

Circular Flow of Income and Expenditure for Four Sector Economy

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Why Consider Fourth Sector?

- Economic/ Trade and Commerce relations with other countries
- Fourth sector = Foreign sector
- Exports and Imports of goods and services
- Exports and Imports of funds : Lending and borrowing
- These activities create inflow and outflow of money

Money Flows with Foreign sector

- Exports of goods and services + Borrowing foreign funds + non-debt investments coming from foreign countries leads to **INFLOW OF MONEY** to domestic economy from foreign countries.
- Imports of goods and services + Lending to foreign countries + non-debt investments in foreign assets leads to **OUTFLOW OF MONEY** from domestic economy to foreign countries.

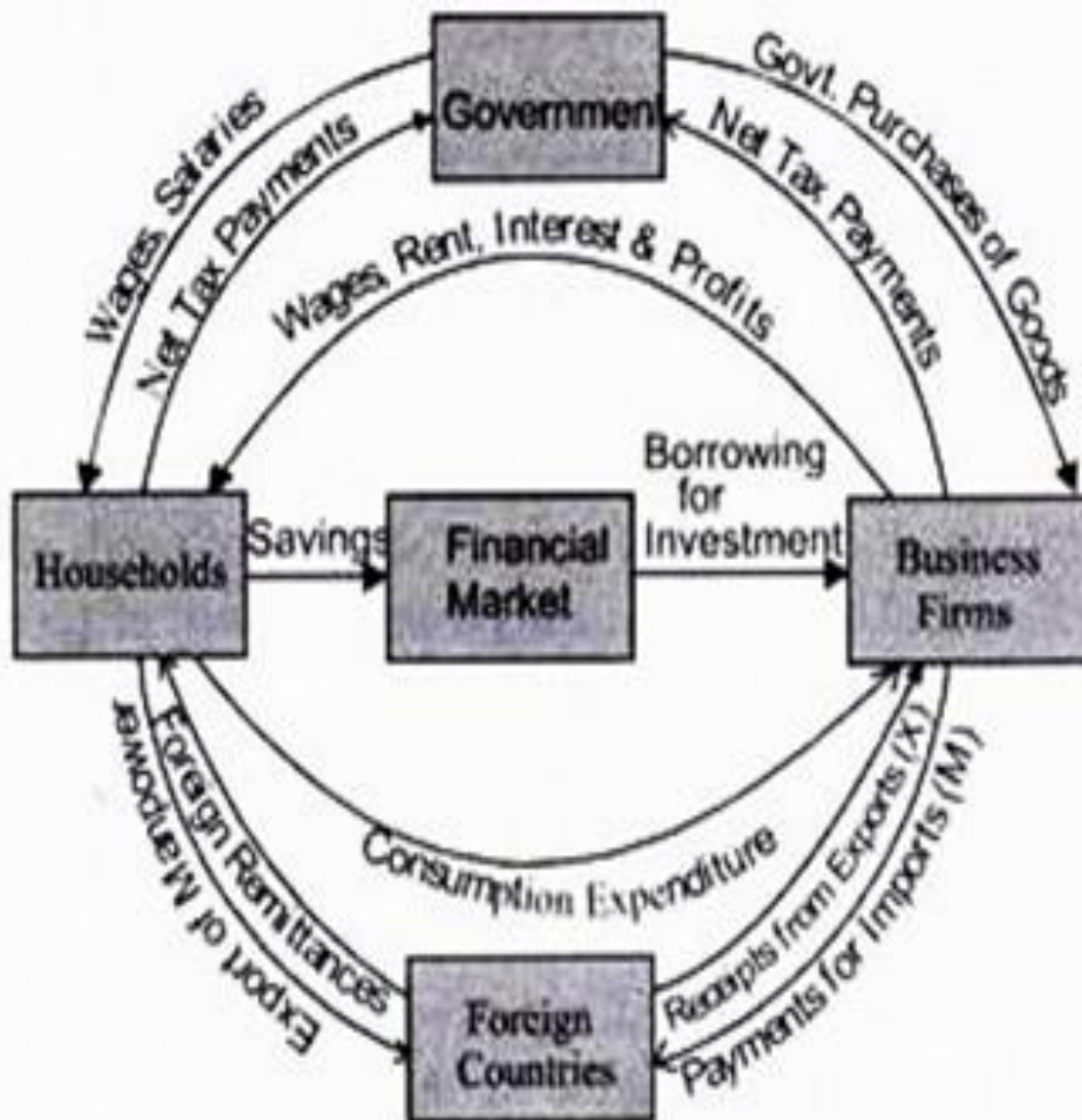


Fig. 6.4. *Circular Flow of Income in an Open Economy with Government and Foreign Sector*

An Open Economy

- Meaning?
- Trade and Commerce is necessary condition
- But inflow and outflow of capital is sufficient condition
- Households provide Labour services to foreign sector and receive remittances
- Firms import and export goods and services to foreign sector.

The Equations

- Exports = Imports , then Net exports = zero
- Net exports = $X - M$
- Shows balance between receipts and payments
- But $X - M$ can be positive or negative
- The magnitude of circular flow will be more if $X > M$
- The magnitude of circular flow will be less if $X < M$
- The magnitude of circular flow will be same if $X = M$
- Thus, $Y = C + S + T + X$ is income
- $E = C + I + G + M$ is expenditure
- For all 4 sectors of the economy to be in equilibrium we must have

$$S = I ,$$

$$T = G ,$$

$$X = M$$

Importance of Circular Flow of Income

- Shows smooth functioning of the economy
- Helps to understand the problem of disequilibrium.
- Helps to find out leakages in the circular flow
- Highlights the importance of monetary and fiscal flows

Measurement of National Income

- Meaning :Total market value of all goods and services produced in an economy in a given year.
- Methods of measuring national income
- TOTAL MARKET VALUE OF GOODS AND SERVICES PRODUCED
- TOTAL INCOME RECEIVED
- TOTAL EXPENDITURE INCURRED

Methods of measuring national income

- Sum of values of all Goods & Services produced = Sum total of payments made to factors of production = Total expenditure incurred to buy goods and services.
- Thus,
National Income = National Product = National Expenditure
- Hence, the **national income** of a country can be measured by three alternative **methods**:
 - (i) **Income Method**
 - (ii) **Product Method**
 - (iii) **Expenditure Method.**

Features of National Income

- Flow Concept: Over a period of time & not at a point in time
- Value of final goods : raw materials, intermediate goods, final goods, no double counting in production process
- Macro economic concepts
- Monetary measure
- Adds net exports
- Measure of economic progress

IMPORTANCE OF NATIONAL INCOME

1. Measures economic progress
2. Compares standard of living
3. Sectoral contributions
4. Measurement of Economic Welfare
5. Changes in price level
6. Business forecasts
7. Global income distribution
8. Economic planning and policies

Concepts of National Income

- GDP : Gross Domestic Product: The value of final goods and services produced within the territory of the country during a given period of time i.e. a year.
- Production by all Residents of a country, whether citizens or not. Economic interest lines in the economy.

GDP of a closed economy = $C+I+G$

GDP of an open economy = $C+I+G+(X-M)$

Concepts of National Income

- Gross National Income/ Gross National Product : The money value of final goods and services produced by the country's factors of production wherever they are located.
- It is the product produced by all nationals, both residents and non residents.
- $GNP = GDP + \text{Net factor Income from abroad}$
 $= C + I + G + (X - M) + (R - P)$
- R = Income received by domestic factors for their contribution to production abroad
- P = Payments made to the foreign factors for their contribution to production in the domestic economy.
- $GDP < GNP$ if $R > P$ & $GDP > GNP$ if $R < P$

Distinction between GDP and GNP

GDP

- Within the territory
- Production by all residents
- Contribution from foreigners residing in the domestic country is added
- Contribution from Non resident citizens is deducted.
- $GDP = C + I + G + (X - M)$
- $GDP > GNP$ if $R < P$
- That is, the compensation for production flows out of the country if $R < P$

GNP

- No restrictions of boundaries
- Production by all citizens/nationals
- Contribution from foreigners residing in the domestic country is deducted.
- Contribution from Non resident citizens is added.
- $GNP = C + I + G + (X - M) + (R - P)$
- That is, there is inflow of compensation for production in the country if $R > P$

Concept of Net National Product and Net Domestic Product

- Capital Consumption/ Depreciation: In the process of production some physical capital like machines, equipment, tools, building and other infrastructure is worn out due to multiple usage.
- Hence, its required to make some allowance for replacement of such worn out capital.
- This allowance/ investment, if made, is spent on replacement and not on new capital formation
- So the production capacity does not increase but is maintained at the same level by incurring depreciation expenditure.

