

Economics for Engineers (CEE)

①

- ↳ "economy" → derived from "οἰκονομία" (Greek)
one who manages
society a household)
- ↳ "Scarcity" → society has limited resources
and they cannot produce all the goods and services people wish to have.
- ↳ Resources are scarce ⇒ need to manage society's resources
- ↳ ECONOMICS:
 - Study of how society manages its scarce resources.
 - "Adam Smith" - "Wealth of Nations"
 - ↳ Economics → Science → studies the process of:
 - (1) Production
 - (2) Consumption &
 - (3) Accumulation of wealth.
 - "Alfred Marshall" - "Principles of Economics"

↳ Economics → study of men as they lead (L) }

move (M) &
think (T)

in ordinary business
of life.

(Health) → means to (human welfare)
not end

end.

→ "Lord Robbins":

↳ Economics → Science → studies

'HUMAN BEHAVIOUR' → relation b/w

ends & (Science) → which have
alternative uses.

↳ Economy → a group of people dealing
with one another as they go about
their lives.

e.g.: Economy of Los Angeles, Economy
of USA.

→ Behavior of people of the economy →
behavior of the economy.

↳ 3 categories & 10 principles

Category - 1: How People make decisions

→ Principle-1: People face trade-offs

→ Principle-2: Cost of something is what you give up to get it.

→ Principle-3: Rational people think at the margin.

→ Principle-4: People respond to incentives.

• Principle-1:

→ Making decisions requires trading off one goal against another.

→ To get sth. that we like → give up sth. else
(sth. else also like) → give up sth. else

→ Eg: ('guns' & 'butter')

defense & to)
to make guns & → ↓ butter for welfare of raising standard of living at home.

② Modern society → trade off b/w

clean environment & high pollution control

income & high cost of goods

afford to pay for cost of their work

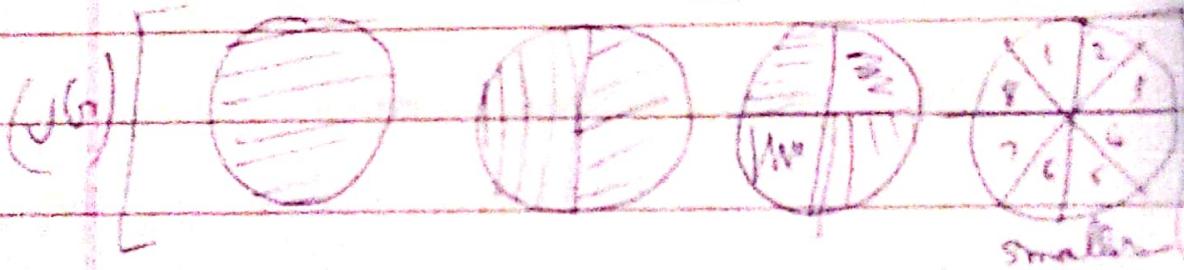
③ Equality & Efficiency

are equally benefits from the distributed Scarce resource among the members of the society.

Economic profit as it is cut ↑ to get

↑ no. of equal pieces, it gets smaller.

So, equality → ↑ ⇒ efficiency → ↓



• Graph - 2: tradeoff

→ Opportunity cost → cost of an item

= what you give up to get the item.

→ After facing trade-off → [] decision

give up []

the else

→ Eg: Classroom note book vs. bag
200 pages 100 pages

cts of paper used cts of pen
Money ↑ planet ↓

Principle-3: All of us (rational)

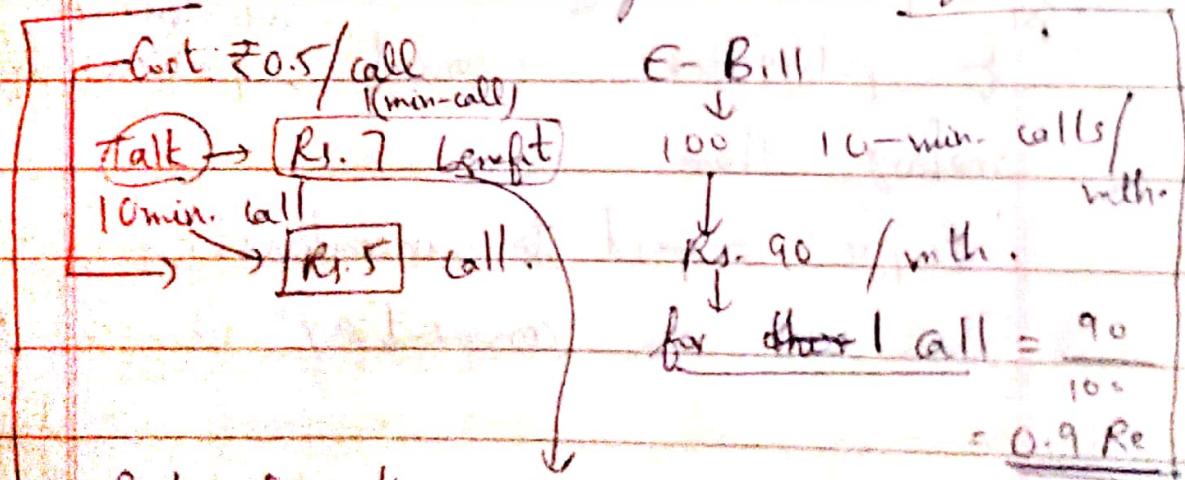
Rationalism → to make a decision

people systematically & purposefully by doing their best to achieve their objective.

→ Marginal change → small incremental change.
 (bit by bit) to make adjustment to a plan!

Ex: airlines & (diamond, water) → T.B.

Action is by rational decision-maker iff: marginal benefit > marginal cost.
 marginal thinking.



But for this call → pay ₹.5 > ₹.9

X ← X make the call

make the call → Rational

₹.7 Benefit → ₹.5 E-Bill for this call

Principle - 4:

→ incentive → sth (such as the prospect of a punishment/reward) that induces a person to act.

→ Eg ① ↑ Tax on gasoline in Europe → ↑
(bikes instead of car)

ppl. → smaller vehicles, cycles, car pooling,
stay closer to workplace.

② "Seat-belt Law" → cars → seatbelt →

↓ deaths of drivers, ↓ accidents (expected)

But → drivers → ↑ careful, fast as possible

→ pedestrians affected ↑.

③ for policymakers → consider ^{incentives of} policies before
making them.

"People respond to incentives."

The rest are commentary.

↳ Category - 2: How people interact?

→ Principle - 5: Trade can make everyone better-off.

→ Principle - 6: Markets are usually a good way to organize economic activities.

→ Principle - 7: Govt. can sometimes improve market outcomes.

Principle - 5:

MNC's, \uparrow salary,
good environment

\rightarrow Families \rightarrow compete with each other \rightarrow job,

\rightarrow shopping for best q'ty goods & services.

Cannot isolate & produce own goods for themselves \Rightarrow By trading with one another, families \rightarrow better variety of goods & services.

when A does
for ppl. \rightarrow not get off
else don't at
specia
 \rightarrow it's not bad.

\rightarrow Trade \rightarrow allows all to specialize their skills but talents \Rightarrow Better-off.

\rightarrow Countries \rightarrow Trade helps countries produce

variety of goods & services.

e.g. China & US \rightarrow same goods & services
 \rightarrow same target customers.

Principle - 6:

\rightarrow Market economy : An economy that allocates the resources through the decentralised decisions of the firms and households as they interact in markets for goods & services.

\rightarrow Centrally planned economy

Market economy

(i) Govt. \rightarrow decisions \rightarrow [Who has to produce, consume, how?, what will they produce (goods & services)]

(ii) Plans for the well-being of the society. & as a whole.

(ii) Plans for their own well-being ONLY.

(iii) Centralised.

(iii) decentralised

→ Participants in the economy → motivated by their self-interests and "invisible hand" → ^{of the market} _{place} guides these self-interests into promoting general economic wellbeing] → acc. to Adam Smith.

→ Competition among producers ⇒ better outcome in markets to consumers.

Eg: Uber app vs other taxis
→ anytime (late night) → preplanned rides
→ low cost
→ Surge pricing
(↑ cost at sometimes)
→ save time
looking for
taxis
→ safety

Principle-7:

→ Market economies ~~need~~ institutions to enforce ^I
property rights → (ability of an individual to own & control scarce resources)

Eg: (1) Film → illegally sold ⇒ loss for the producers.

(2) Restaurant → serve meals ⇒ customer MUST pay before leaving.

(3) Farmers → produce → crops → MUST NOT be stolen.

→ Govt. → police & courts to enforce our rights on what we produce.

Invisible hand counts on our ability to enforce those rights.

(II) To promote: efficiency / equality

↓
 market failure
 (A situation in which a market economy fails to allocate resources efficiently)
 ↓
 invisible hand rewards markets producing goods people love to pay for.

Externality

(Pollution)

avoid health & envir. hazards → no need to pay compensation

Market Power

one well in a village

owner charges ↑ for every pot taken.

Equality → basketball match cricket match
+ audience

→ invisible hand → cricketers earn ↑
X bothered if anyone + food, water etc.

Inequality & govt. should intervene

↳ Category -3 : How the economy as a whole works →

→ Principle -8 : A country's standard of living depends on its ability to produce goods and services.

→ Principle -9 : Prices rise when govt. spends ^{prints} too much money.

→ Principle -10 : The society faces a short-run trade-off b/w inflation and unemployment.

• Principle -8 :

↳ Different countries have different standards of living → income.

Eg: In 2014, avg. American income → \$ 57000.
" " " Nigeria income → \$ 6000.

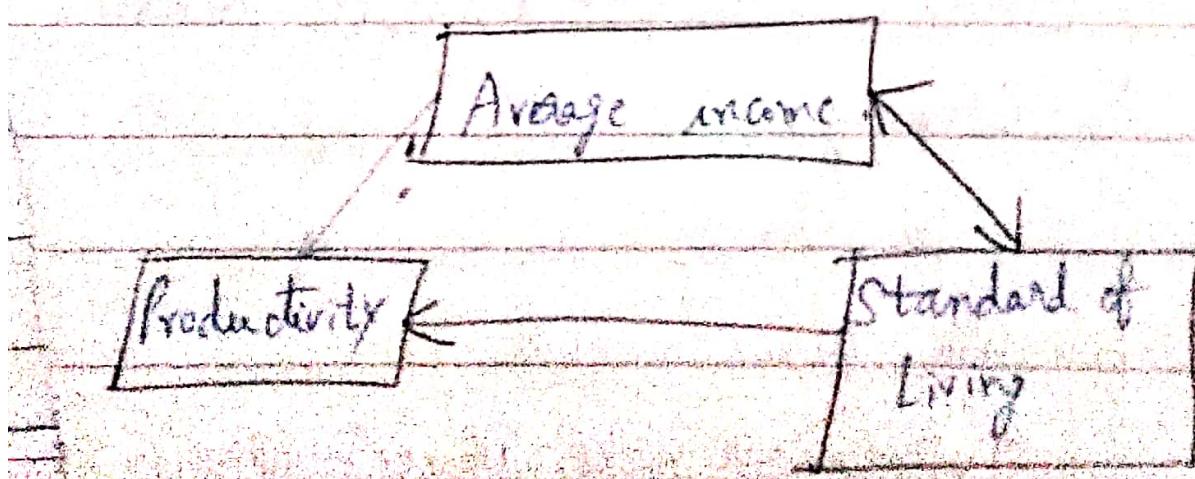
More the income, more the goods & services produced \Rightarrow ↑ better nutrition, ↑ no. of cars, better healthcare & thus ↑ life expectancy \rightarrow happy life in these countries.

\Rightarrow better std. of living in these countries.

[due to better productivity] \rightarrow [amt. of goods & services produced by each labor input.]

↳ Variations in the std. of living across countries \Rightarrow affects its productivity.

↳ Growth rate of a nation's productivity determines growth rate of its avg. income. \Rightarrow Productivity & std. of living are interrelated.



Principle - 9:

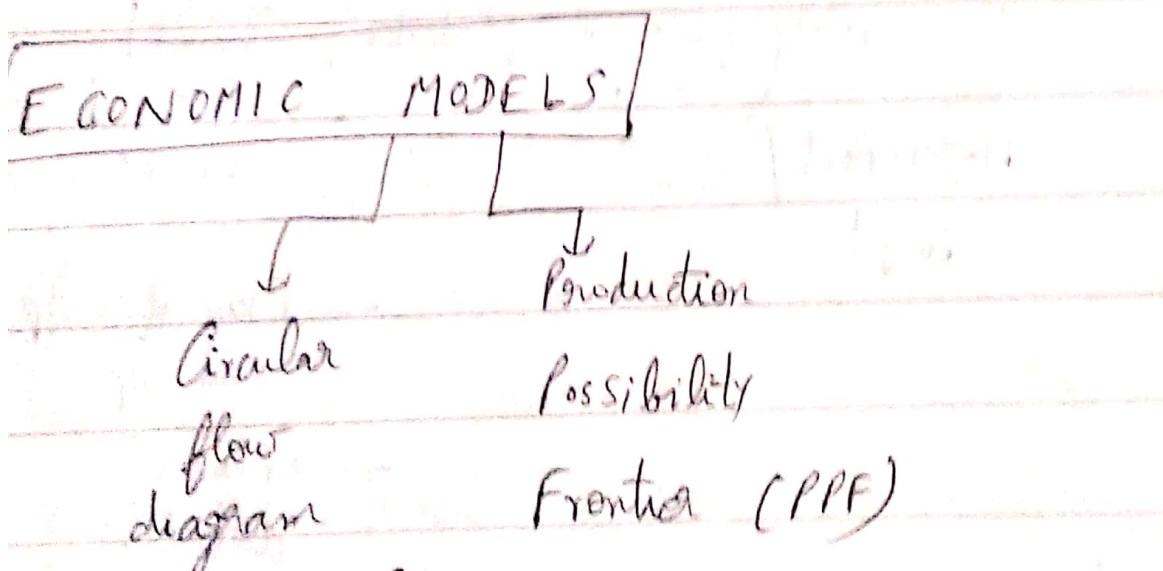
- When Govt. prints too much money
 - ⇒ qty. of nation's money \uparrow^{sets} \Rightarrow value of the nation's money \downarrow^{sets} \Rightarrow prices \uparrow
 - Causes inflation [increase in the overall level of prices in the economy].
 - Eg: ① USA → \uparrow inflation in 1970s.
↓ inflation in 1980s.
higher growth in qty of money:
in the qty of money.
 - ② 1921 \rightarrow newspaper \rightarrow \$ 0.30 marks
1922 \rightarrow " \rightarrow 70,000,000 marks
- Germany.

Principle - 10:

Inflation \Rightarrow goods prices $\uparrow \Rightarrow$ demand for goods $\uparrow^{\text{sets}} \rightarrow$ firms hire \uparrow workers and supply

goods and services) lower unemployment
 ↳ policymakers → change the amt. that the Govt. spends, taxes, borrows → change the overall demand for goods & services. Thus, they can ↓ unemployment wherever necessary.

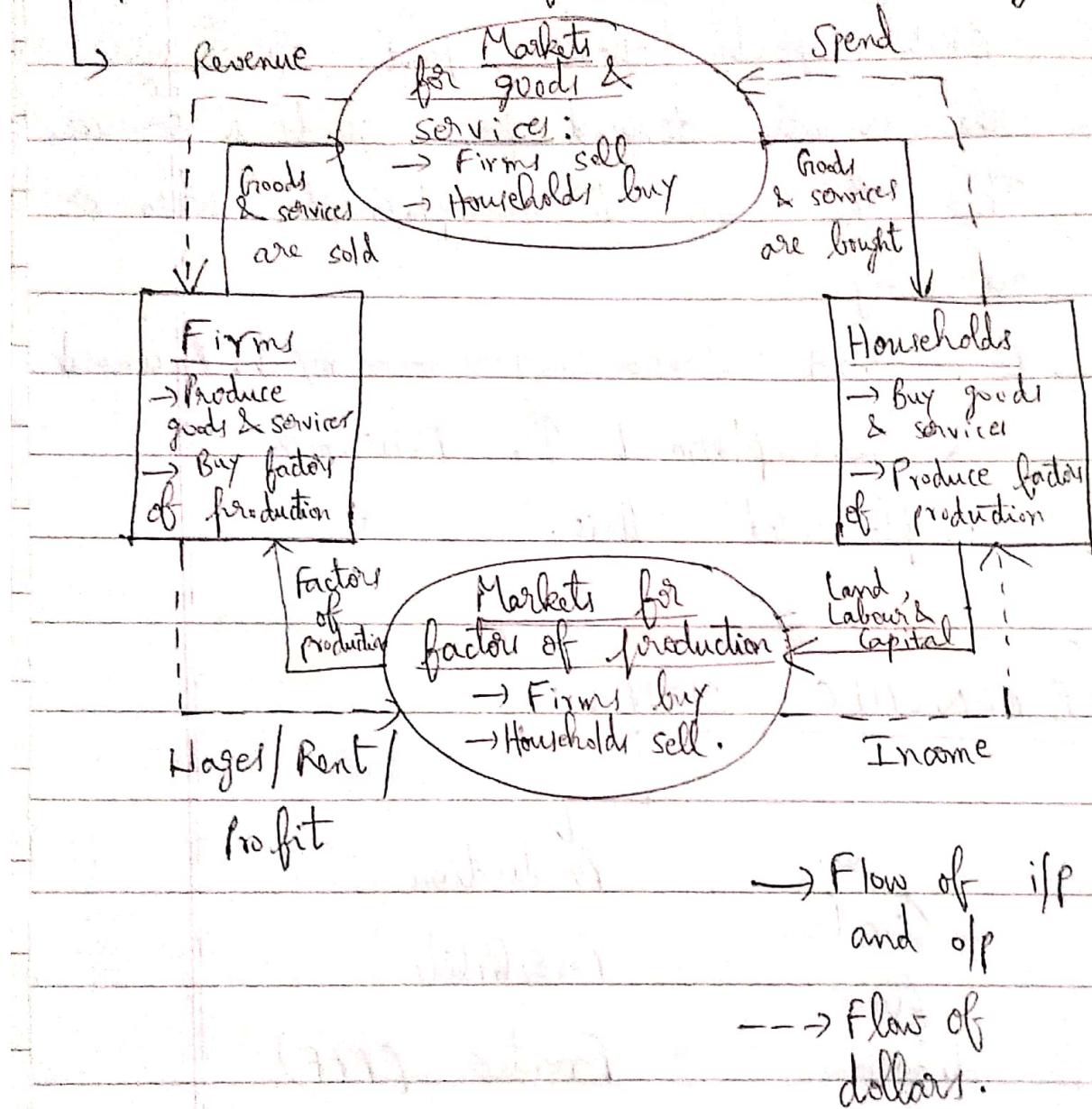
→ Eg: USA → 2008 & 2009 → economy ↓, Incomes ↓ & unemployment ↑. Policymakers implemented this.



① Circular flow diagram:

↳ A visual model of the economy that shows how dollars flow through markets among households & firms.

↳ shows the economic transactions occurring b/w households & firms in the economy.



↳ Eg: Paying in a coffee shop.

↳ Explanation (detailed) → refer Pg-52 of T.B.

(How to draw)

i/p → firm

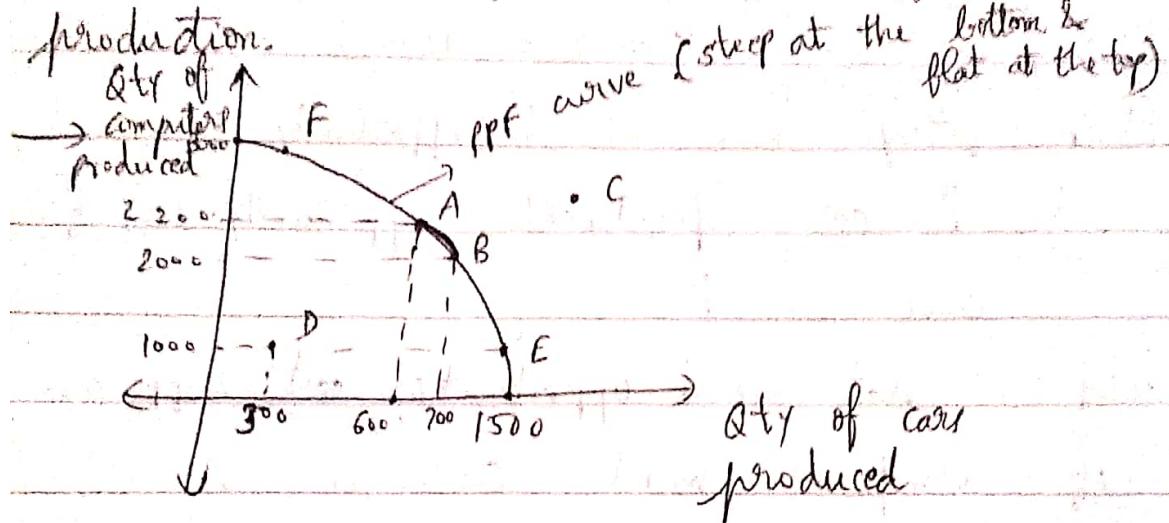
o/p

Trade-off, efficiency, opp. cost, economic growth.

(15)

Production Possibilities Frontier (PPF):

→ Graph showing the possible outcome an economy can produce when provided with all production technologies & factors of production.



→ To produce:

- ↑ cars → give up computers
- ↑ computers → give up cars

Trade off

Reason: hire autoworkers → produce cars not much computer knowledge.
hire computer technicians → not good at producing cars!

- Points on PPF curve; A, B
- " efficient points as scarce resources used max. to produce the best outcome possible.

- inside PPF curve
 → D → inefficient point → due to unemployment.
 ↳ All resources not used to max. to produce the best outcome.
- C → impossible point (bcz endpoints = 3000 computers and 1500 cars MAX.)
 PPF curve is
- E → step here $\Rightarrow \uparrow$ opportunity cost.
 ↳ \uparrow cars produced \Rightarrow opportunity cost of cars is \uparrow .
- F → flat $\Rightarrow \downarrow$ opportunity cost \Rightarrow opp. cost of computers w.r.t. cars is \uparrow .
 ↳ \uparrow computers produced here.
- A, B \rightarrow b/w E & F.
 ↳ A to B \rightarrow slope of PPF curve = opportunity cost.
- Eg: A to B \Rightarrow opp. cost = $2200 - 2000 = 200$ computers to produce 100 cars.
- Economic growth of nation $\uparrow \xrightarrow{\text{Set technology}}$
 when computer advancements $\rightarrow \uparrow$ no. of computers manufactured:

