

→ NEED OF MACROECONOMIC THEORIES

→ OBJECTIVES

- economic growth
- high level of employment
- stable prices

→ INSTRUMENTS (used by govt. to control the economy)

- Monetary policy (RBI controlled)
- Fiscal Policy (Tax policies)
- Trade policy (control on import / export)

→ TYPES OF MACROECONOMIC VARIABLES

- Variables in current versus constant prices
- current prices ("nominal") : variable measured in current rupees
- constant prices ("real") : corrected for inflation

NOTE: Inflation: The rate at which prices rise.

- Important price indices in India

- GDP deflator: average value of prices in a given year covers all goods and services included in GDP.
- Wholesale Price Index (WPI) :
- Consumer Price Index (CPI)

NOTE: Current WPI and CPI base year: 2017

→ NATIONAL INCOME

MAIN MEASURE: GDP

- GDP: The value of all final goods and services produced for the marketplace during a given time period within a country's borders.

products outside borders
are counted in GNP not GDP

e.g. we will count bread since it's a final product but not the wheat used to make it

mom's care for you when you are sick is not a marketplace service

Key concepts

- Value: market prices or factor cost
- Final vs intermediate goods (minus)
- Value added: Sales receipts less purchase of intermediate goods (avoid double counting)
- Existing vs new ("produced")
- for the marketplace
- "given time period" usually annual or quarterly
- "within a country's borders" vs "by a country's nationals".

- Components of GDP:

$$GDP = C + I + G + (X - Im)$$

↓ ↓
 Contri.
govt.
Spends exports

Imports

- CALCULATING NATIONAL INCOME

- $GNP = GDP + \text{factor payments from abroad} - \text{factor payments to abroad}$
- $NNP = GNP - \text{Depreciation} \rightarrow \begin{matrix} \text{cost of} \\ \text{wear & tear} \\ \text{of machinery.} \end{matrix}$
- $NNP = \begin{matrix} \downarrow \\ \text{net} \\ \text{national} \\ \text{product} \end{matrix} \quad \begin{matrix} \downarrow \\ \text{gross} \\ \text{national} \\ \text{product} \end{matrix}$
- $NI = NNP - \text{Indirect Business Taxes (or sales tax)}$
- $\text{Personal Income} = NI - \text{social insurance contribution} - \text{Net Interest} + \text{Dividends} + \text{Govt. Transfers to indiv.} + \text{personal interest income.}$
- $\text{Disposable income} = NI - \cancel{\text{Personal Income}}$

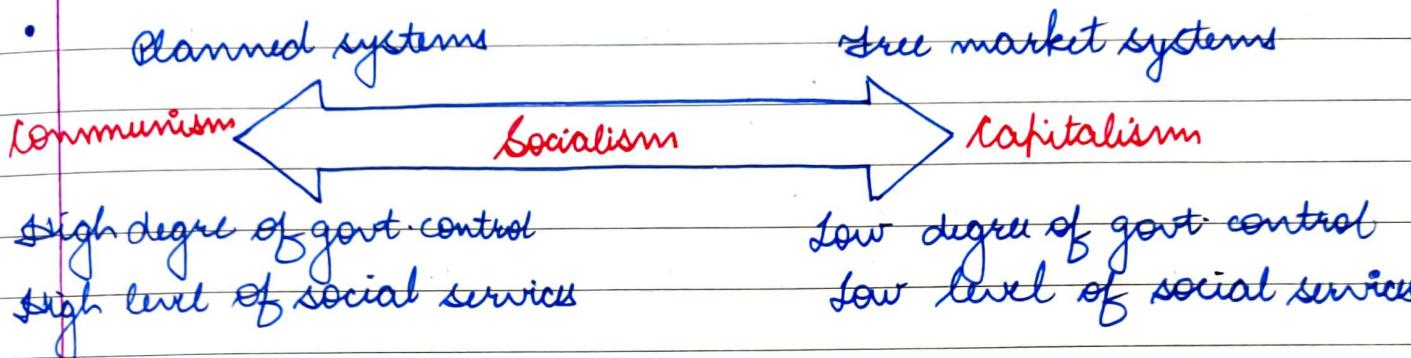
→ UNEMPLOYMENT IN INDIA

- Developed country unemployment: due to ^{of the} ~~structure~~
 Frictional, cyclical and structural ^{govt/economy}
 when people looking for better jobs are counted ^{if & when} ^{due to factors like recession (temporary)} ^(permanent)
Unemployment: % of labour force not in labour force ^{is changed}
 (its temporary having jobs)
- a) Labour force: Persons looking for work
- b) Discouraged worker effect: Persons dropping out of labour force.
- Anatomy of unemployment in India:
- a) Cyclical unemployment of some concern for educated & white collar
- b) Much more serious is underemployment given less salary than what is deserved
 and disguised unemployment.
 ↳ When individual thinks employment exists but as such it is producing no output eg- govt. offices
- c) Open structural unemployment is much less serious in India.