Concept of Net National Product and Net Domestic Product

- If no allowance is made for depreciation then it is gross income. But if allowance is made for depreciation then it is the Net income.
- Thus, we have

$\text{NNI or NNP} = \text{GNP} - \text{Depreciation}$

$\text{NDP} = \text{GDP} - \text{Depreciation}$

GNI, GDP, NNI, NDP at Market Price and Factor Cost

- The calculation of GNI, GDP, NNI, NDP can be done in two ways: 1. At market price and
2. At Factor cost.
- NI at Market price: It is the estimation of National Income according to market price of final goods and services.
- This price is generally distorted by indirect taxes and subsidies. The price increases due to indirect taxes such as sales tax, excise duties & GST etc. and reduces due to government subsidies.

GNI, GDP, NNI, NDP at Market Price and Factor Cost

- NI at Factor cost : It is the estimation of National Income according to the amount paid to the factors of production for their services in the production of goods and services.
- This amount paid is equivalent to the value of output produced by the factors. Hence it is referred to as factor cost.
- Thus, $\text{Market Price} = \text{Factor cost} + \text{Indirect taxes} - \text{subsidies}$
- $\text{Factor Cost} = \text{Market Price} - \text{Indirect taxes} + \text{subsidies}$

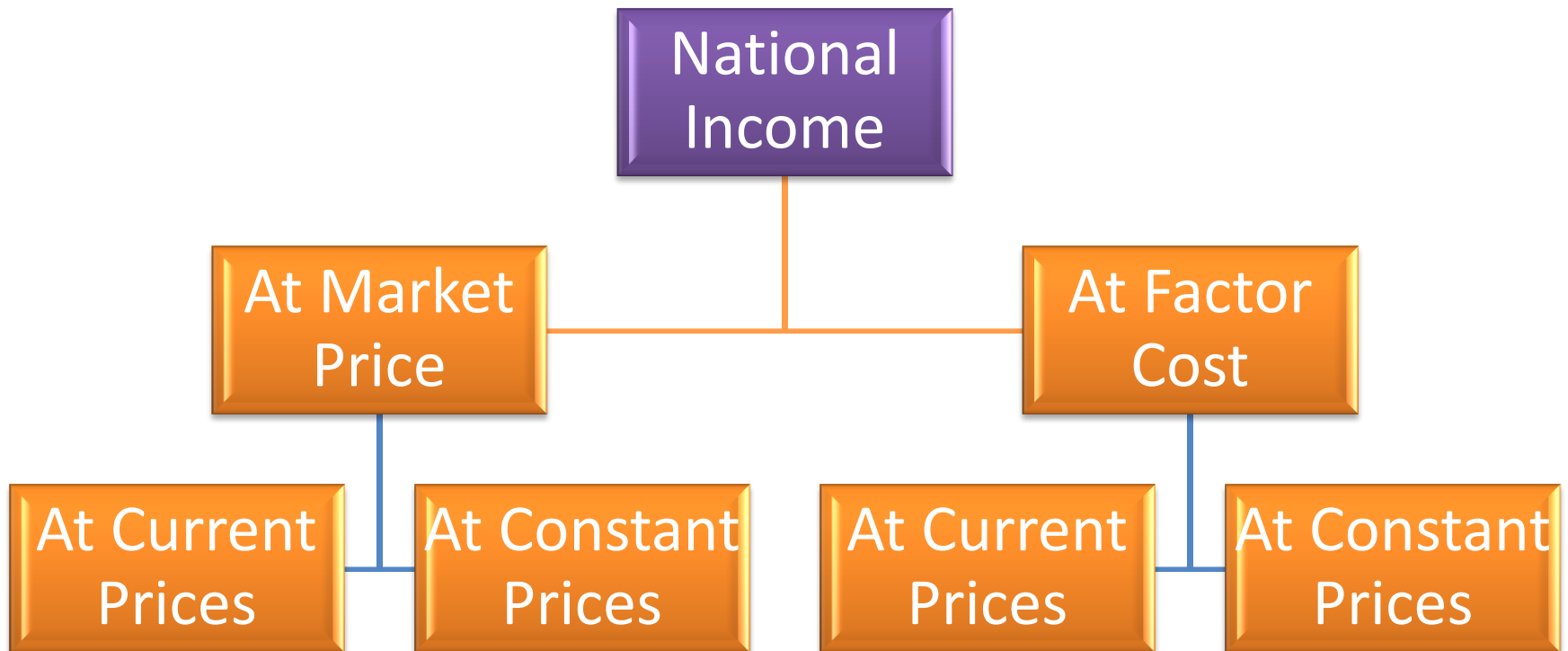
All Measures of National Income at Market Prices

- $\text{GNI} = \text{GNI at Factor cost} + (\text{indirect taxes} - \text{subsidies})$
- $\text{GDP} = \text{GDP at Factor cost} + (\text{indirect taxes} - \text{subsidies})$
- $\text{NNI} = \text{NNI at Factor cost} + (\text{indirect taxes} - \text{subsidies})$
- $\text{NDP} = \text{NDP at Factor cost} + (\text{indirect taxes} - \text{subsidies})$

All Measures of National Income at Factor Cost

- $\text{GNI} = \text{GNI at Market price} - (\text{indirect taxes} + \text{subsidies})$
- $\text{GDP} = \text{GDP at Market price} - (\text{indirect taxes} + \text{subsidies})$
- $\text{NNI} = \text{NNI at Market price} - (\text{indirect taxes} + \text{subsidies})$
- $\text{NDP} = \text{NDP at Market price} - (\text{indirect taxes} + \text{subsidies})$

Ways of Measurement of NI



National Income at Constant and Current prices

National Income at Current prices

- Price gradually rise over a period of time
- So even if production is same, the national income at current price seems to increase
- This increase is due to price rise.

National Income at Constant prices

- To know the real change in the income, price deflator is used. In this process, the GNP, GDP, NNP, NDP is estimated for various years at current prices and then they are deflated (brought down) by means of price index. These deflated measures are called as National income at constant prices.
- **The year selected for calculating income at constant prices is called as Base year.**

Real GNI vs Nominal GNI

Real GNI

- It is GNI at Constant price
- Captures real growth of economy
- It is deflated GNI
- Does not increase with price
- It does not change if real production is constant

Nominal GNI

- It is GNI at Current price
- Does not capture real growth of economy
- It is undeflated GNI
- It increases with the price rise.
- It changes / increases even if real production is constant

$$\text{GNI Deflator} = \frac{\text{Nominal GNI}}{\text{Real GNI}}$$

Gross Value Added (GVA)

- $GVA = \text{Value of output} - \text{value of intermediate consumption}$
- $GVA \text{ at Basic Prices} = CE + OS / MI + CFC + (\text{Production Taxes} - \text{Production Subsidies})$
- $GVA \text{ at Factor Costs} = GVA \text{ at Basic Prices} - (\text{Production Taxes} - \text{Production Subsidies})$
- $GDP = \sum(GVA \text{ at basic prices}) + \text{Product taxes} - \text{Product subsidies}$ here GDP is at constant prices

Other concepts of Income

- Personal Income = Sum of all income actually received by all individuals or households in the country during a given year.
= National Income + transfer payments- undistributed profits of corporate sector – corporate income taxes – social security contributions
- Disposable Income = Personal Income – Direct Taxes paid by individuals
- Per capita Income = National Income/ Population
- PPP income

Phases of Trade Cycles

1. Depression
2. Trough : End of Depression
3. Recovery: It's a phase where economic activity gears up. There is excess capacity . Output increases faster than cost.
4. Prosperity: It's a phase where economic activity. The economic activity increases above the steady growth path. Such a rise in economic activity is due to cumulative expansion of Total Production, Employment level, Income level, Consumption Expenditure, Investments, Savings, Bank Credit ,Stock prices, Profits, Aggregate demand, Aggregate supply etc.
5. Business optimism is carried forward by producers.

