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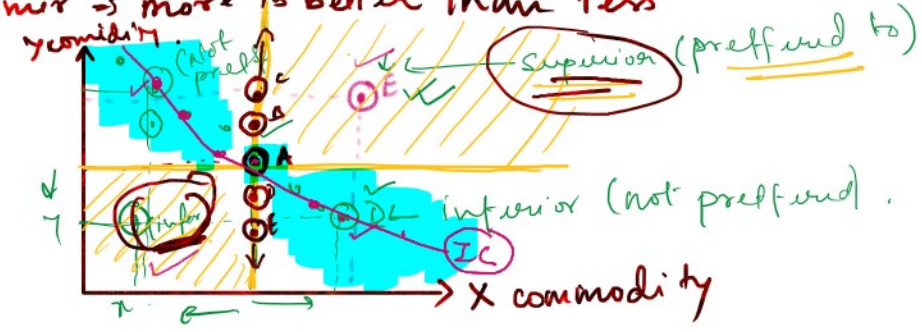
Consumer Behaviour (Revision).

Indifference curve analysis:

① for a consumer ⇒ more is better than less



② Indifference curve ⇒ utility is constant.

③ Slope of indifference curve ⇒ $\frac{dy}{dx} = -\frac{MU_x}{MU_y}$

$MU_x = \frac{\text{change in utility}}{\text{change in additional consumption of } x}$

$MU_y = \frac{\text{change in utility}}{\text{change in addition consumption } y.}$

④ What is the relation between total utility (TU) and marginal utility (MU)

⇒ when TU of x is maximum ⇒ MU of x is zero.

and when TU of x is falling ⇒ MU of x is negative.

⑤ MRS_{xy} ⇒ Marginal Rate of Substitution of X for Y.

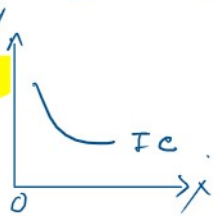
(amount of Y given up or sacrificed for one additional unit of X consumption, so that utility remains constant.

$$MRS_{xy} = \left|\frac{dy}{dx}\right| = \frac{MU_x}{MU_y}$$

⑥ Properties of Indifference curve (IC).

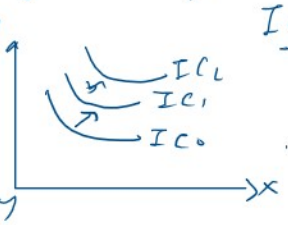
① IC is -vely sloped with $\frac{dy}{dx} = -\frac{MU_x}{MU_y} < 0$

② Due to "diminishing $MRS_{x,y}$"
IC is convex to the origin.



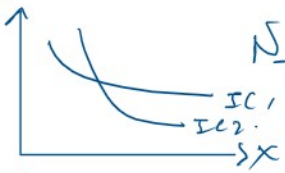
③ Higher the IC, higher is the level of utility.

$IC_2 > IC_1 > IC_0$



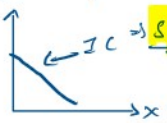
④ Two ICs cannot intersect each other.

No of possible



⑤ Shape of IC for perfect substitutes and perfect compliments

(a) perfect substitutes (Straight line ICs)



(b) perfect compliments (L-shaped ICs)

MRS = ∞ or MRS = 0

⑥ Ordinal v/s Cardinal Utility:

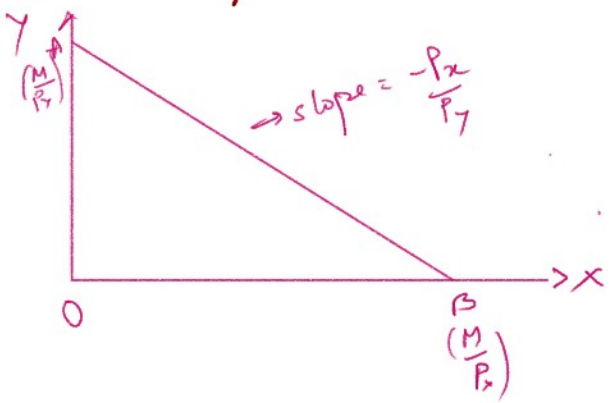
↳ numerical order of preference (Utils)

(absurd) Not possible because Satisfaction cannot be numbered.

