Economics Lec-2 02/08/22

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- RESOURCES are scarce! (Smith 1900 years)
- Economics → Study of how society manages scarces resources.
- GDP → Gross domestic Product.
  → total value of all goods & services (produced in a country in one year)
- Inflation → general rise in price.
- Unemployed → not being able to find job.

TEN PRINCIPLES OF ECONOMY

1) How people / individuals make decisions
2) How people / interact.
3) How Economy works.

} three themes

Theme 1:

PRINCIPLE 1 "People face trade-offs"

- Making decisions require trading of one goal with another.
- ~~Essentially it requires~~ ↑
- Efficiency and Equality - getting more benefit from society's resource while distributing those resource uniformly is equality.

PRINCIPLE 2 "Cost of something is what you give up to get it."

↑

* don't do this

PRINCIPLE #3 "Rational People always think at margin."

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- "Marginal changes" → used to describe small incremental adjustments to an existing plan of action.
- Margin means "edge" → adjustments around edges.
- Rational people compare marginal benefit & marginal cost.

PRINCIPLE #4 "People respond to incentives"

- Rewards & punishments → for what threshold. you will follow order. Like for what bene you'll obey rules or for what discount % you'll buy something.
- Coming from Pyschology.

Theme 2:

PRINCIPLE #5 Trade can make everyone better off

PRINCIPLE #6 Govt. can sometimes improve mkt. condn.

PRINCIPLE #8 A country's standard of living depends on its ability to produce goods & services.

~~Rigory~~ → Principles of Macroeconomics → Gregory

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Principle #9 Prices rise when govt prints too much money.

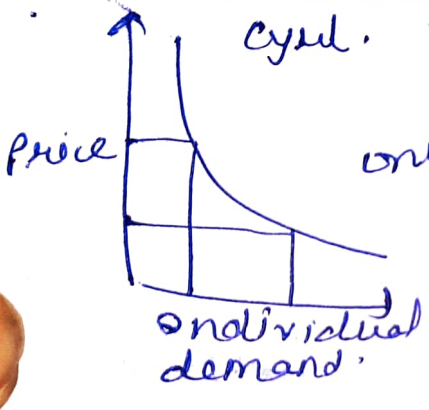
PRINCIPE #10 Socity faces a short run tradeoff b/w inflation & unemployment.

~~MODEL 1~~ → The circular flow.

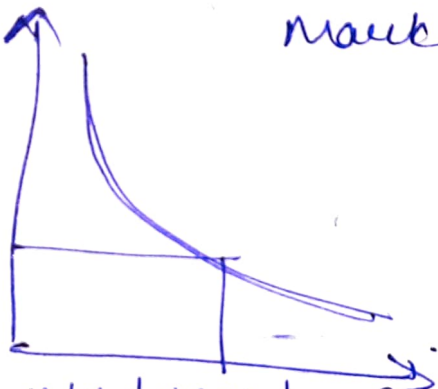
DEMAND & SUPPLY

Cyd. Law of demand.

→ will purchase higher qty only at lower prices.



Market.



Factors shifting curve.

1. Movement along demand curve due to Price changes.
2. Of demand increases / decreases, demand curves shifts.

3. Income ↑ demand ↑ demand curve shifts RIGHT.

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4. Prices of related goods.

- Price of one good ↓ → ↓ price of another good
  ↳ substitutes.
- Price of one good → ↑ demand of another goods.
  ↳ complements

5) Expectations about price, income etc. ...

6) Num of Buyers

~~Shift in demand curve~~ ⇒

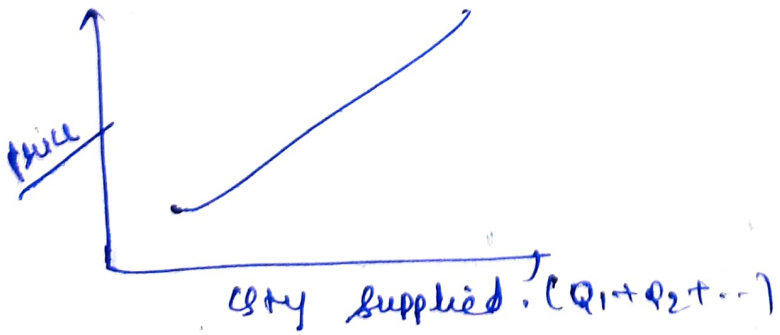
SUPPLY

* LAW OF SUPPLY

"Sellers would be willing to sell higher quantity at higher prices"

FACTORS SHIFTING SUPPLY CURVE.

- Price ↑, Profit ↑, Quantity supplied ↑
- * summing up horizontally the individual supply curve, we get market supply curve.



If price changes & supply changes, then movement along supply curve.
otherwise shift of supply curve

1) Input price ↑ → supply curve shifts LEFT
willing ↓

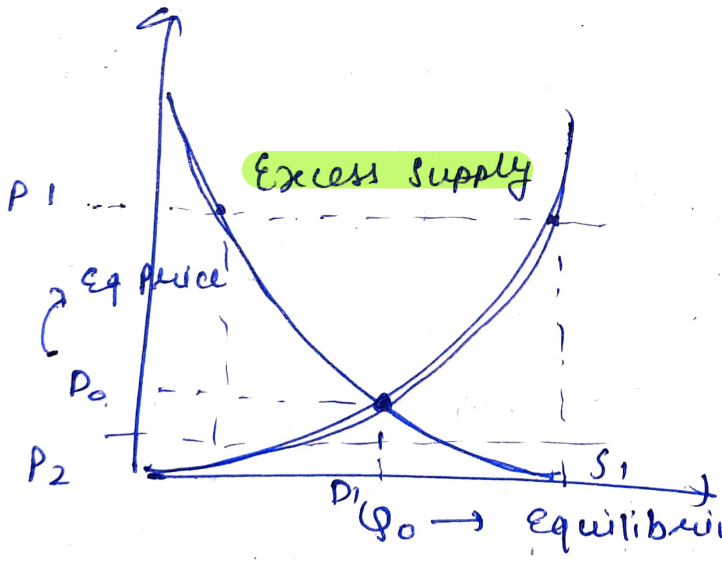
2) Technology, SC shifts RIGHT.

3) Expectations of sellers
If expectation of price high in future, seller will sell less today.

4) Number of seller.