Peak : End of Prosperity :

- Prices of commodities, Production, Employment level, Income level, Consumption Expenditure, Rate of interests, Investments, Savings, Bank Credit ,Stock prices, Profits, Aggregate demand, Aggregate supply reach highest values.
- No further increase is possible. Full capacity output is produced.
- A point after which a fall in the values of all variables is for sure.
- This brings in Pessimism about economic activities which finally lead to Recession.

Recession: All economic activity contracts. It's a slowing down of Economic activities.

Existing production might be in excess – stocks piled up, a situation of over investment , so future investment plans are given up.

Prices of commodities, Production, Employment level, Income level, Consumption Expenditure, Rate of interests, Investments, Savings, Bank Credit ,Stock prices, Profits, Aggregate demand, Aggregate supply register a decline.

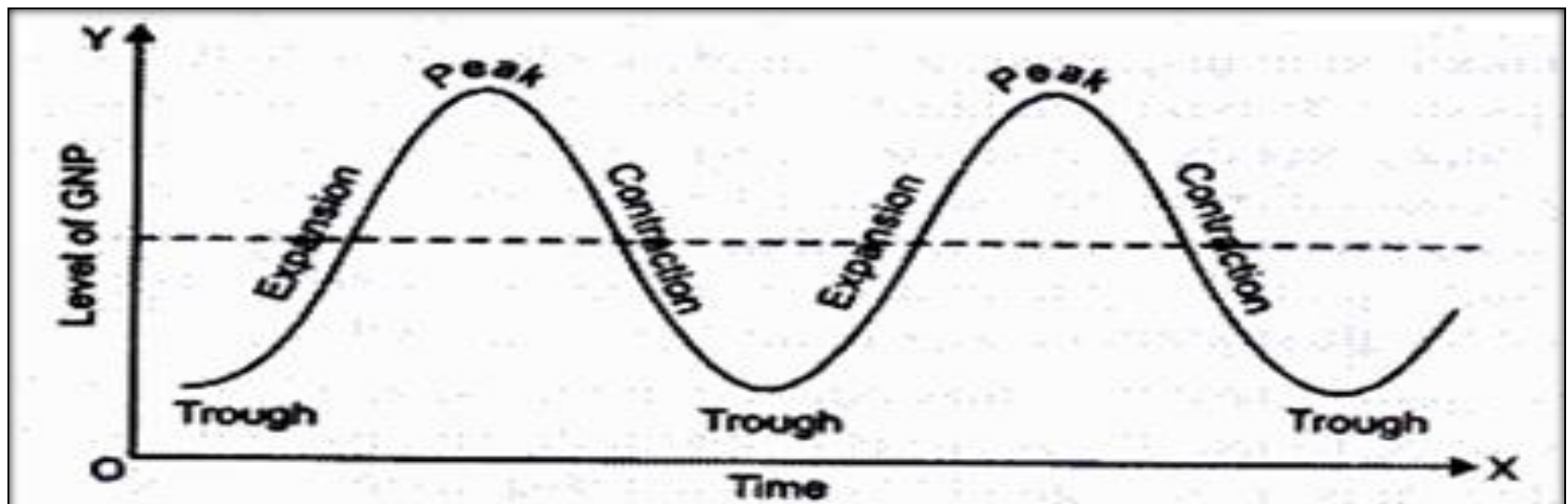


Fig. 13.1. Four Phases of Business Cycles without Growth Trend

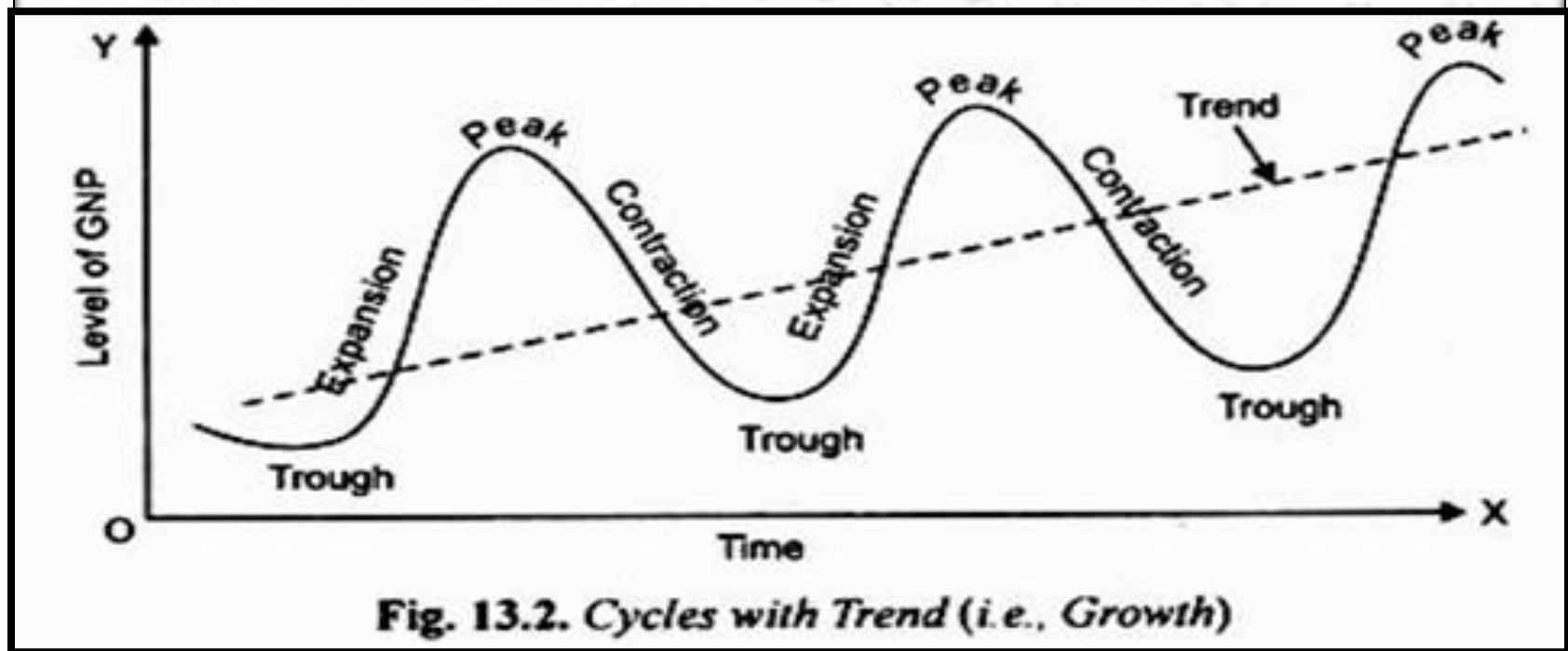


Fig. 13.2. Cycles with Trend (i.e., Growth)

Policy Measures to control Trade cycles

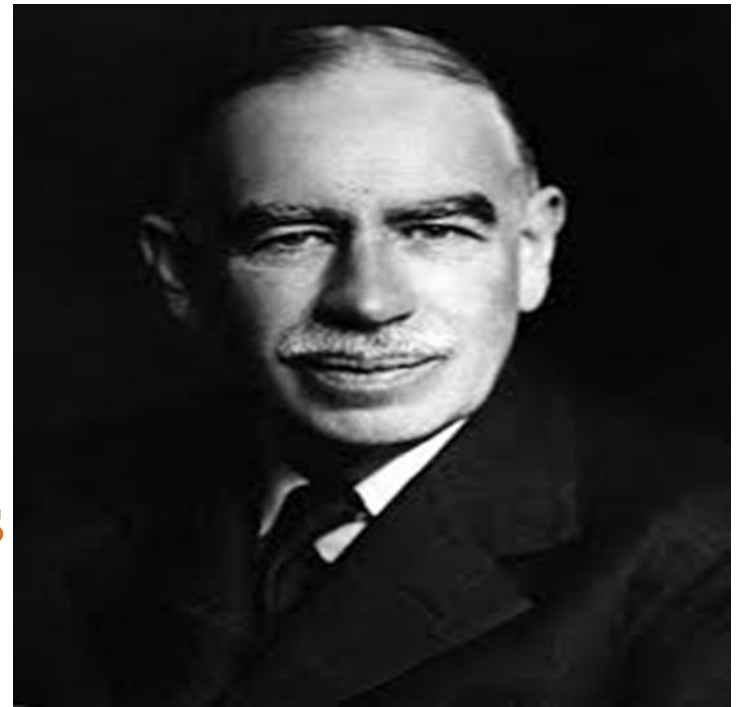
- **Monetary Policy** : Authority, Instruments, Uses for down trends and upward trends and its Effects
- Money supply : Bank rate, OMOs, SLR, CRR, Repo, Reverse Repo, Selective credit control.
- **Fiscal Policy**: Authority, Instruments, Uses for down trends and upward trends and its Effects
- Public Revenue – taxation policy , Public Expenditure
- Used as a compensatory policy.

Module II

Keyenisian Economics



versus



J.B.Say
Classical
Economics

J.M.Keynes
Keynesian
Economics

Theory of Effective Demand

Introduction:

- It's the beginning of Keynesian Theory of Employment.
- His book “ General Theory of Employment , Interest and Money” in 1936.
- Criticized the classical economists but also provided a realistic and systematic analysis of determination of employment.
- Its called the general theory as it deals with different levels of employment : Underemployment, Full employment and more than full employment.
- Also, because it integrates theories of money and value.
- According to him, the economy can be in equilibrium at any level of employment.
- In the long run we all are dead. Short run equilibrium is important and not the long run.

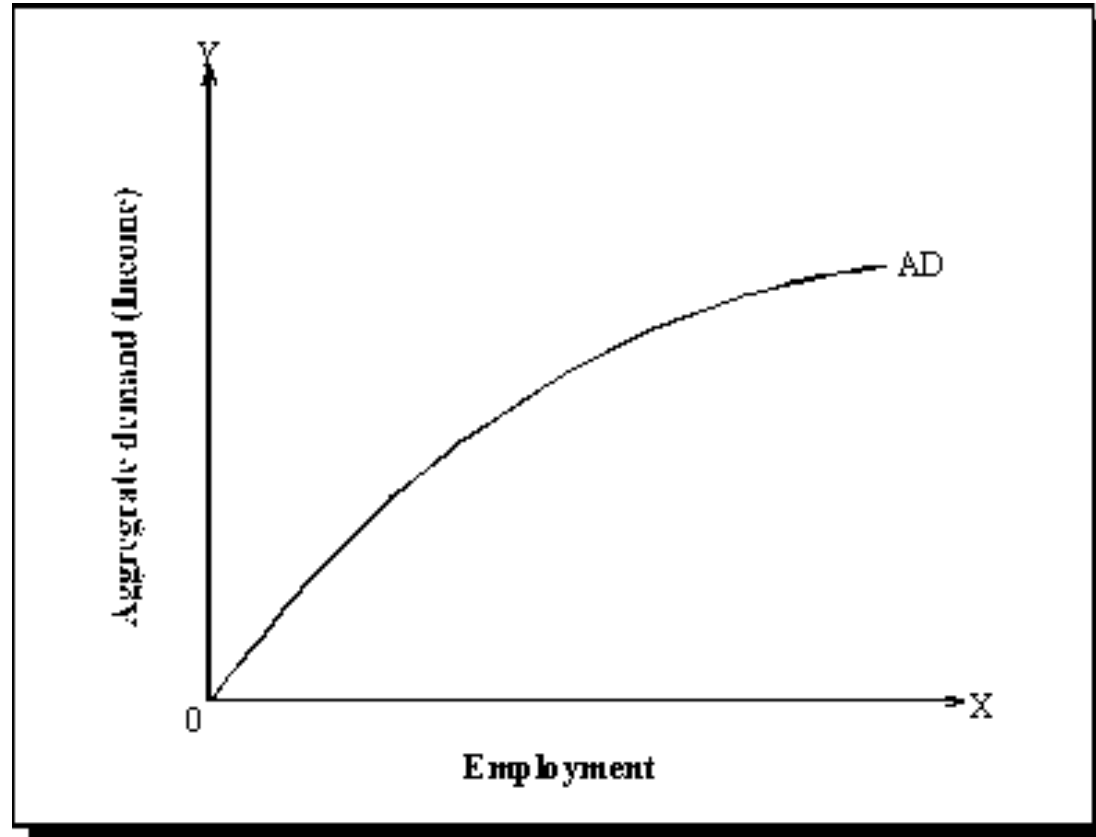
Meaning of Effective Demand

- Effective Demand = Total Demand = Total spending on consumption and investment.
- Total Employment depends on Effective demand.
- It is the point where Aggregate Demand = Aggregate Supply.
- Effective demand determines the level of employment at which
$$\text{Aggregate Demand Price} = \text{Aggregate Supply Price}$$

Aggregate Demand Price / Aggregate Demand

- **Aggregate Demand Price:** The amount expected by entrepreneurs to receive from the sale of output produced at a particular level of employment.
- It is a schedule of the proceedings expected from the sale of output resulting from varying levels employment in the economy.
- It increases as employment increases. Thus Aggregate demand is directly related to Employment level