Ordinal → Indifference curve approach.
→ preferences are ordered according to ranks. (Logical approach)

⑦ Budget Line ⇒ Locus of combination of purchase ...

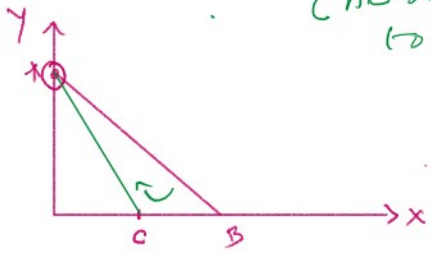
① Budget Line ⇒ Locus of combination of purchase of x and y. (when price of x (P_x), price of y (P_y) and income (M) remain constant).



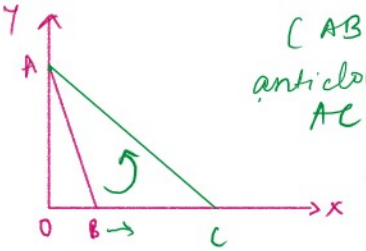
① AB → budget line
OA → consumption Y, when x=0 $= M/P_y$
OB = M/P_x = cons x, when y=0.
∴ slope of AB (budget line), $\frac{dy}{dx} = -\frac{P_x}{P_y} < 0$ (it per se ratio).

② Changes in budget line:

(a) when P_x increases.
(AB rotates clockwise to AC ⇒ new budget)

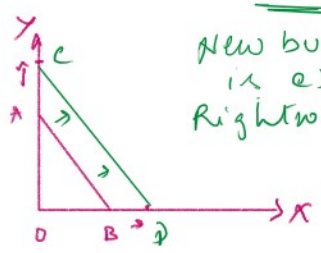


(b) when P_x decreases



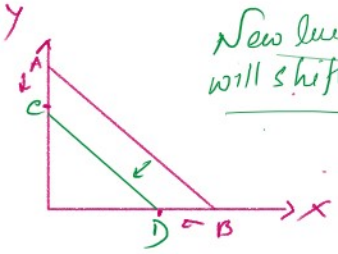
(AB rotates anticlockwise to AC ⇒ new budget line)

(c) when income (M) increases.



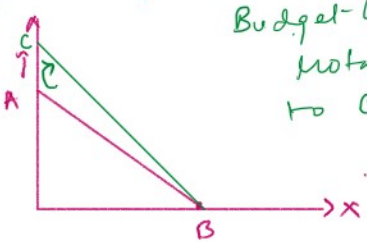
New budget line is CD. Rightward parallel shift.

(d) when income (M) decreases



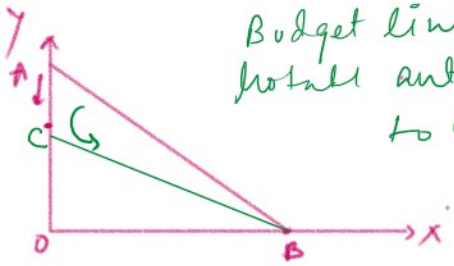
New budget line CD will shift leftwards.

(e) when price of y (P_y) decreases:



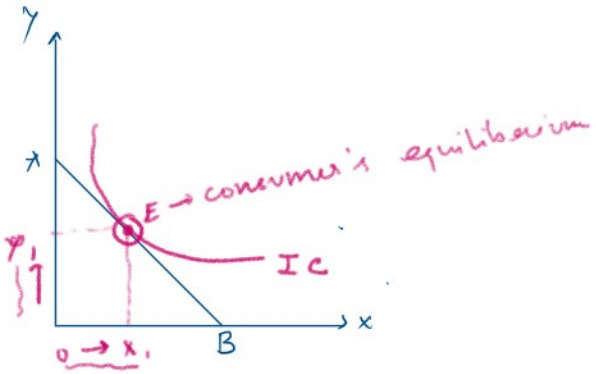
Budget-line AB will rotate clockwise to CB.