DEMAND & SUPPLY

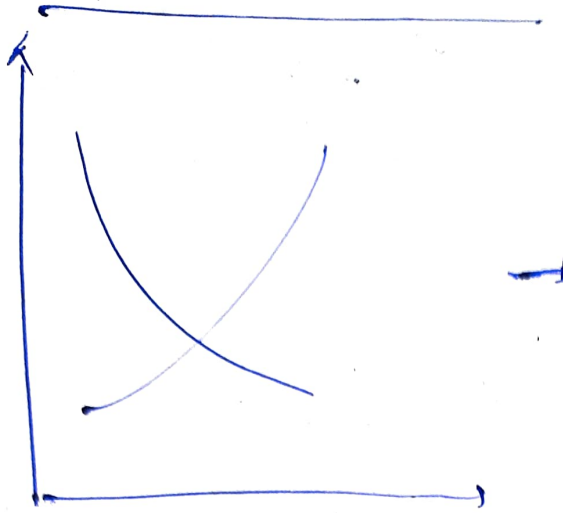
- Where supply curve & demand curve intersect that point is called equilibrium.

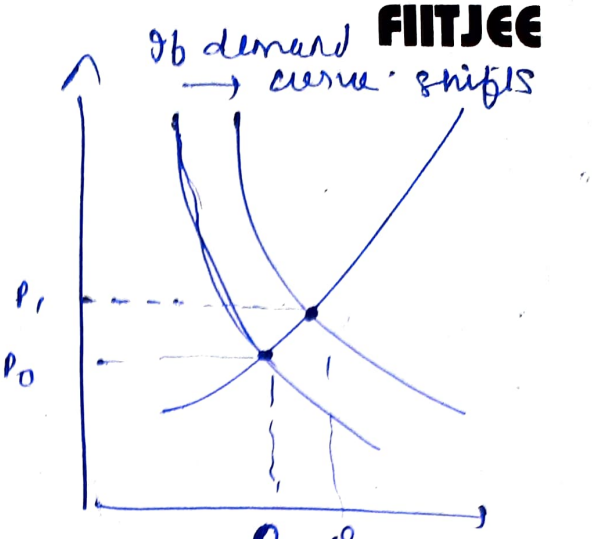


At P_1 price, $S_1 > D_1$, hence sellers will have to lower price hence shifting to eq point.

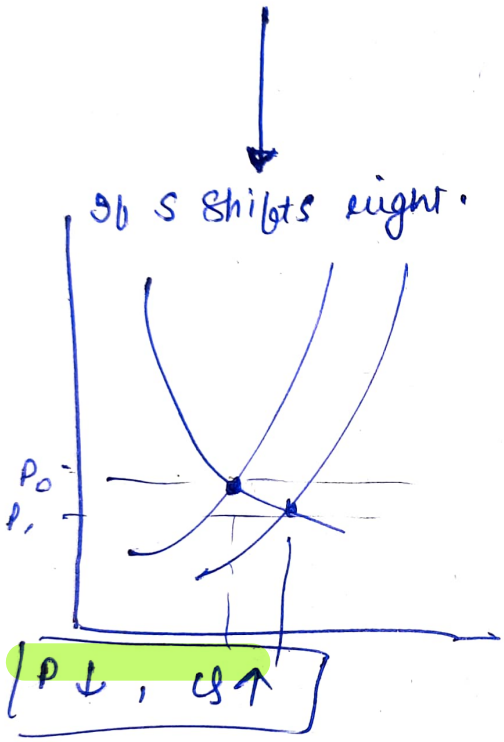
At price P_2 demand is in excess, so more sellers will shift in to move towards equilibrium.

CHANGES TO THE EQ.





Both P & Q increases



ELASTICITY → ~~Response~~ Responsiveness to price changes..

- Price elasticity → how much quantity demanded respond to price changes.
- Elastic demand → quantity demanded responds substantially to price changes.

  Inelastic " → Quan. responds very less w.r.t. prices changes.

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1) Availability of close substitute → elastic demand.
   - ~~eas~~ easier to switch.

2) Necessities v/s luxuries.
   ↳ inelastic demand ↳ elastic

EXCEPTIONS

Veblen Goods → Luxury goods

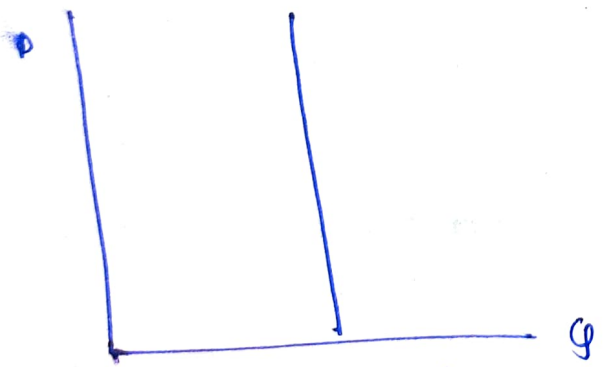
Giffen Goods → Necessary goods.

ELASTICITY

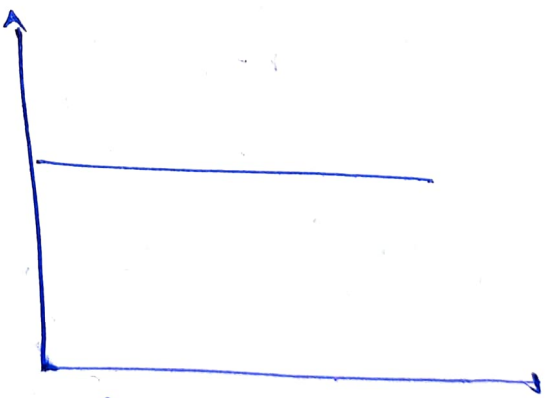
$$\frac{\% \text{ in } Q_d}{\% \text{ in price}} \propto \frac{1}{\frac{dP}{dQ}}$$

Simple Midpoint Elasticity → $\frac{dQ}{dP} \times \frac{P}{Q}$

Midpoint Elasticity → $\frac{dQ}{dP} \times \frac{\frac{P_1 + P_2}{2}}{\frac{Q_1 + Q_2}{2}}$



Perfectly Inelastic demand



Perfectly Elastic (Infinite elasticity)

Budget Line: $P_1x_1 + P_2x_2 \leq$ income (m) ——— (1)

P_1x_1 + P_2x_2 : goods consumed by consumer.