NOTE:

→ ECONOMIC SYSTEMS

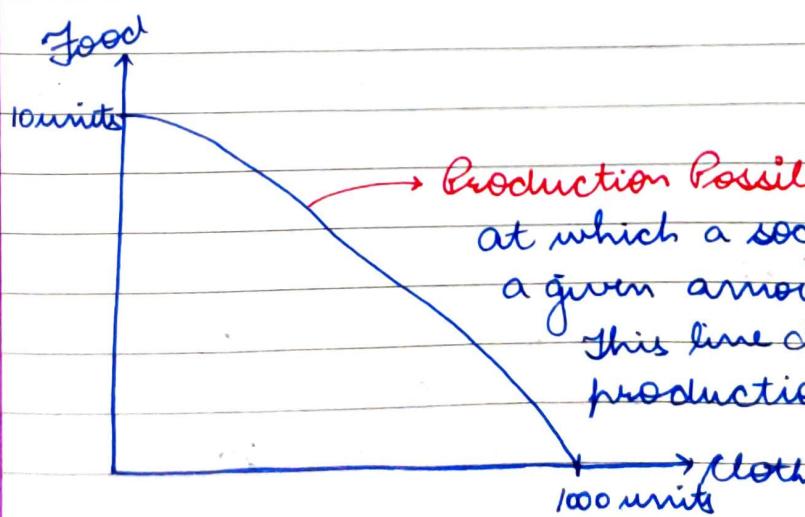
- How the govt influences how I make money?



NOTE:

- Goods** - tangible items in market
- Services** - intangible " in market
- Resources** - items with help of which goods are produced
- Scarcity** - shortage of resources

- Defⁿ:** The method used by a society to produce & distribute goods and services.
- Consider that a society has to produce food & cloth



(PPF)

Production Possibility Frontier: The line at which a society can produce with a given amount of resources. This line denotes the optimum production levels possible for the given amount of resources.

- All economic systems must consider the following questions

- i) What goods and services to produce?
- ii) How will they produce them?
- iii) Who will get them?
- iv) How much will they produce now & how much later?

- Each economic system answers these questions in a diff way.

→ TYPES OF ECONOMIC SYSTEMS

1. TRADITIONAL ECONOMY

- Economic questions are answered by habits and customs
- Children follow ancestral profession
- fear of change

2. COMMAND ECONOMY

- The govt. answers the basic economic questions

• characteristics:

- supposed to be welfare oriented
- provide for all people equally
- state ownership as opposed to private

- ownership of resources
- able to act quickly in emergencies
- eg - communist countries (china, vietnam, north korea, cuba, former soviet union)

NOTE:

In a socialist system, the government takes responsibility of all the citizens requirements. Socialist society takes care of basic requirements of people. They'll provide you only that much amount of money as salary under which your basic requirements are fulfilled. Every decision regarding resources is taken by the government. They instruct the people how to work, they provide resources & in the end they own the production. The system is ultimately almost dictatorship. It is easily corruptible.

no matter
nation
for work

NOTE:

In a communist system, people form communes and work together for any product. The society as a whole owns resources & products. and takes care for itself. It has very low govt. interventions and has a ~~use~~ corruption-proof system.

3. FREE MARKET

- Economic freedom: Right to choose what to buy.
- Competition: Comp. market
- Private Property: People have an incentive to work.
- Self-interest: People decide individually acc. to self-int. / motivation
- Voluntary exchange: The buyer & seller decide for the transaction
- Profit motive: People are driven by idea of gaining profits

4. MIXED ECONOMY

- No economy is perfectly command/traditional / free.
- There are some elements of each in every economy
- e.g. - India, US.

→ FEATURES OF AMERICAN COMMAND ECONOMY

- i) Govt. regulation of some business practices
eg- wages, labor hours, safety practice.
- ii) Govt. limits certain choices
eg- can't buy or produce certain goods/services
- iii) Govt. provides aid to the needy
eg- medicare, medicaid, welfare

NOTE: - Even though US is capitalist yet it has a few features of command economy.

- When markets fail, govt. may step in to help the market out. eg- in 2008, during recession in US, the US govt. supported various MNC by giving them money (bailing them out) to save market collapse and restore economy.

HED

PTO

INTERNATIONAL FLOWS AND BALANCE OF PAYMENT

- **Balance of Payments (BOP)**: is a complete record of a country's foreign transactions (including transactions in goods, services and assets).
- In the BOP account, the current account surplus is balanced identically by a the Capital account Deficit or net capital inflow.
- $BOP = \text{exports minus imports} + \text{net capital inflow}$

NOTE:

Capital account: stores the capital exchange among with other countries eg - stocks.

Current account: stores info on transaction on goods and services

FOREIGN EXCHANGE RATES

- Rupees per foreign currency unit (eg. US \$) is called rate.
- **Appreciation:** rate decreases (value of $\frac{\text{₹}}{\$}$ increases)
- **Depreciation:** rate increases (" " of $\frac{\text{₹}}{\$}$ decreases)

- Purchasing Power Parity (PPP) exchange rate: "rate at which the currency of one country would have to be converted into that of another country to buy the same basket of goods and services in each country" (IMF)
- India's rate compared to USD: 0.3. Rupee purchasing power is 3.33 times the normal exchange rate with the USD.

NOTE: Why is PPP needed when we still have exchange rates?

Ans: Assume), Europeans believe the American market is profitable & suddenly invest. Due to this price of \$ increases even for us. However, the rates of things in US are still same irrespective of the appreciation. ∵ normal exchange rate may not be accurate enough as purchasing power of goods of \$ is same but its exchange rates are.

→ BUDGET

- Record of revenue's & expenditures of govt. during given period of time.

- a) Budget estimate: What budget^{est} govt. intends^{to do} during a given period.
- b) Revised estimate & actuals: What govt. actually did & what has to be paid after the period.

• FISCAL DEFICITS

- Expenditure less (non-debt) receipts = Fiscal Deficit

$$\text{or } G + TR - TI - TP - NTR - RA = \text{Fiscal Deficit}$$

1. Expenditure (G) +
2. Net Transfers (TR) -
3. TI (net Indirect Taxes) -
4. TP (Personal Taxes) -
5. NTR (Personal Taxes) (non-Tax Revenue) -
6. RA (Receipts from asset sales) = Fiscal Deficit

NOTE: RA is not part of current income or production

- Fiscal Deficit is basically the loss of the govt. as per its budget estimation.
 - Revenue + Expenditures is Fiscal Deficit

→ NATIONAL INCOME : WHERE IT COMES FROM AND WHERE IT GOES

→ GROSS DOMESTIC PRODUCT

- Gross Domestic Product is a measure of how well the economy is performing. The Central Statistical Organisation (part of rest of def in a book authored by Manmohan Singh)
- There are 2 methods of calculating GDP in India
 - a) Based on economic activity (at factor cost)
 - b) Based on expenditure (at market price)
- Rules for computing GDP
 - i) To compute the total value of diff goods and services, the national income accounts use market prices.

$$\text{GDP} = (\text{Price of apples} \times \text{quantity}_a) + (\text{Price of oranges} \times \text{quantity}_o)$$
 - ii) Used goods are not included in calculation of GDP.
 - iii) The treatment of inventories depends on if the goods are stored or left to spoil.

If goods are stored, their value is included in GDP. If left to spoil, GDP remains unchanged. When goods are finally taken out of inventory, they are not counted.

MONEY

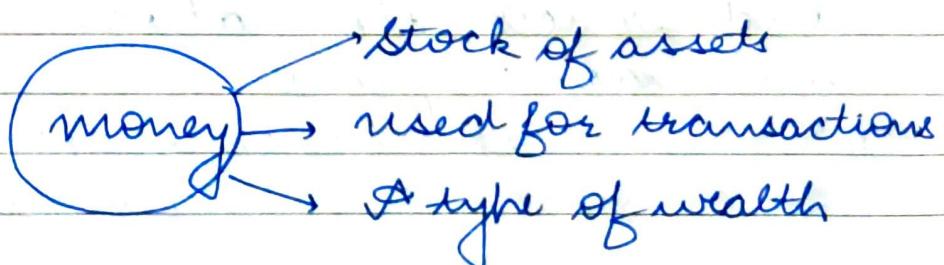
- Why barter system fails?

Suppose I want ~~a~~ some goods and am offering a barter exchange. In this case 2-way¹ willingness is needed i.e. double coincidence of want, which is not as easy as 1-way willingness in case of an exchange medium like money.

- money: Money is anything which has store of value, unit of account and a medium of exchange.

NOTE:

For WW2 Pow's cigarettes acted as money.



NOTE: Gold is automatically money because it has intrinsic value while paper doesn't. Paper currency has no intrinsic value but due to govt. decree "I promise to pay the bearer _____" notes have value.

→ TYPES OF MONEY

- a) **commodity money:** It is money that has intrinsic value. (eg - cigarettes in POW camps)
- b) **fiat money:** It is money by declaration. It has no intrinsic value (eg - coins & bills)

NOTE: When people use gold as money, the economy is said to be on a gold standard

NOTE: When people fail to accept anything as money, the monetary system collapses and that entity ceases to be money.