(f) When price of y decreases, (P_0)



Budget line AB will rotate anticlockwise to CB.

(8) Consumer's Equilibrium:



With given income, optimum consumption of x (i.e OX_1) and y i.e (OY_1) will give maximum utility (IC) at pt E:

The condition can be written as,

Slope of Budget line = Slope of IC

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

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

(10) Equi-marginal Principle:

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

Revision: Nominal Vs Real prices

(1) Nominal prices ⇒ not adjusted by price or inflation.
(absolute value of goods)

(2) Real prices ⇒ value of goods are price adjusted.

(3) Consumer Price Index (CPI) ⇒ Measurement of Aggregate price level.

Example: The CPI in 1970 is 38.8 and it rose to 218.1 in 2010.

Calculate the 2010 price of butter in terms of 1970 dollars.
(price of butter $3.42).

In 1970 the price of butter was

$$\frac{CPI_{1970}}{CPI_{2010}} \times \text{nominal price of 2010}$$

$$= \frac{38.8}{218.1} \times \$3.42 = \$0.61$$

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Data on Real price of Eggs
Real price of College Education.

	1970	1980	1990	2000	2010
CPI	38.8	82.4	130.7	172.2	218.1
Nominal Prices (in $)					
(a) Eggs	0.61	0.84	1.01	0.91	1.54
(b) College edu	2112	3502	7619	12976	21550
Real Prices (in $)					
(a) Eggs	0.61	0.40	0.30	0.21	0.27
(b) College edu	2112	1649	2262	2924	3837

The real prices of eggs in 1970 dollars are:

① for 1980 : Real price of eg in 1980

$$= \frac{CPI_{1970}}{CPI_{1980}} \times \text{Nominal price of 1980}$$

$$= \frac{38.8}{82.4} \times 0.84 = 0.40$$

② for 1990 : Real price of eg in 1990 $= \frac{CPI_{1970}}{CPI_{1990}} \times \text{Nominal price 1990}$

$$= \frac{38.8}{130.7} \times 1.01 = 0.30$$

Calculate real price of 1980 and 2000 w.r.t to 1990 dollar price

① Real price of eg in 1980 $= \frac{CPI_{90}}{CPI_{1980}} \times \text{Nominal 1980}$

② Real price of eg in 2000 $= \frac{CPI_{1990}}{CPI_{2000}} \times \text{Nominal 2000}$.

How can you calculate the percentage change in real prices of year 1980 and 2000

$$\%\text{ change in real price} = \frac{\text{real price in 2000} - \text{real price in 1980}}{\text{real price in 1980}}$$

Revision ⇒ Demand and Supply

(1) Law of demand ⇒ inverse relation between price and quantity demand.

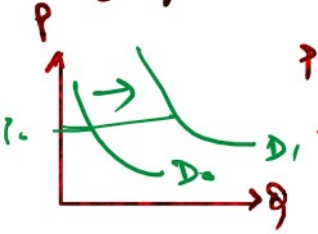
(2) Factors of demand ⇒ Price, income, taste & preference, season, Expectations etc.

(3) Shift and No shift in demand:

↓ when price is const there will be shift.

(increase in demand shifts demand to right)

(decrease in demand shifts demand to left)



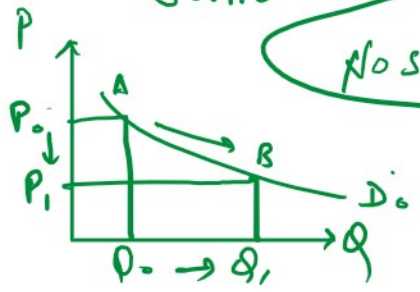
P is const at P_0 but if income ↑ ie.

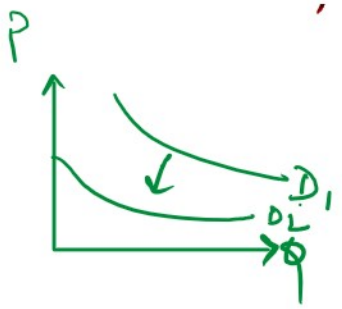
P ↑ if income increases

↓ only price will change and other factors will be constant.