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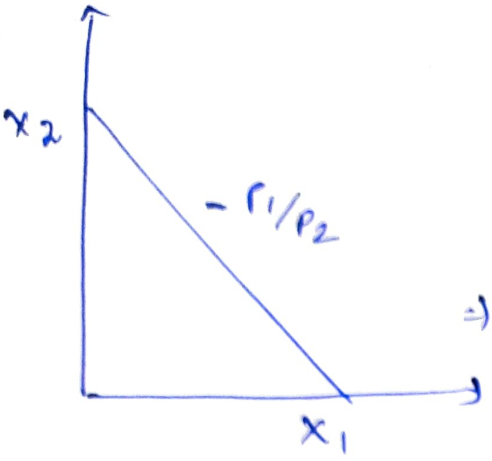


$$x_2 = \frac{m}{P_2} - \left[\frac{-P_1}{P_2}\right] x_1 \quad \text{(Budget Line)}$$

slope

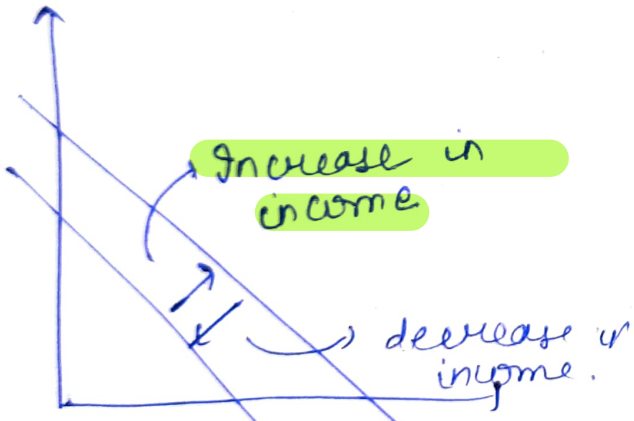
$$\Rightarrow P_1(x_1 + \Delta x_1) + P_2(x_2 + \Delta x_2) = m \quad \text{(correcting eqn)} \quad \text{——— (2)}$$

(2) − (1)

$$\boxed{\frac{\Delta x_2}{\Delta x_1} = \frac{P_1}{P_2}}$$

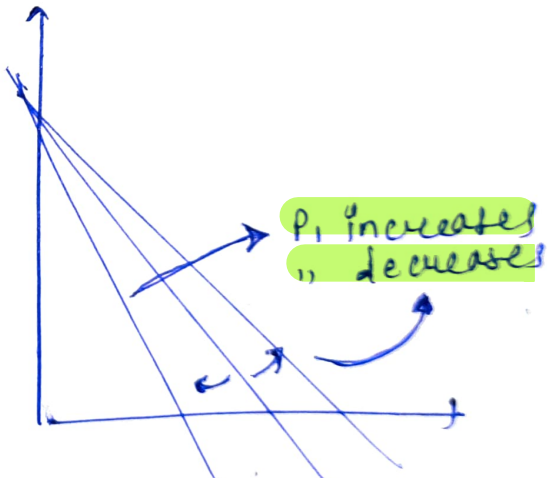
SHIFTS IN BUDGET LINE.

1)



If price increase by r factor, budget line shifts by m/r..

2)



and similar shifts happen on y axis as P_2 changes.

(*) $(x_1, x_2) \sim (y_1, y_2) \Rightarrow (x_1, x_2) \succsim (y_1, y_2)$ & $(y_1, y_2) \succsim (x_1, x_2)$

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CONSUMER PREFERENCES & BEST THINGS

- $(x_1, x_2) \succ (y_1, y_2)$ can be interpreted that consumer strictly prefers (x_1, x_2) to (y_1, y_2).
- $(x_1, x_2) \overset{G_1\ G_2}{\succ} (y_1, y_2)$ → strictly prefer.

$\sim$ → Indifferent. (Can consume any items with same of satisfaction)

(Indifference curves are v imp)

ASSUMPTIONS ABOUT PREFERENCES

1) Complete → Assume that any two diff. bundles can be compared. i.e either $(x_1, x_2) \succ (y_1, y_2)$ or $(x_1, x_2) \prec (y_1, y_2)$ or indifferent.

2) Reflexive → we assume any bundle is atleast as good as itself i.e. $(x_1, x_2) \succsim (x_1, x_2)$

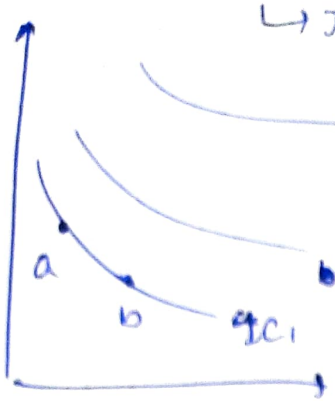
3) Transitive → If $(x_1, x_2) \succsim (y_1, y_2)$ & $(y_1, y_2) \succsim (z_1, z_2)$ then $(x_1, x_2) \succsim (z_1, z_2)$

INDIFFERENCE CURVES

→ All consumption bundles weaker than (x_1, x_2) forms weakly preferred set.

The bundles on boundary of this set forms the indifference curve.

Ordinal utility
↳ John Hicks



" Each IC represents unique level of satisfaction "

→ 'a' bundle & 'b' bundle will give you same satisfaction.

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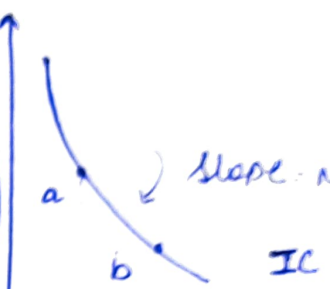
PRINCIPLES OF IC (Indifference curve)

1) They are downward sloping.

2) convex to the origin.

- Slope is decreasing. (slope → Marginal Rate of Substitution) (MRS)

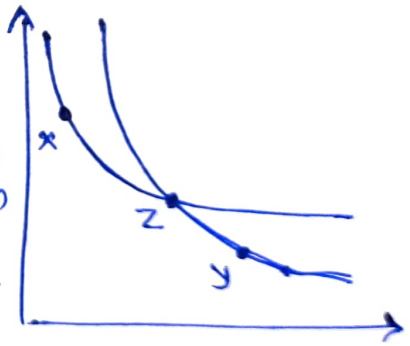


- Diminishing MRS happens because of diminishing marginal utility: → (additional utility with goods goes on declining ↑ ↓)

3) Each IC → associated with distinct level of satisfaction

4) IC curves representing distinct levels of preference CANNOT CROSS.

because, if that happens x, y, z would all have to be indifferent, ~~which means~~ they would not be on different but ICs. If they are indifferent.



EXAMPLES OF PREFERENCES

1) Perfect Substitutes.

→ IC with constant slope.

→ Consumer is willing to switch one good for another at a constant rate.

→

2) Perfect complement

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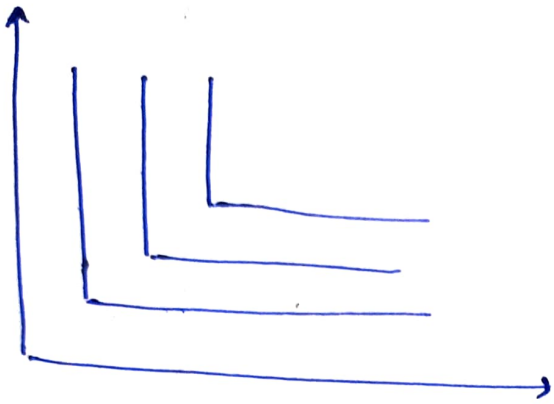
Goods consumed together in fixed proportion.