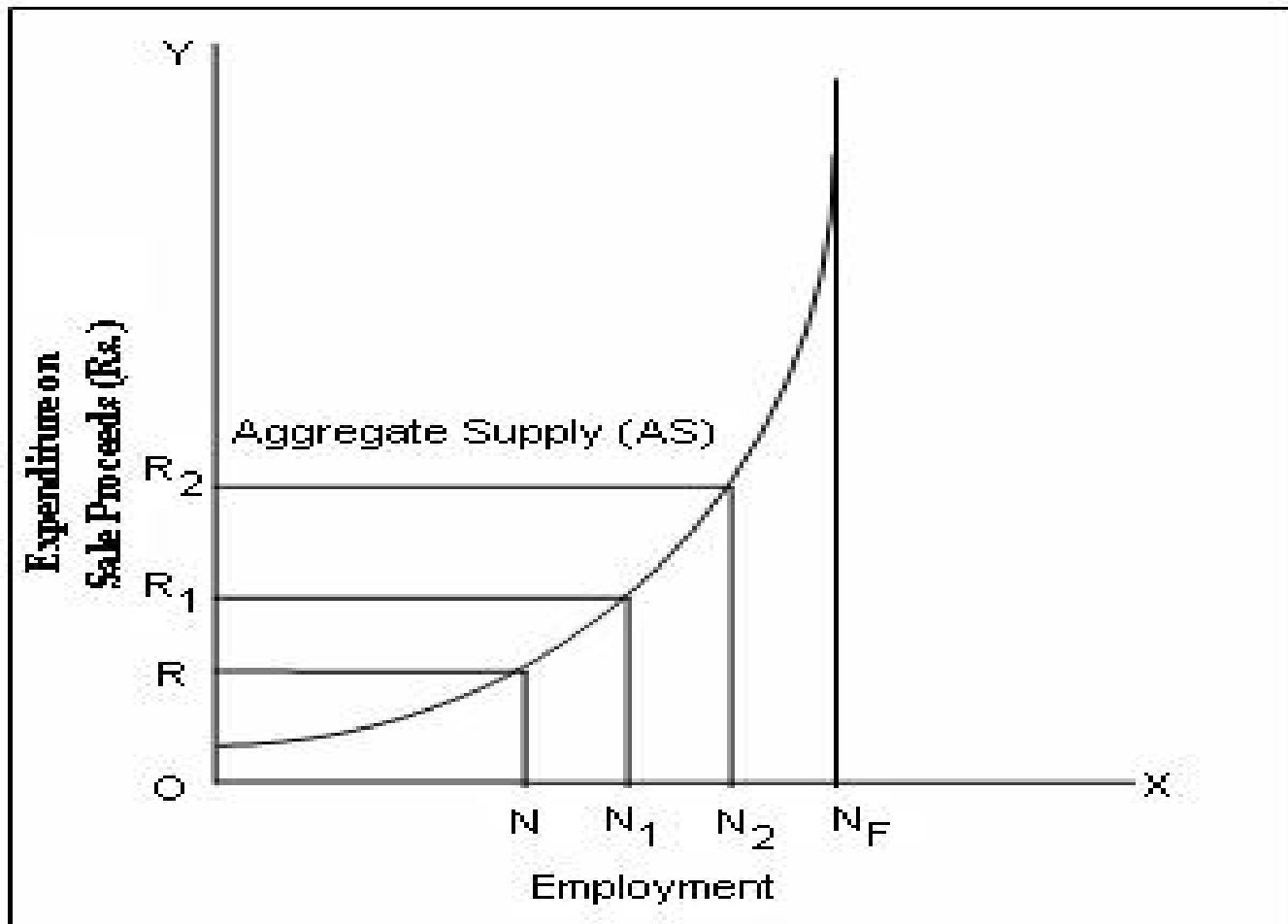
Aggregate Demand Function



Aggregate Supply Function

- Entrepreneurs incur some level of money cost of production at every level of employment. They must earn some minimum revenue to incur normal profits.
- Hence, a certain amount of minimum proceeds are necessary to induce employers to provide any given amount of employment.
- This minimum amount of proceeds arising from the sale of output is aggregate supply price.
- It is the amount of money which all entrepreneurs must receive from the sale of output at different levels of employment.
- If they don't get these minimum receipts then they will reduce the output.
- It is the schedule of minimum amounts of proceeds required to induce entrepreneurs to provide varying levels of employment.
- It shows the cost of producing different level of output.

Aggregate Supply Function



Point of Effective Demand

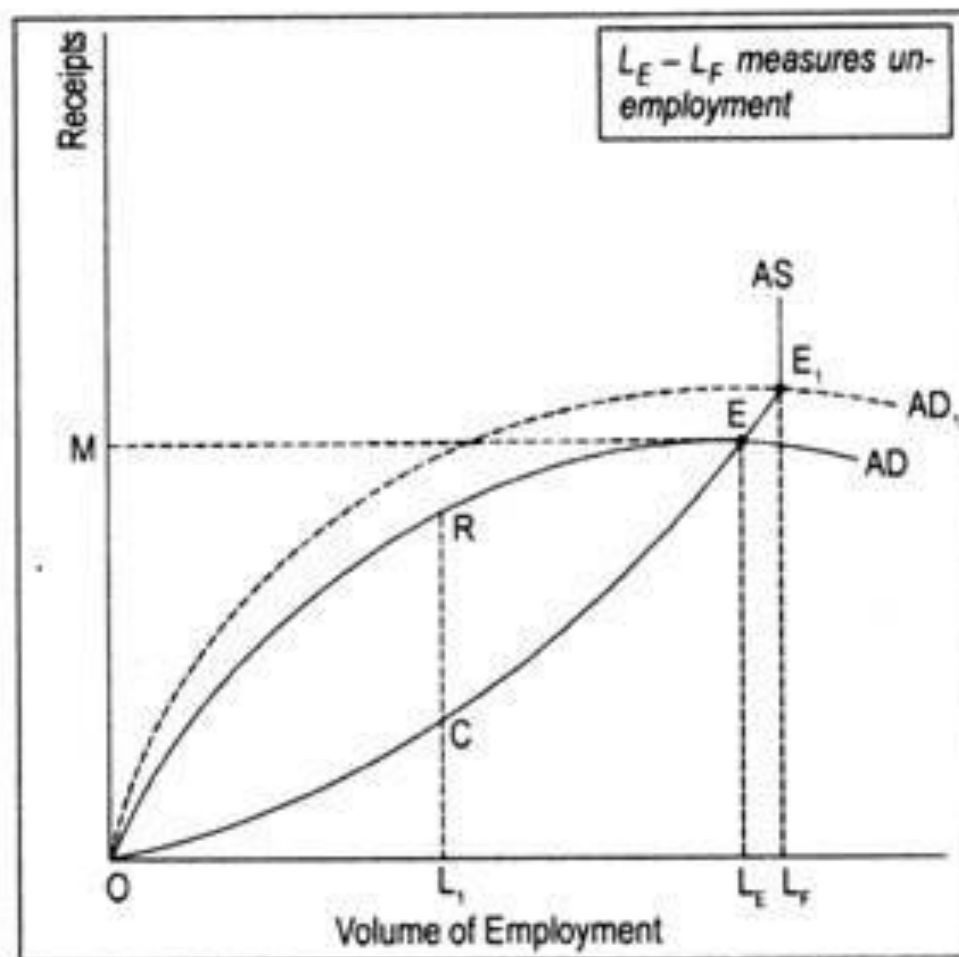


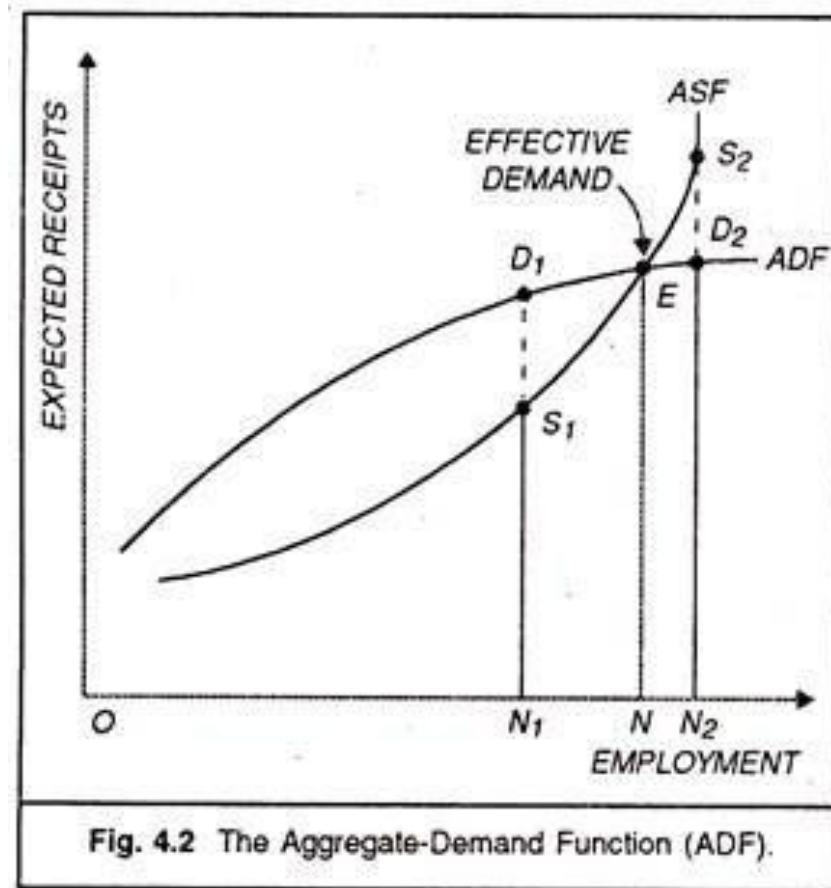
Fig. 3.4: Effective Demand and Determination of Employment

Effective Demand

- The equilibrium level of employment is determined at :

Aggregate Demand =
Aggregate Supply

Expect to Receive from
an employment level=
Receipts they must earn
to maintain the same
employment level



Relevance of Keynesian Theory for Developing Economies

1. Effective demand
2. Consumption function
3. Investment function
4. Investment multiplier
5. Rate of Interest
6. Liquidity preference theory

Liquidity Preference Theory of Interest

Three Motives of holding and demanding money

1. Transactions motive demand for money
2. Precautionary motive demand for money
3. Speculative motive demand for money

$M = M_1 + M_2$ where

M_1 = Money demanded for Transactions and
Precautionary motive

M_2 = Speculative motive demand for money

M = Total demand for Money

Transactions and Precautionary motive

❖ Transactions motive is further divided as:

a) Income motive (Households)

b) Business motive (Firms)

There is a time lag between earning income and expenditure. So they need to hold cash.

- If Y increases, then transactions also increase
- Therefore demand for money also increases.

❖ Precautionary motive : For unforeseen and unexpected circumstances

It is interest inelastic.

$$M_1 = f(Y)$$

Speculative motive demand for Money

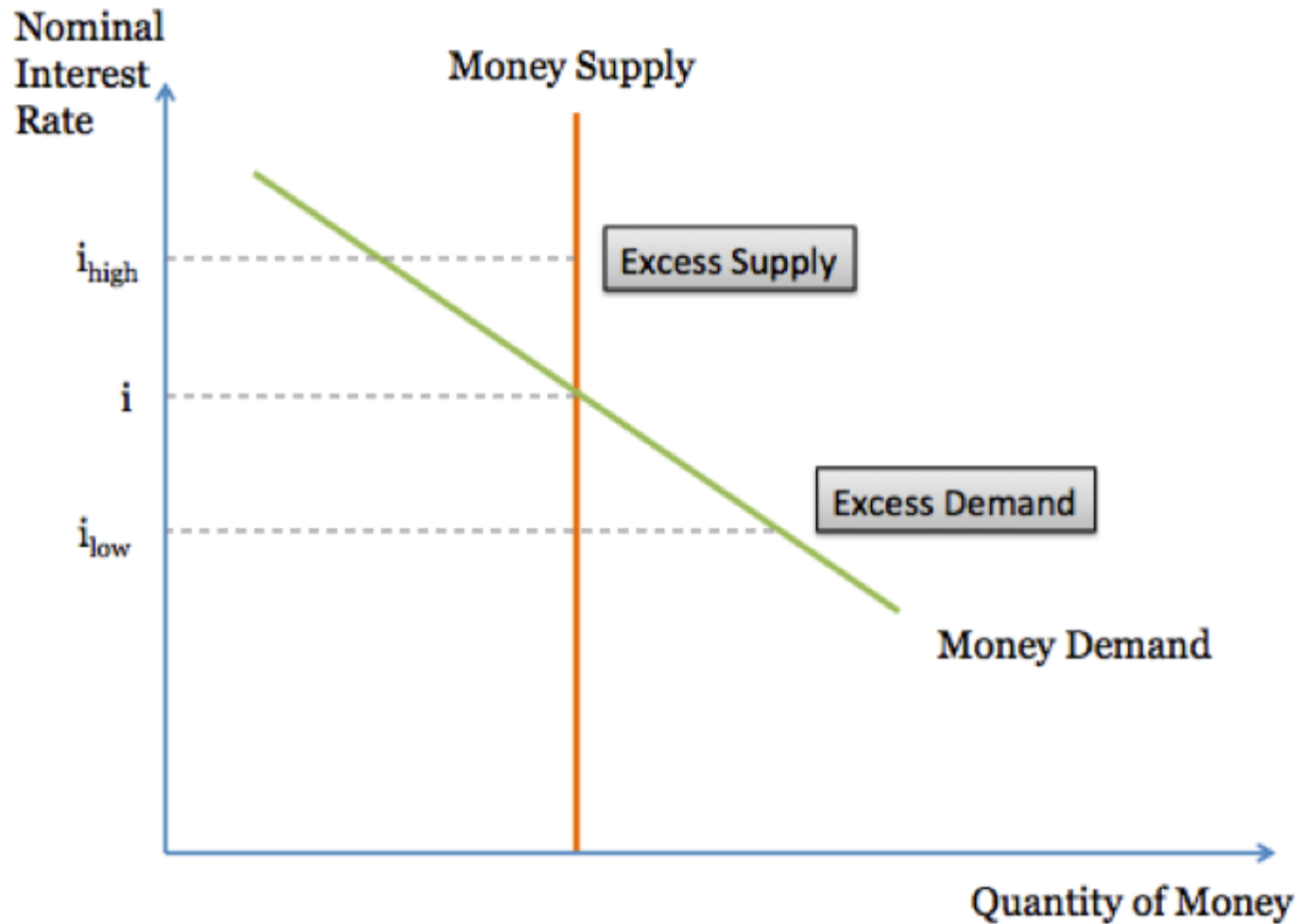
- Related to store value of money
- Based on asset demand for money
- People keep ready cash to take advantage of changes in the price of assets.
- It is determined by Income and ROI both.
- It is interest elastic.

$$M_2 = f(Y, r)$$

Speculative motive demand for Money

- There is an inverse relation between ROI and Speculative demand for money.
- At high ROI, less money is held in the form cash
- Also, the Opportunity cost of holding cash is more.
- And the prices of assets are less so speculators buy the assets rather than holding cash. It is appropriate time to invest in assets.
- At low ROI, more money is held in the form of cash.
- When the ROI is less, it will be vice versa.

Determination of Rate of Interest



Changes in Money supply and Money demand on ROI

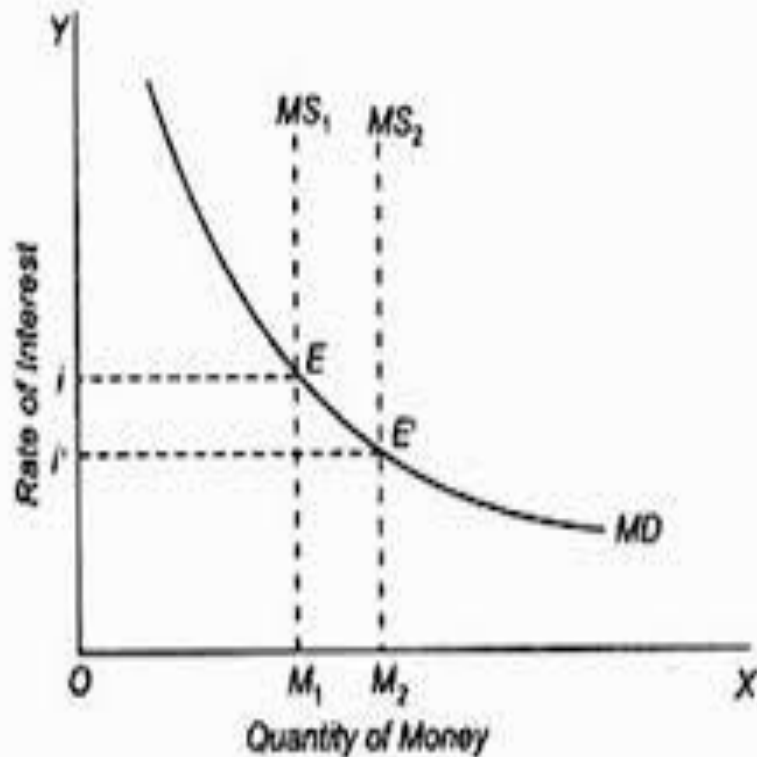


Fig. 17.5. *Effect of Increase in Money Supply on the Rate of Interest.*

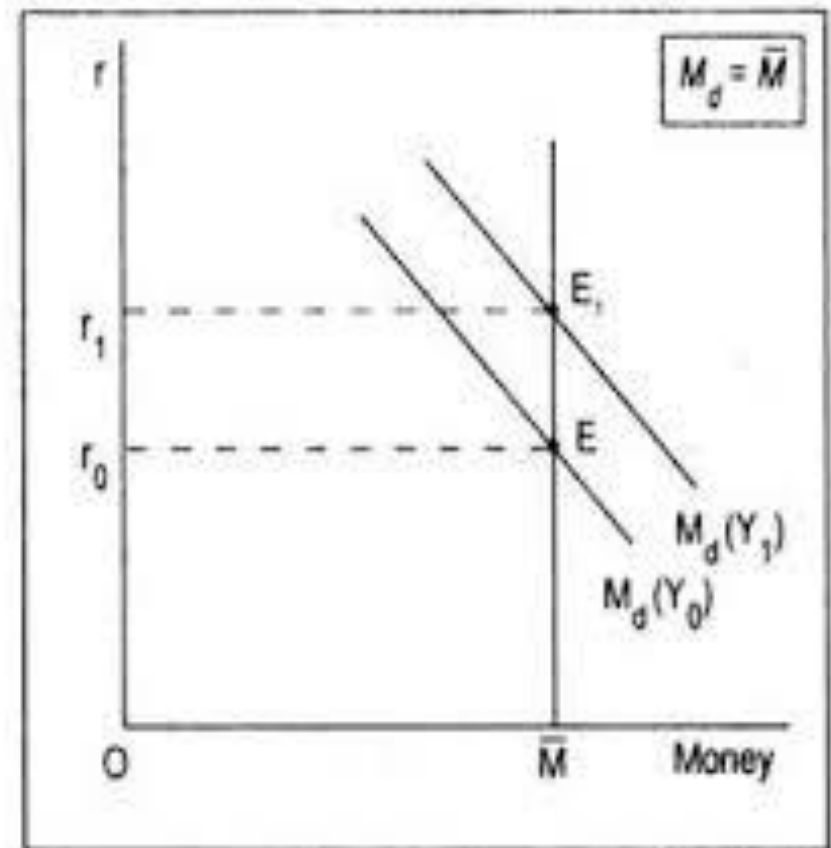


Fig. 3.29: Money Market Equilibrium

Evaluation

1. Real factors are ignored
2. No liquidity without savings
3. Indeterminate theory
4. Demand for investment (savings) is neglected
5. Confined to short-run
6. Does not explain existence of different rates of interest

Module III

IS-LM Model

Any economy has two Markets

1. Product market

Commodity market

Real Market

(Real flow)

Product market equilibrium
depends on

Agg. demand = Agg. Supply

It determines NI

Agg. Demand = $C + I + G + (X - M)$

Agg. Supply = Y

Thus ,Product market equilibrium
depends on **$C + I + G + (X - M) = Y$**

2. Money market

Asset market

Financial Market

(Money flow)

Money market equilibrium
depends on

Money demand = Money supply

It determines ROI

Money demand = $M1 + M2 = M_d$

Money supply = M_s

Thus ,Product market equilibrium
depends on **$M_d = M_s$**

IS-LM Model

- There has to be balance between Production and Money flow.
- Excess Production → Excess Supply → Reduction in prices of commodities → Piling of Stocks → Reduction in Production → Reduction in Employment → Reduction in Income → Reduction in Aggregate demand → Over all Slow down and situation of recession.

Thus is Production > Money flow can lead to Recession

IS-LM Model

- Excess money ss \rightarrow More cash is hand \rightarrow Increase in demand for goods \rightarrow Shortage of Production \rightarrow Increase in price of goods and services \rightarrow situation of Inflation \rightarrow reduction in the real income of people.

Thus if Money flow $>$ Real flow can lead to inflation
Hence, for maintaining balance,

$$\text{Money flow} = \text{Real flow}$$

Derivation IS and LM

Product Market= Fiscal Policy

- Product market equilibrium depends on $C + I + G + (X - M) = Y$
- The IS curve is the locus of all combinations points of equilibrium r and NI at which product market is in equilibrium.
- Thus , IS curve represents Product market equilibrium
- The Policy that controls IS is Fiscal Policy = Govt Budget
- **The Authority that controls Fiscal Policy is Government**

Money Market= Monetary Policy

- Money market equilibrium depends on $M_d = M_s$
- The LM curve is the locus of all combinations points of equilibrium r and NI at which money market is in equilibrium.
- Thus , LM curve represents Money market equilibrium
- The Policy that controls LM is Monetary Policy
- **The Authority that controls Monetary Policy is RBI/ CB**

Derivation of IS curve

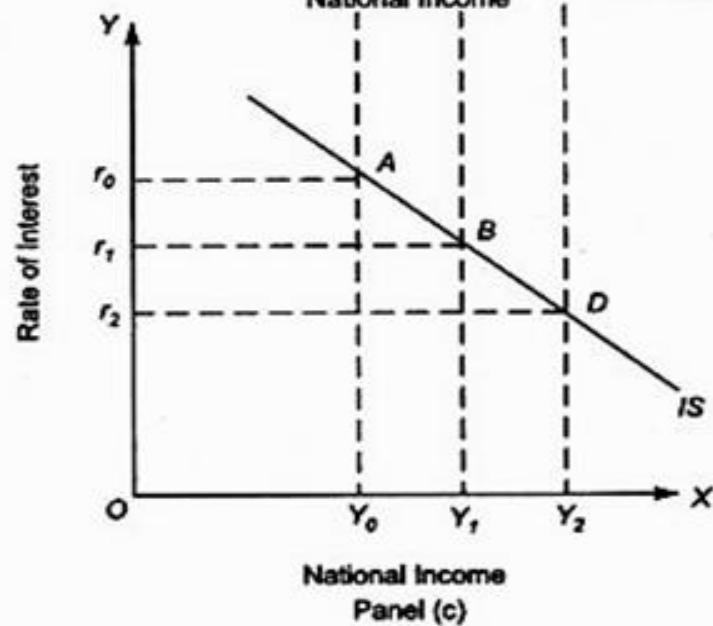
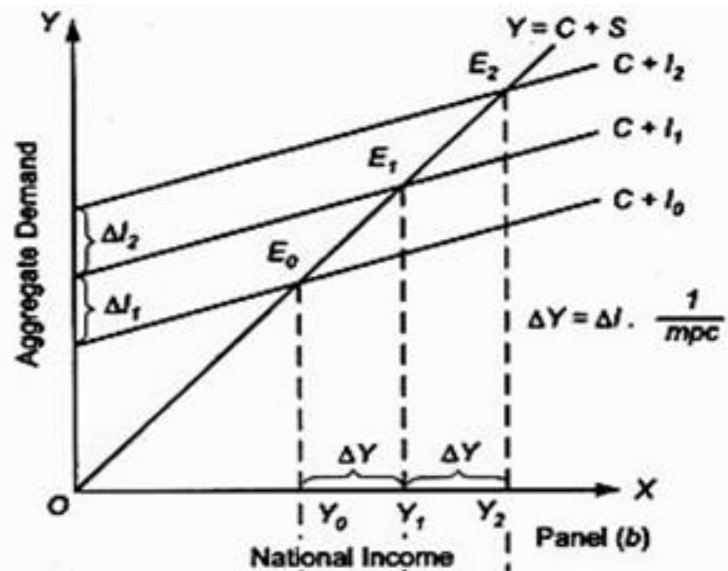
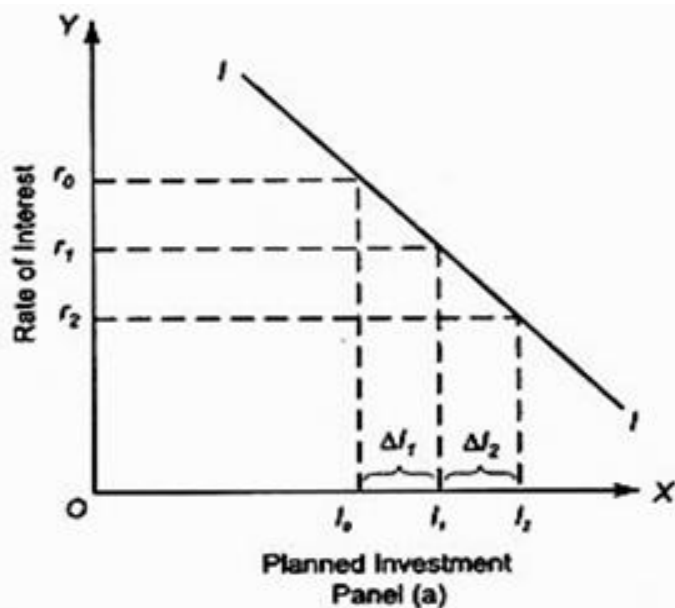


Fig. 20.1. Derivation of IS Curve : Linking Rate of Interest with National Income through Investment and Aggregate Demand