(movement along the same curve)

No shift





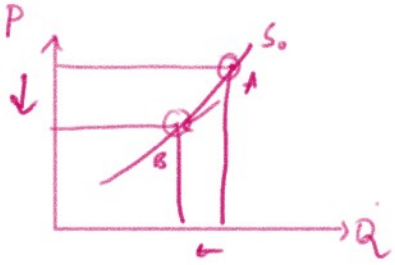
if income decreases for same price (demand will shift left)

Law of Supply ⇒ price and quantity supply are positively related!

Factors of Supply ⇒ Price, technology, cost of inputs, season etc.

Shift and No shift in supply:

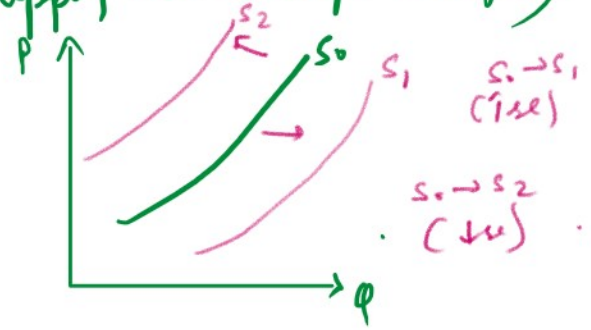
→ price is changed and other factors are constant.



→ shift

- price const
- Any other factor
  eg → technology improve.

(supply ↑ess ⇒ right shift
supply ↓ess ⇒ left shift)



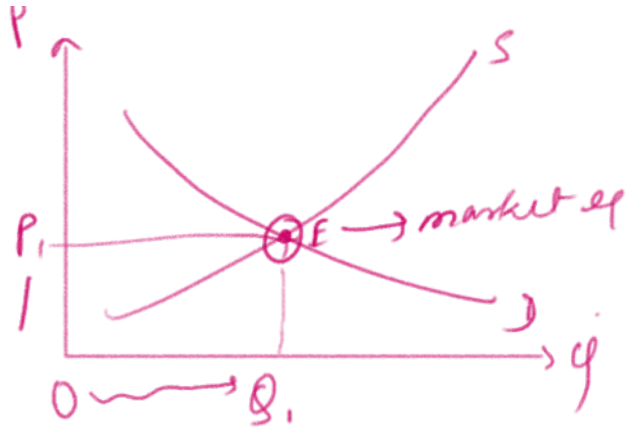
Market Equilibrium:

Demand = Supply

(No excess demand
No excess supply)

market clearance.

P ↑ S



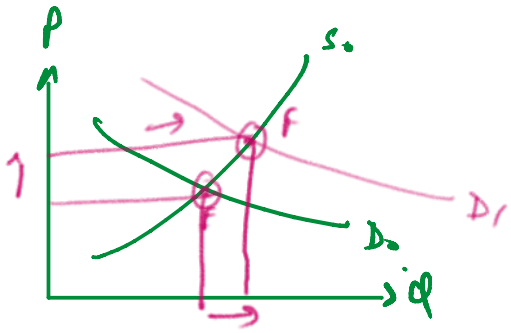
(No excess supply / Market clearance.

OQ_1 ⇒ equil quantity.

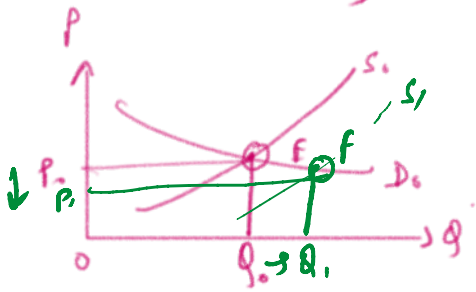
OP_1 ⇒ equil price.

Change in equilibrium

① when only demand ↑ses.



② when only supply ↑ses.



③ when both demand and supply change: