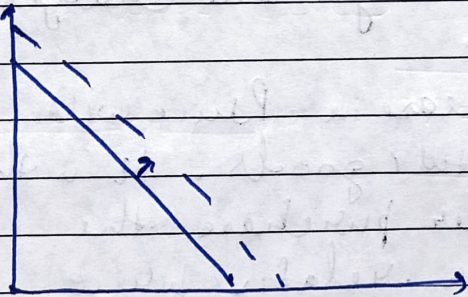
Spiral



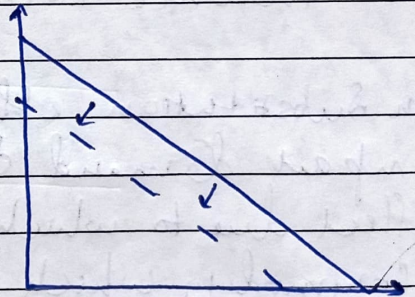
Monotonic Preference

A rational consumer would like to have more of one commodity without less of the other.

$\downarrow P_x \quad \downarrow P_y$



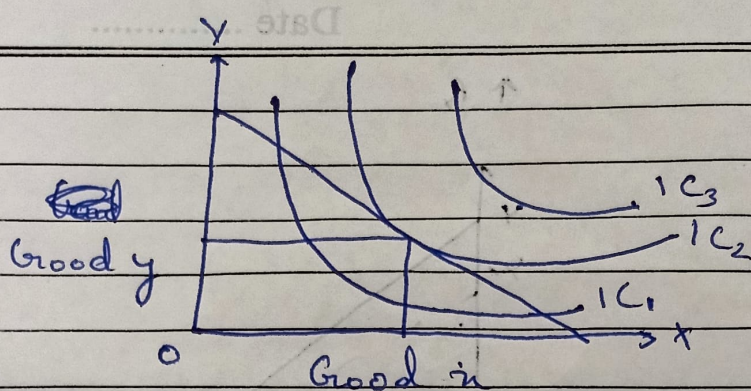
$\uparrow P_x \quad \uparrow P_y$



Consumer Equilibrium (IC)

Consumer is in equilibrium when budget line is tangent to IC, i.e. where slope of IC is equal to slope of budget line.

$$\text{Slope of Budget line} = \frac{P_x}{P_y} = MRS = \frac{\Delta y}{\Delta x}$$

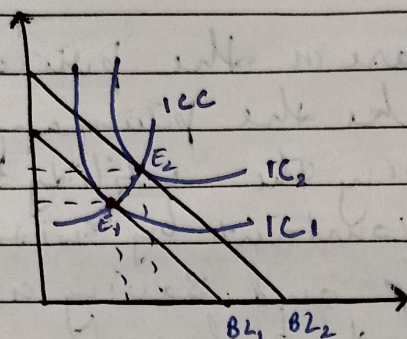


Here maximum satisfaction is at IC_2 not at IC_3 as it is not allowed by budget.

Price, Income and Substitution Effect for Normal, Inferior, Giffen Goods

- In Price effect only price of the commodities changes
- In Income effect only budget line changes
- In Substitution effect increase in price will impact demand of substituted goods. It is the effect due to which consumer purchases the commodity which has lower relative price as compared to its substitute keeping real income constant.

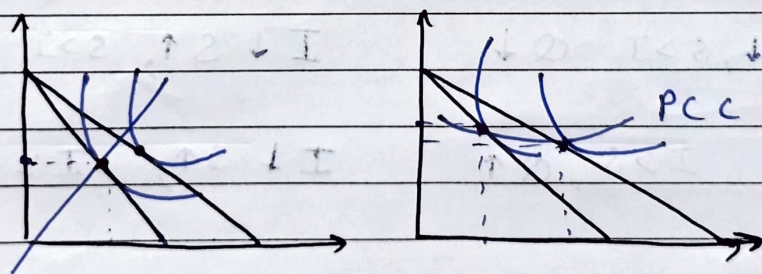
Income Effect



When income increases consumption of normal goods always increases and inferior goods decreases.

Giffen goods are necessary inferior goods and their demand decreases when income increases.

Price effect



Normal goods' consumption increases with decrease in price, same is the case with inferior goods but in case of some inferior goods which are Giffen consumption increases with price.

$$\text{Price Effect} = \text{Income} + \text{Substitution} \quad _ / _ / _$$

Substitution Effect

In this effect decrease in the price of an substitute make the primary good expensive but keeping the utility same. So, utility is kept constant by switching to cheaper good and saving a part of income shifting the budget line.

In both normal and inferior goods increase in price leads to less consumption, but not in case of Giffen goods

	$P \uparrow$	$P \downarrow$
Normal	$I \downarrow S \downarrow$	$I \uparrow S \uparrow \Rightarrow Q \uparrow$
Inferior	$I \uparrow S \downarrow, S > I \Rightarrow Q \downarrow$	$I \downarrow S \uparrow, S > I \Rightarrow Q \uparrow$
Giffen	$I \uparrow S \downarrow, I > S, Q \uparrow$	$I \downarrow S \uparrow, I > S, Q \downarrow$