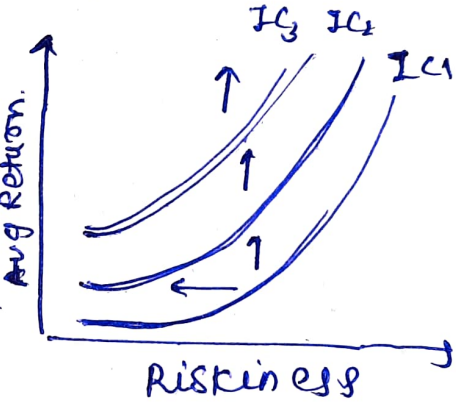


ex: Left Shoe & Right Shoe.

MRS → 0 / ∞

IC in case of BADS

- BAD → commodity that consumer doesn't like.
- Consumer preference → lesser risk & more avg return.
- If consumer is taking a higher risk, the it should be compensated by higher return.



RECAP → & some notes.

If Cross price elasticity of demand is +ve

$$= \frac{\% \text{ change in qty demanded of good}}{\% \text{ change in price of goods.}}$$

+ve → substitute

-ve → complementary

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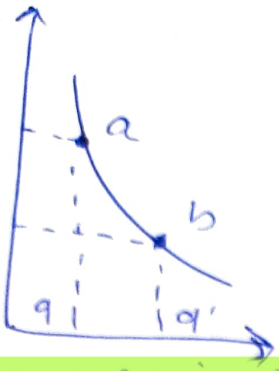
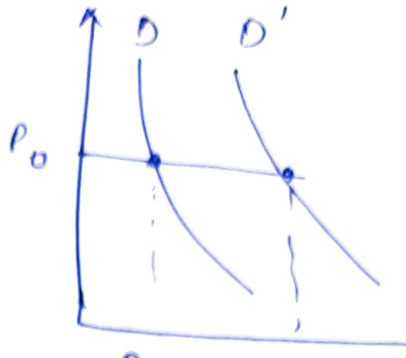
Increase in qty demand → movement along the demand curve.



Increase in qty demand.



Increase in demand.

Increase in demand → shifting of demand curve.
→ Due to many factors Ex

INCOME ELASTICITY

= % change in QD / % change in income

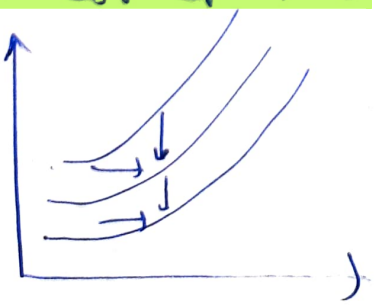
→ Neccesities → Low income elasticity demand.
Luxuries → High " " "

CARDINAL UTILITY → Alfred Marshall

→ Idea behind this is that we can attach nembers to the goods' utility.

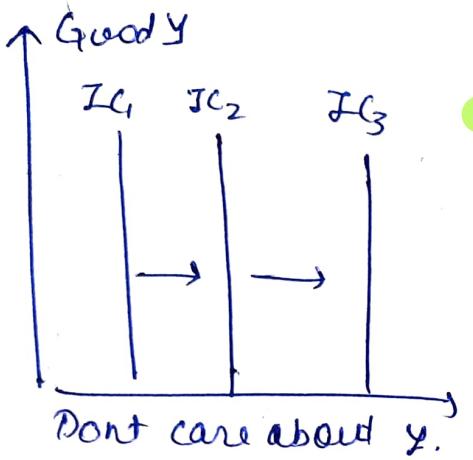
→ Diminishing Marginal Utility

IC in case of BADs



Compensation

IC in Case of Neutral Goods



Consumer doesn't care about it one way or another.

MRS (Slope) = ∞

WELL-BEHAVED PREFERENCES

1) More is better, for goods & not bads.

If (x_1, x_2) (y_1, y_2) is bundle of good with at least as much of both goods as (x_1, x_2) but more of one.

$\therefore$ $(y_1, y_2) > (x_1, x_2)$

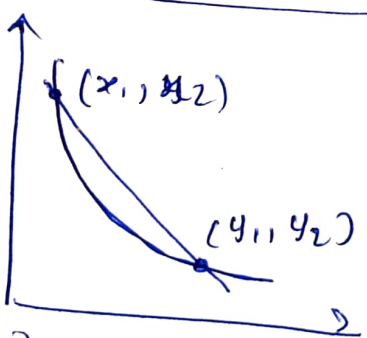
This assumption → monotonocity of preference.

i.e. if $x_1 = y_1$ & $y_2 > x_2$ then I will weakly prefer y_2. $\Rightarrow (y_1, y_2) \geq (x_1, x_2)$

2) well behaved pref are convex ~~Cover~~ Prefs

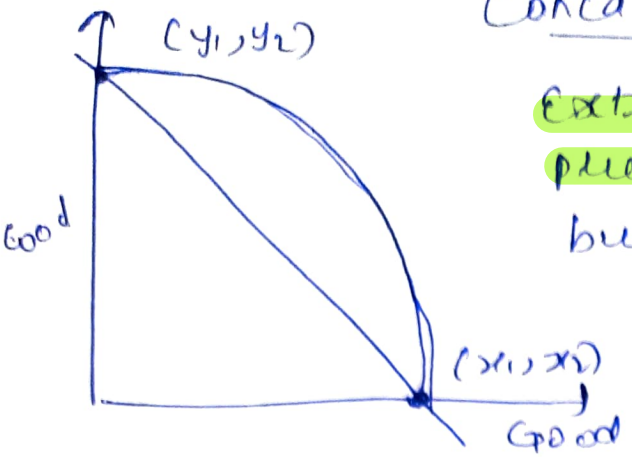
- $\frac{1}{2}(x_1+y_1) + \frac{1}{2}(x_2+y_2)$

$\geq (x_1, x_2)$ or (y_1, y_2)



"Average is atleast as good as Product"

$tx_1 + (1-t)y_1, tx_2 + (1-t)y_2 \geq (x_1, x_2)$ or (y_1, y_2).



Concave Prefs

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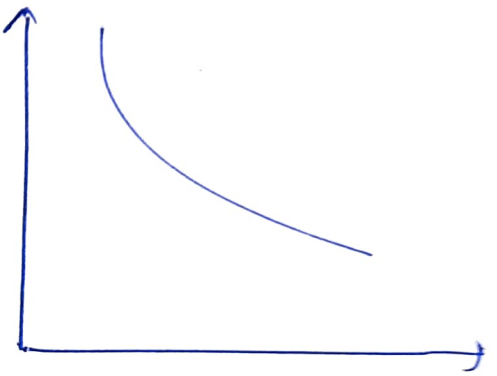
Extreme consumption is preferred in immediate scenarios but for long period of time ~~convex prefs~~ are used convex prefs.

Other Interpretation of MRS

- If good 2 represents the consumption of



MRS → marginal willingness to pay.

- marginal utility of $x_1 (= MU_{x_1}) = \frac{\Delta U}{\Delta x_1}$

$$MU_{x_2} = \frac{\Delta U}{\Delta x_2}$$

⇒ we know that along IC, $\Delta U = 0$

⇒ $MU_{x_1} \cdot \Delta x_1 + MU_{x_2} \Delta x_2 = 0$.

⇒ $\boxed{\frac{MU_1}{MU_2} = \frac{\Delta x_2}{\Delta x_1}}$ ⇒ MRS → Ratio of marginal utilities.

∴ Slope = Ratio of marginal utilities.

OPTIMUM

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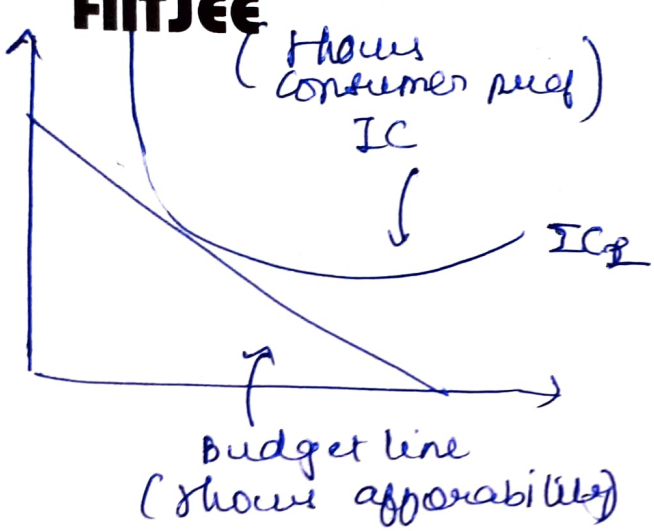
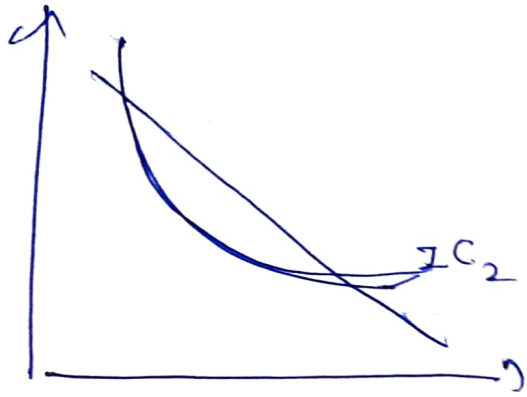
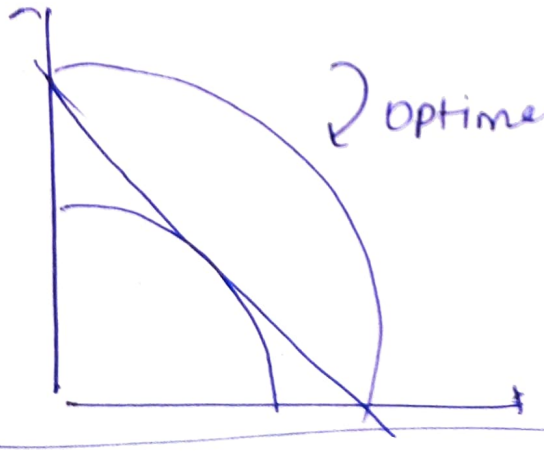




If budget line intersect IC, then we can always move it to IC such that it is tangent to some IC. which will result into optimum choice.

Optimal bundle → point of tangency

- For concave bundles



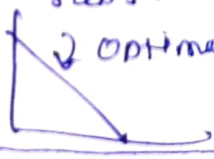
Optimal choice

↓

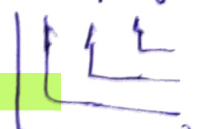
at boundary of

Concave curve.

For Perfect Subs.



For perfect comp



$P_1x_1 + P_2x_2 = m$

Hence $x_1 = x_2 = x$

$(P_1 + P_2)x = M$

$x = \frac{m}{P_1 + P_2}$

↳ Optimal

At tangent, MRS = slope of budget line

$= \frac{P_1}{P_2}$

and $MRS = \frac{MU_1}{MU_2}$

CHANGES IN CONSUMER CHOICES

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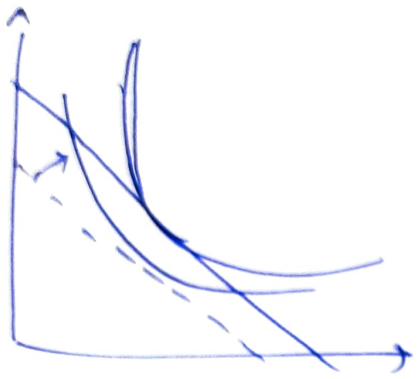
what happens to optimal bundles when price change.

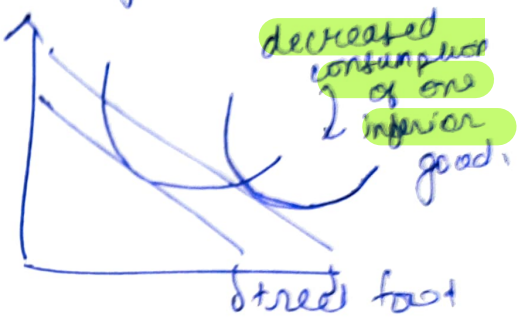
1) Increase in income.



If income ↑, consumption ↑ if they are normal goods.

and for inferior goods, consumption ↓

↳ buy



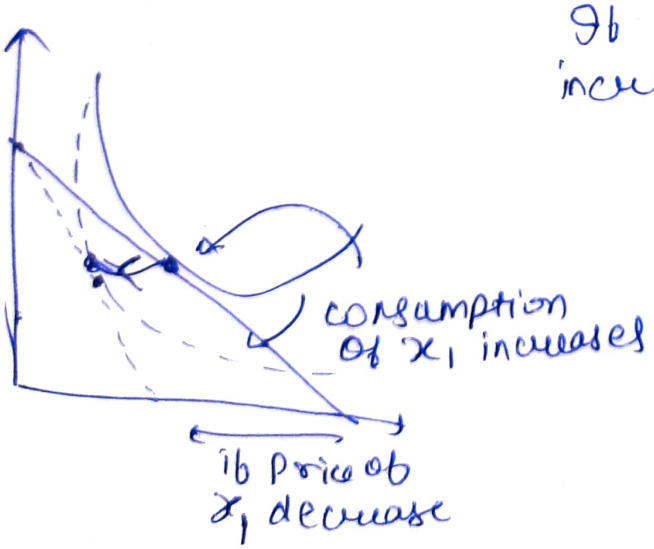
Inferior goods → goods that consumer buys less of that even if income increases.