→ MONEY SUPPLY VS. MONETARY POLICY

- The money supply is quantity of money available in an economy.
- The control over the money supply is called monetary policy.
- In India, monetary policy is ~~controlled~~ handled by a partially indep. Central bank in India called the Reserve Bank of India.

NOTE: nations have used counterfeiting as a means of warfare. The idea is to overflow the enemy's economy with fake bank notes so that the real value of money plummets

NOTE:

Liquidity of ~~more~~ money is its ability to buy various goods & services.

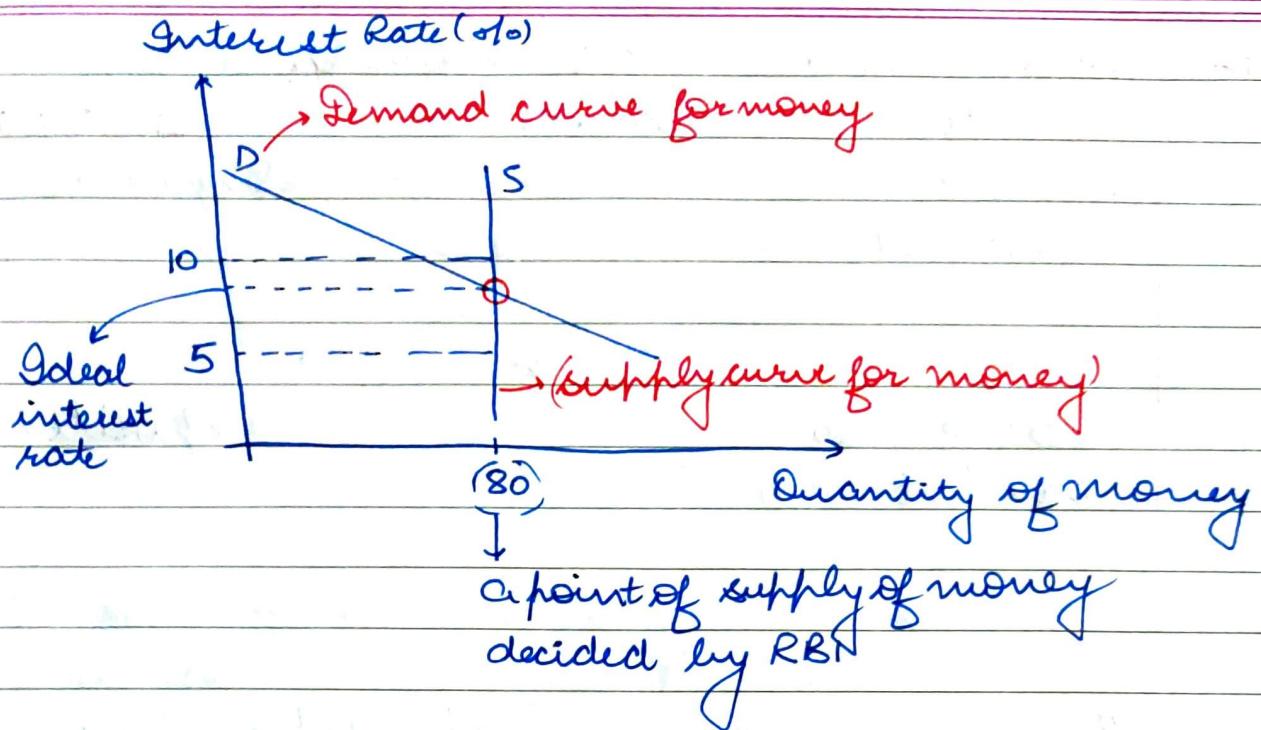
- The quantity of money : Including non-currency money. Denoted by M .
- Currency: Denoted by C .
- M (money supply) = currency (C) + Demand Deposits (D)
- C, M_1, M_2 are other parameters (look into it)

→ PRICE OF MONEY

- Interest forgone on money is its ~~not~~ opportunity cost.

→ MONEY SUPPLY LINE

- The quantity of money in circulation is controlled by the central bank in real value.

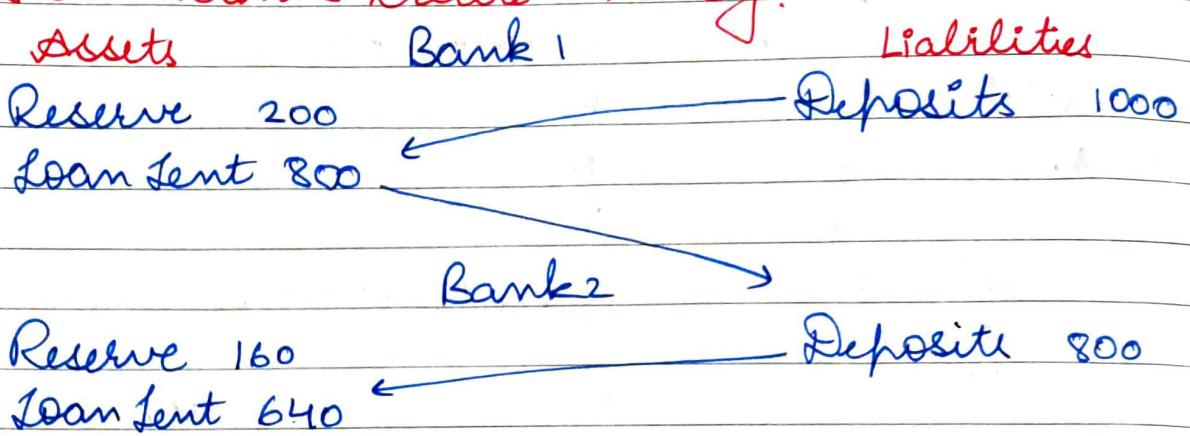


NOTE: The supply of money is also supply of loanable funds.

NOTE: RBI gives a lending rate (LR) as per the above graph for your deposits. It also gives an upper cap on borrowing rate (BR) which is used for loans. The profit ^{interest} earned by the bank from loans is used for interest payments to depositors and rest is bank profit.

NOTE: If a bank is allowed to loan out all the money in its deposits, it may run out of money. ∴ RBI gives a reserve rate (rr), say 10%. ∴ when I deposit ₹ 1000 in a bank, it has to keep ₹ 200 in reserve for it.

NOTE: How banks create money?



- There is a rate which determines the amount of money which has to be kept as reserve. This is called reserve rate (rr)
- Now this initial deposit is transferred after keeping a part (rr). This occurs say indefinitely and we can see how much money is in circulation

Original deposit = 1000

Total supply (circulation)

$$\begin{aligned}
 &= 1000 \left(\frac{1 + rr + rr^2 + \dots}{rr} \right) \\
 &= \frac{1000}{rr}
 \end{aligned}$$

If $rr = 0.2$ (20%)

Total supply = ₹ 5000

A ₹ 1000 deposit brings ₹ 5000 in supply

QUANTITY THEORY OF MONEY (BY FISCHER - 1911)

- $MV = PT$

$\underbrace{M}_{\text{of money}}$ $\underbrace{V}_{\text{of money}}$ $\underbrace{P}_{\text{of money}}$ $\underbrace{T}_{\text{of money}}$

M: Money (nominal) in circulation

V: Velocity of circulation (how fast the money changes hands)

P: General price level

T: Total no. of goods & services ~~for transactions~~

MV: Total money supply

PT: Total requirement of money / demand of money in the economy

\equiv : True in every scenario

- $MV = PY \rightarrow$ Another school of thought

Y: no. of goods / services produced.

NOTE:

V and Y are almost constant in short run, since circulation vel & level of production can't be changed over short period of time.

- In short run

$$M \bar{V} = P \bar{Y}$$

$\therefore \boxed{\text{MacP}}$

∴ money in circulation can directly influence general price levels, hence inflation can be controlled.

Pumping out money from circulation can control inflation.

Reserve Ratio of money is divided into 2 parts -
CRR and SLR as described below.

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NOTE: Total supply = total demand always,
else
supply > demand ; deflation
demand > supply ; inflation

→ CASH RESERVE RATIO (CRR)

- The RBI sets CRR for banks. Every bank has to deposit a this percentage of its net deposits in the bank. The banks ~~may~~ earn interest on this.
- The RBI can lend this money to any bank which feels it is failing.
- A bank, in case of coming failure, banks may sell their security assets, borrow from private lenders or other banks. Only when this fails, RBI is asked for money.

→ How can RBI control economic crisis?

- Increasing Cash Reserve ratio decreases money circulation ∴ decreases inflation
- RBI can lend out money to banks in case of their going default. This is lent at a Bank Rate (BR).
- Discount Window: The interest charged by RBI on banks for money lent out

Statutory Liquidity Ratio (SLR): The ratio of total deposits which banks have to keep with themselves as reserves

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- **Selective Credit Control:** Curbing loan in a particular sector which is inflated eg- real estate. This decreases circulation money (M) in the sector hence decreasing general prices (P) and controlling inflation.
this was done in 2008-09 by federal reserve (USA)
- In case of depression, (no money in hands of people):

- a) RBI announces lending out of a huge amount of money to banks
- b) In greed for more profit, banks come to take that money in return for interest. (interests are kept by RBI so that banks lend out thoughtfully)
- c) This amount is auctioned in term auction. (It is auctioned to one bank because asking back for money from one bank is easier)
- d) When auctioned, the amount of money in circulation increases hence reviving depression.

- **Seigniorage:** The central banks may print money to meet the financial needs of the Govt. This is called seigniorage. This will increase money in circulation and thus bring more inflation

* → INFLATION AND INTEREST RATES

- **gold standard:** In 1944, America convinced 43 major countries that it will peg dollar to gold (whose 80% reserves were controlled by US) and all currencies have an exchange rate with dollar.

→ REAL AND NOMINAL INTEREST RATES

- Economists call the interest rate that the bank pays the **nominal interest rate** and the increase in your purchasing power the **real interest rate**

$$r = i - \pi$$

- This shows the relationship b/w the nominal interest rate and the rate of inflation, where r is real interest rate, i is the nominal interest rate and π is the rate of inflation, and remember that π is simply the percentage change of the price level \uparrow .

→ COSTS OF EXPECTED INFLATION

- The inconvenience of reducing money holding metaphorically called the shoe-leather cost of inflation, because walking to the bank more often induces one's shoes to wear out quickly. This basically accounts for the wastage of time due to inflation.

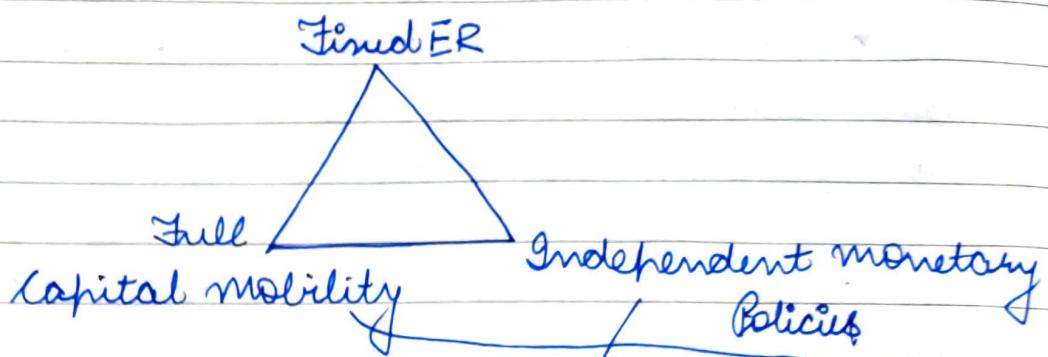
- When changes in inflation require printing and distributing new pricing information, then these costs are called menu costs. It refers to wastage of resources.
- Tax laws often don't take into account inflation.
- Unanticipated inflation is unfavourable because it redistributes money unevenly.
- Fixed pension receivers and people with such bonds are at loss.

NOTE: German Hyperinflation (1923)

Germany started printing its currency to pay off for reparations of WWI. Now, say Germany had to pay US. US would only accept dollars (~~gold~~ Θ). So, German govt. had to buy US dollar from its central bank's foreign reserves (Reserves of foreign currency accumulated as per bonds with other central banks.) Due to this more German currency got into hands of people depreciating its value.

NOTE

IMPOSSIBLE TRINITY



e.g.- You increase interest rates, ~~money~~^{capital} inflows in country, but this increases demand ∵ demand ∴ not a fixed ER.

→ AGGREGATE DEMAND AND AGGREGATE SUPPLY

→ INTRODUCTION

- Over long run, GDP grows at steady rate of around 3% per year.
 - In short run, GDP fluctuates around its trend.
- a) Recessions: periods of falling income
 - b) Depression: severe recessions (rare)
- Short run fluctuations are called business cycles.
 - Theories to explain these fluctuations are highly controversial.

- most economists use the model of aggregate demand and aggregate supply which is diff from classical economists.
- Classical economists believe that whatever you produce, will be consumed. But this is actually dependent on popular sentiment. eg - Great Depression
- Aggregate demand and aggregate supply is demand, supply for all goods collectively.

- Aggregate Demand curve**

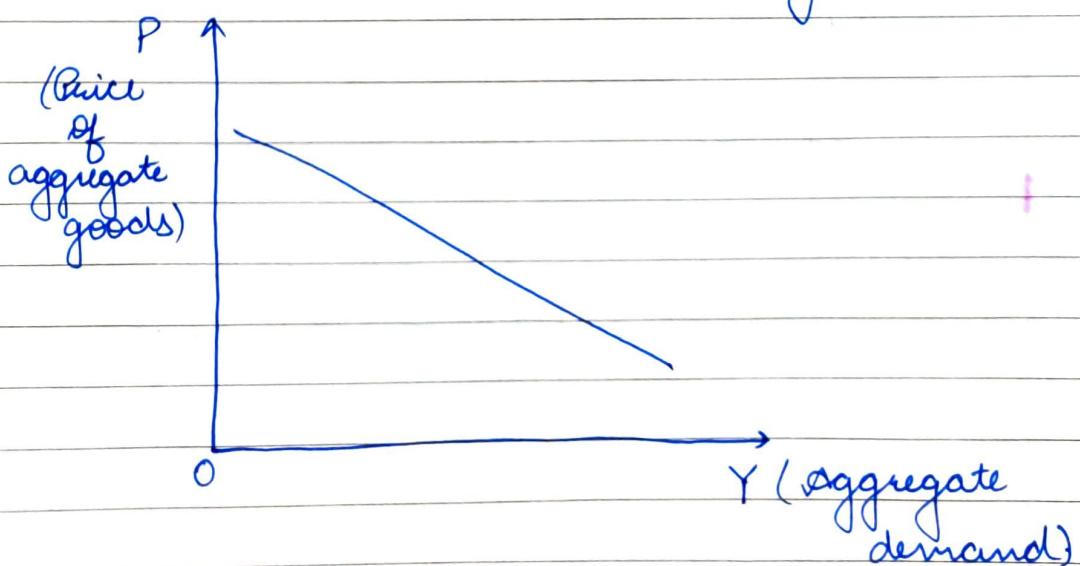
$$AD = Y = C + I + G + NX$$

↑ Investment (falls in long run with price)
↓ Imports (Imports - Exports) (Decrease with price increase)

AD is same as GDP which is further same as total income

(national income)
(remember income relation to GDP)

AD curve is downward sloping



C: Wealth effect (C falls)

$C \downarrow$ as $P \uparrow$ (naturally \ominus) as consumer spending decreases \downarrow on P increase.

This is investment
not interest

I: Interest rate effect (I falls)

With increase in prices, people pull out money to spend & as a result RBI is forced to increase interest rates to stop bank failure. Interest rates increase and thus investment falls.

net exports
 $(X - I)$

NX: Exchange rate effect (NX falls)

As prices increase, demand of product outside country decreases and exports decrease as imports of that product increase. For paying for imports, foreign currency demand increases and exchange rates for ₹ depreciates.

NOTE:

$$C = C_d^{\text{domestic}} + C_f^{\text{foreign}}$$

$$I = I_d + I_f$$

$$G = G_d + G_f$$

$$Y = C + I + G + X - (C_f + I_f + G_f)$$

\downarrow exports $\overbrace{I_f + G_f}^{\text{imports}}$

C FUNCTION

- $C = C(Y-T)$

Function of $(Y-T) \rightarrow$ Disposable income.

MARGINAL PROPENSITY TO CONSUME (mpc)

- It is the amount by which consumption changes when disposable income ($Y-T$) increases by one unit. i.e. increase in consumption / increase in income.

- $\frac{mPS}{1} = 1 - mPC$

↓
marginal
propensity
to save

- The govt. purchases multiplier:

$$\frac{\Delta Y}{\Delta G} = 1 + mpc + mpc^2 + mpc^3 + \dots$$

$$\boxed{\frac{\Delta Y}{\Delta G} = \frac{1}{1-mpc}}$$

avg. mpc for the country.

When govt. changes its spending by ΔG , ΔY increases. Because govt. spends on the nation only due to which money comes in circulation and income increases. When the person whose income increases spends, another person's income increases & so on.

$\therefore mpc$ forms a GP

Doubt: If I use my bank savings to build an industry,
why should I worry about lending rates?

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→ THE INVESTMENT FUNCTION

$$I = I(r)$$

↓

Investment spending

real interest rate

- Demand for loanable funds = Supply for loanable funds

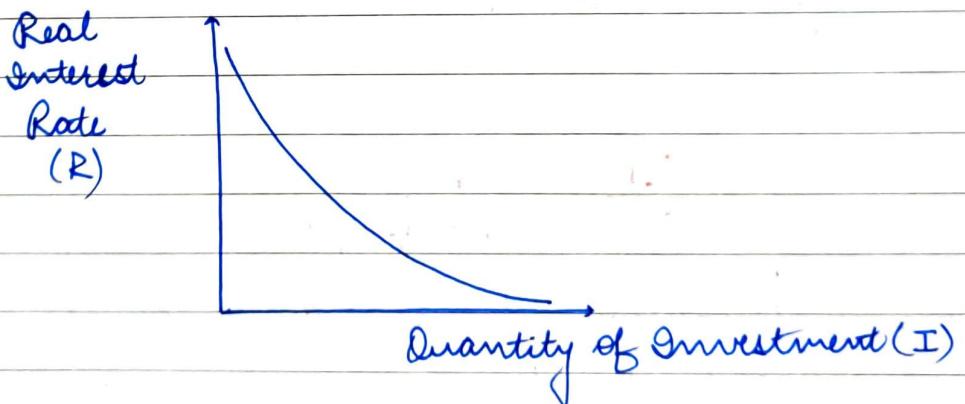
$$\text{Investment} = \text{Savings}$$

$$(R) \qquad (r)$$

↑
lending
rate

↑
borrowing
rate

- $R \uparrow \quad I \downarrow$
 $r \uparrow \quad S \uparrow$



→ GOVERNMENT PURCHASES

- If govt purchases equals (taxes - transfers),
then $G = T \rightarrow \text{BALANCED BUDGET}$
- $G > T \quad \text{BUDGET DEFICIT}$
- $G < T \quad \text{BUDGET SURPLUS}$

- A decrease in Taxes
- If the govt. decreases taxes, its revenue decreases. Due to this, it falls short of money required for its const. govt. spending (\bar{G}). Due to this, it has to borrow money from entities outside taxes. Due to this demand for loans rises and ~~RBI~~ RBI is forced to increase interest rates. When interest rates increase, Investment decreases.
- However, if a govt. ~~more~~ decreases taxes to such a level that it does not run in budget deficit, then it won't have to borrow money, due to which no changes in interest rates - no change in investment
- In short, if govt. comes to a point where it has to borrow money, it decreases investment. Else no effect.

• Shift in AD Curve

- Any event that changes C , I , G or NX except a change in P will shift the AD curve
 \rightarrow a change in P make the AD AS shift along the curve
- eg - A stock market boom makes households feel wealthier, C rises, the AD curve shifts to right
- Changes in C - stock market boom/crash, preferences re: consumption/saving tradeoff, tax hikes/cuts

- Changes in I:

- Firms buy equipment
- Expectations optimism / pessimism "animal spirits"
- Interest rates, monetary policy
- Investment tax credit for other tax incentives

- Changes in G:

- Govt spending eg - defence
- State and local spending eg - roads etc.

- Changes in NX:

- Booms / recessions in countries that buy our exports
- Appreciation / depreciation resulting from international speculation in foreign exchange market.

Ques: What happens to AD curve if ten year old tax credit expires.

Ans: AD curve shifts to left

Ques: What happens to AD curve if fall in prices increases the real value of consumer's wealth.

Ans:

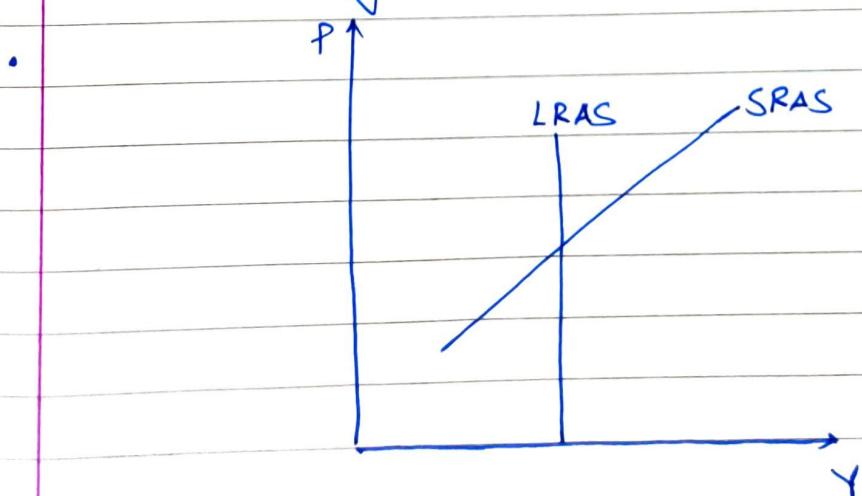
Since there is a fall in prices, actual consumer spending (C) does not change directly due to this, the AD - AS curve eqm shifts downwards ie the economy moves down the AD curve. (Since AS curve shifts to right)

Ques: What happens if State Govt. replace sales tax with new taxes on interest, dividends, and capital gains.

Ans: Due to removal of sales taxes C increases and AD curve shifts to right. You might be confused on the point that taxes on interest decrease I . But that is not taxes in bank interests. It's taxes on interest received on our savings. \therefore It won't affect any firms investments or purchases. $\therefore I$ does not change.

→ THE AGGREGATE SUPPLY CURVE (AS Curve) →

- The AS curve shows the total quantity of goods and services firms produce and sell at any given price level.
- AS is:
 - upward sloping in short run
 - vertical in long run. This is because, LRAS is made with the assumption that in long run all the capital, labour and resources are used at full employment level, i.e. supply level thus saturates.



→ LONG RUN AGGREGATE SUPPLY

- Y_0 : the output level of LRAS
- Shift in LRAS
- any event that changes any of the determinants of Y_0 will shift LRAS
- eg- immigration increases L, causing Y_0 to rise.

NOTE:

Low skill migration decreases wages & thus harmful, high skill migration in short run is beneficial since it brings with it intellectual property & increases development.

Ques: If we increase money supply and have technolo. advancement, what will be the effect on AS and AD & and how will it effect P and output(Y)?

Ans. Y increases (↑ technology) but P depends on whether AS shifts more or AD (AD shifts due to money supply)