Giffen goods → very very inferior goods. → P ∝ Q

↳ violates law of demand.

P ↑ Q ↓ P ↓ Q ↑

2) Changes in price.



If P_{x_1} ↓, consumption will increase. where x_1 = normal good.

Substitution ↓ occurs only due to changes in price

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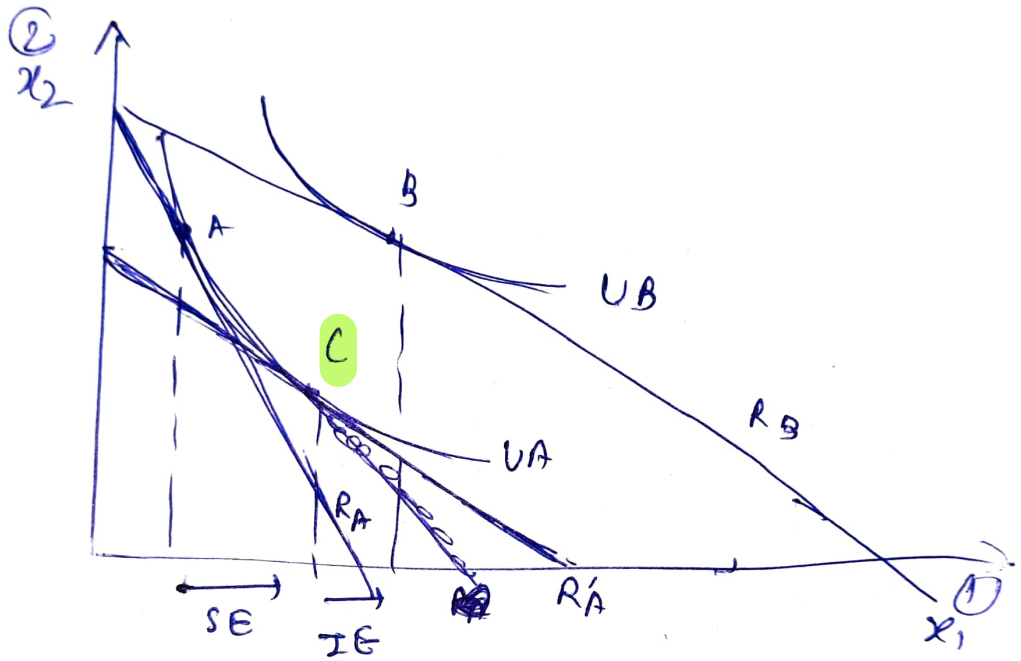
Impact of Change on goods by John Hicks

Income & Substitution Effects

- Income effect → change in welfare
  → Lower IC to higher IC

- Substitution effect → change in MRS on same IC.



If price of x_1 ↓ → we move from A to C.
(Substitution)
→ Satisfaction & utility remains same.
→ consumption of x_1 increased.

Now if income ↑ → we move from ~~B to C~~ C to B.
→ to a higher IC. U_B from U_A
→ Consumption of both goods have increased. If we compare to C. But compared to A, P_2 ↓ so 2 is inferior good overall.

For inferior goods

PE = SE + IE

↓ ↓ ↓

-ve negative positive
(as P_x ↓ Q_x ↑) (as P_x ↓ Q_x ↓)

Here neg substitution is generally very strong compared to Income eff.

For Giffen good.

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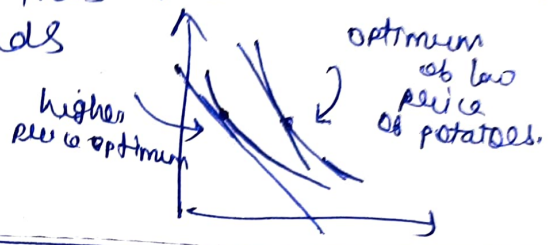
PE = SE + IE (Q_x ↓)

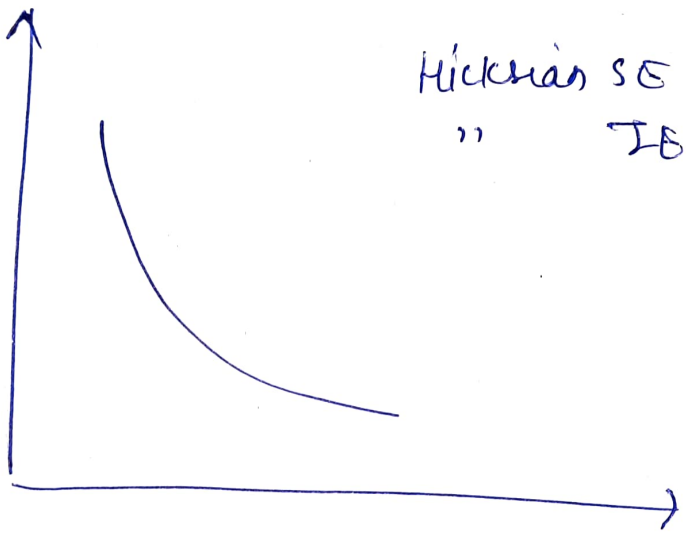
↓ ↓ ↓

+ve -ve +ve very strongly positive.

Here IE is very strong also stronger that SE. Hence this violates laws of demands



SLUTSKY DECOMPOSITION



Hicksian SE < slutsky SE

" IE > " IE

- He reduced the income to such that only original bundle was just affordable.
- Hicks' decomposition effect is lesser than slutsky effect.
- Slutsky sub eff provides consumer greater satisfaction by bringing him on higher IC whereas Hicks only

Deriving demand curve from ICs

COST OF PRODUCTION

FIITJEE

- Goal: Maximise profit.
- Revenue → Amount received from sale of output.
  Cost → Amount paid to buy inputs.
  Profit → Revenue − Cost.
- Opportunity costs → refers to all those things that must be foregone to acquire them.
  - Implicit in nature.
  - Implicit cost → Costs that don't require cash overlay.

Ex: I have to invest 3L in my company where I have 2L and borrow ~~1~~ 1L from bank at 5%.

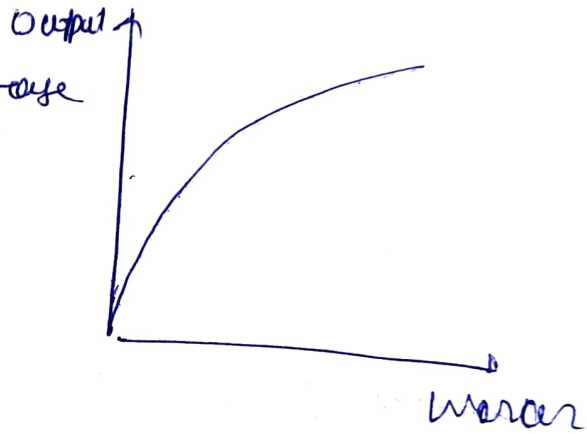
∴ 200000
10000 5% = ₹5000
↳ explicit

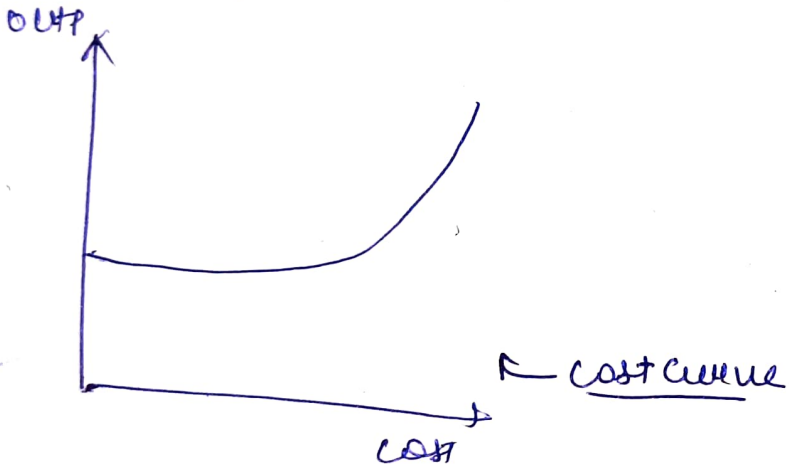
but I could have also given my ₹2L to someone @ 5% which could have earned me 10000 so. that is an implicit cost.

- Economic profit → total revenue − all opportunity costs.
- Accounting profit → total revenue − explicit costs

Production Fxn

- Relationship BTW quantity of inputs & outputs is called prodn fxn.
- Marginal Products of Labor → Increase in output due to increase in a unit of Labour.
- Due to diminishing marginal product → increase in input is leading to less & less of output.





- Fixed costs → do not vary with quantity of output produced.
- Variable costs → ~~too~~ vary with output produced.

RECAP:

- Economic Profit < Accounting Profit
  (includes implicit) (excludes implicit)
- For firm to be profitable, economic profits should be positive.

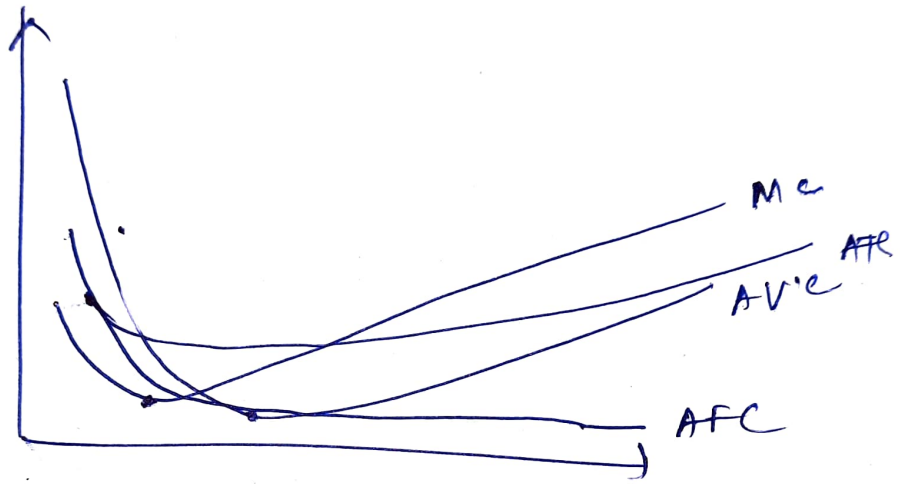
Avg total cost = cost / quantity of output.

FIITJEE

Marginal cost - total cost rise when firm increases plied by 1 unit of output.

COST CURVES AND ITS SHAPES

- Avg fixed costs always decline.
- Avg variable costs is initially ~~detu~~ decline for a while before beginning to rise.

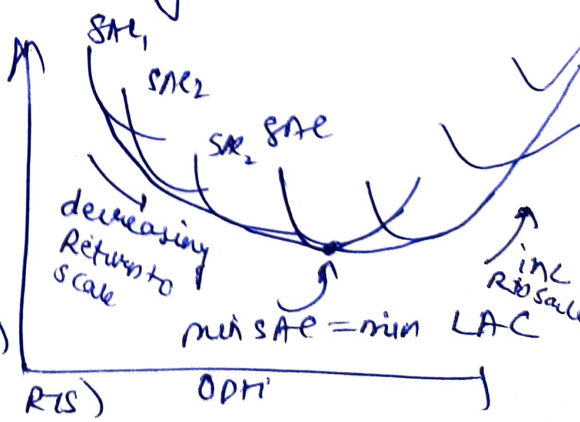


Bottom U-shape occurs at quantity that minimizes total avg cost which is also known as Efficient scale.

Short Run and Long Run Avg Costs

- SAC are also known as plant curves.
- Increasing return to scale.

~~I FFS~~ $f(2K, 2L) = 2f(K, L)$
$> $ (Increasing RTS)
$< $ (decreasing RTS)



Adam Smith ⟶ Founder of economics

$y = f(K, L)$

capital. Labour.

CRS
(Constant returns to scale)

IRS
(Increasing returns)

DRS
(Decreasing returns)

~~Interna~~ Economics & Diseconomies (AFT)

Internal External.

Competitive Markets

FIITJEE

- Market → competitive
  ie. each buyer & seller → small compared to size of market.

- Perfectly competitive → many buyers & sellers
  → Goods offered by various sellers are largely same
  → Firms can freely enter/exit market.

- Action of single seller/buyer has negligible effect on market price.
- Each buyer and ~~take~~ sellers → price taker
- Monopoly — single seller
  Mono poly — single buyer.
- For competitive firms, ~~P~~ (P × Q) is total revenue. If Q is price is fixed. If Q rises 1 unit, total revenue rises P rupees, marginal revenue equals price of good.
- ~~For~~ ~~all~~ ~~firm~~

PROFIT MAXIMISATION

(marginal revenue, marginal cost)

- MR > MC → Prod ↑
- " < " → Prod ↓
- " = " → Profit Max
-

[Graph → PPT]

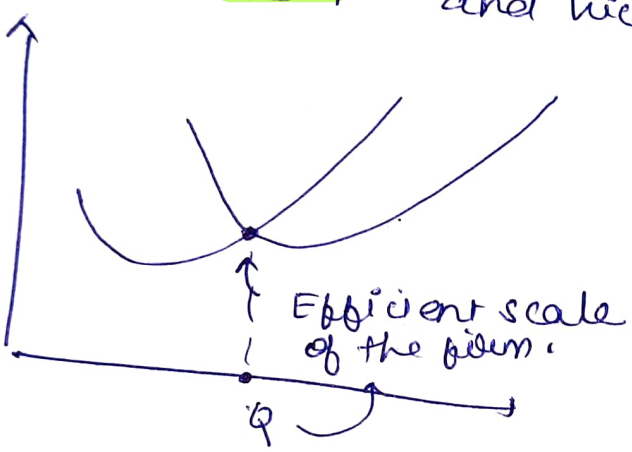
FIITJEE

SHUTDOWN

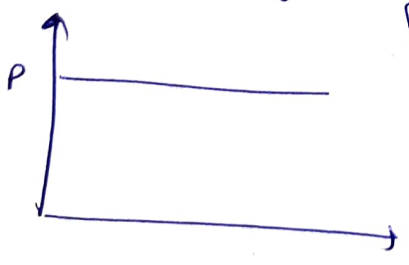
- Shut down → short run decision to not produce anything
- Exit → long run decision.

[RECAP] 05/09/22

- When MC ↑ AC ↑ and vice versa.



- Supply curve ↳ costs and Demand curve ↳ revenue.
- Few ~~or~~ Perfectly competitive.,



- In short run, $\bar{K}$ → fixed, L → variable while in long run, both are variable.
  (capital) (labour)

FIITJEE

- Shutdown → No variable costs but still fixed cost.
- Exit → No variable / fixed cost.

Four firms: 1. Competitive firms, avg revenue → price of good, marginal revenue also → price of goods

- Marginal cost curve shows the quantity supplied by the firm at any given price.

When do firm shutdown, → (total variable cost)

$$\frac{TR}{Q} < \frac{TVC}{Q} \Rightarrow \boxed{P < AVC}$$

(total revenue) (price) (avg variable cost)

Exit →

$$\frac{TR}{Q} < \frac{TC}{Q}$$

$$\Rightarrow \boxed{P < ATC}$$

price, avg total cost

∵ FC are also varying in long run.

- $TR - TC = \text{Profit}$
- $P \cdot Q - ATC \cdot Q = \text{Profit}$
- $\boxed{(P - ATC)\,Q = \text{Profit}}$

So, $P > ATC$ ∴ profit

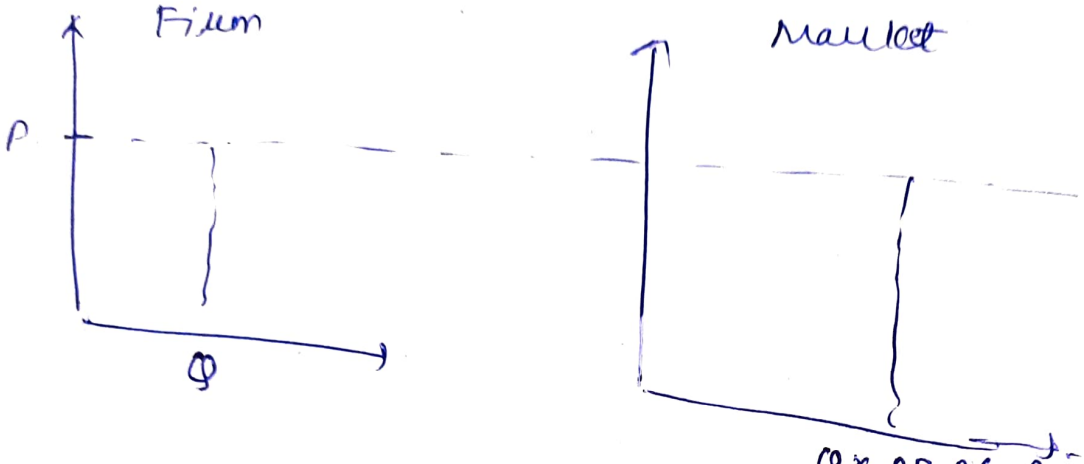
$P < ATC$, loss

Economics → scarcity

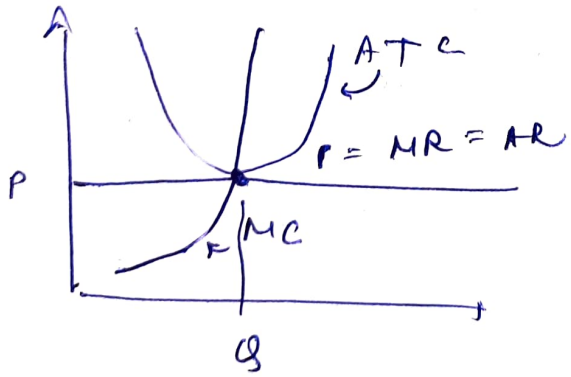
FIITJEE

MARKET SUPPLY IN LONG RUN

In short run:

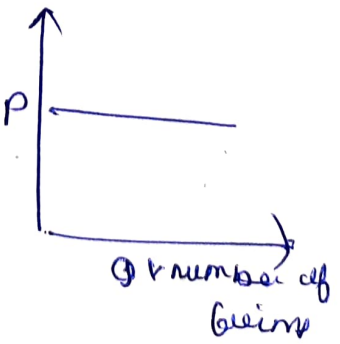


- In long run equilibrium, economic profit is zero. i.e. $P = ATC$. but accounting profit need not be zero.
  (economic profit = revenue − all opportunity costs.)
- In long run eqᵐ of comp. market with free entry & exit, firms must be operating at their efficient scale.
- In long run, price = min (ATC) since for profit maximisation $MR = MC$.



(For Firm)

long run supply curve can not



• ZERO PROFIT ⇒ (PHILLIPS CURVE)

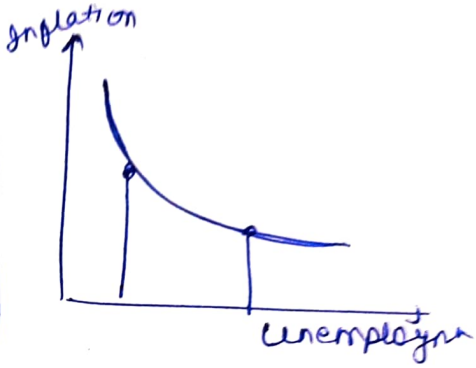
FIITJEE

In zero profit equilibrium, economic profit is zero but accounting profit is positive.

• Why long run supply curve might be upward?

i) Some resource used in prodn may be available only in some quantities.

Phillips Curve



This was valid for some 100 odd years. But around 1970s both were increasing. So same law holds for some amount of time