Derivation of LM curve

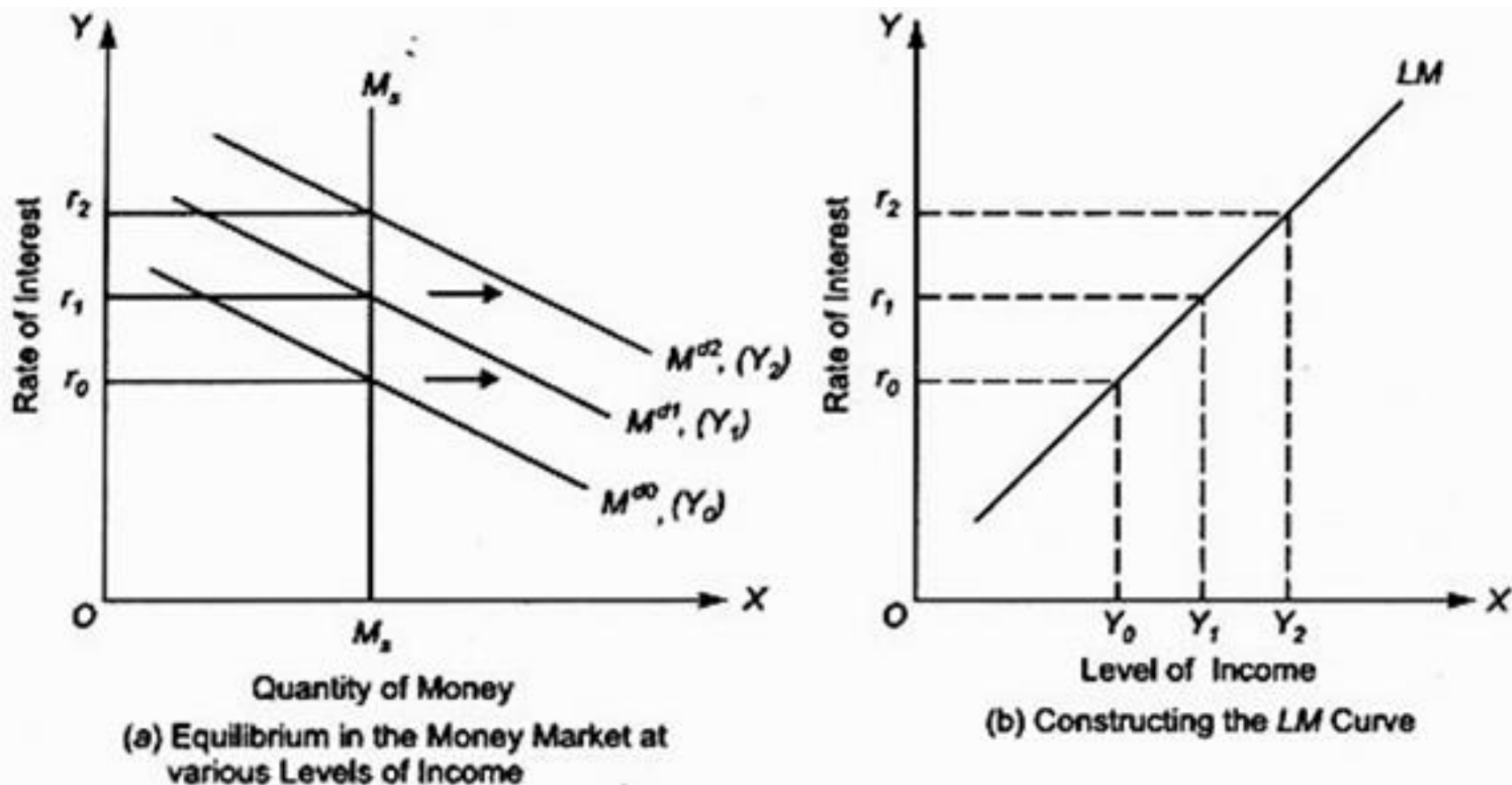


Fig. 20.2. Derivation of LM Curve

Simultaneous Equilibrium

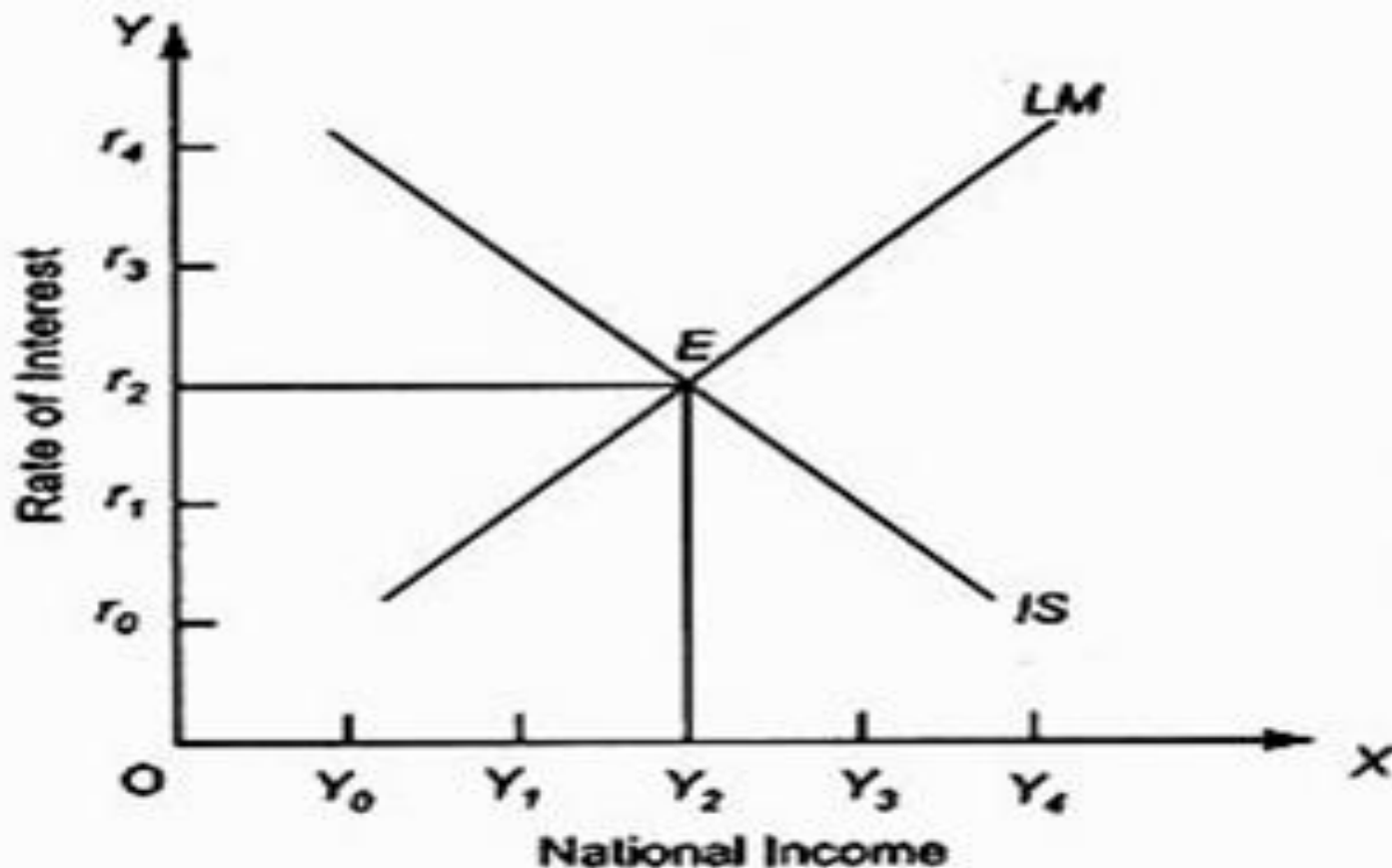


Fig. 20.3. The IS and LM Curves Combined: The Integration of Commodity and Money Markets and Joint Determination of Interest Rate and Income Level

Simultaneous Equilibrium

When $IS = LM$ at E

Product market = Money Market

Real Output = Money flow

Real Demand = Buying capacity

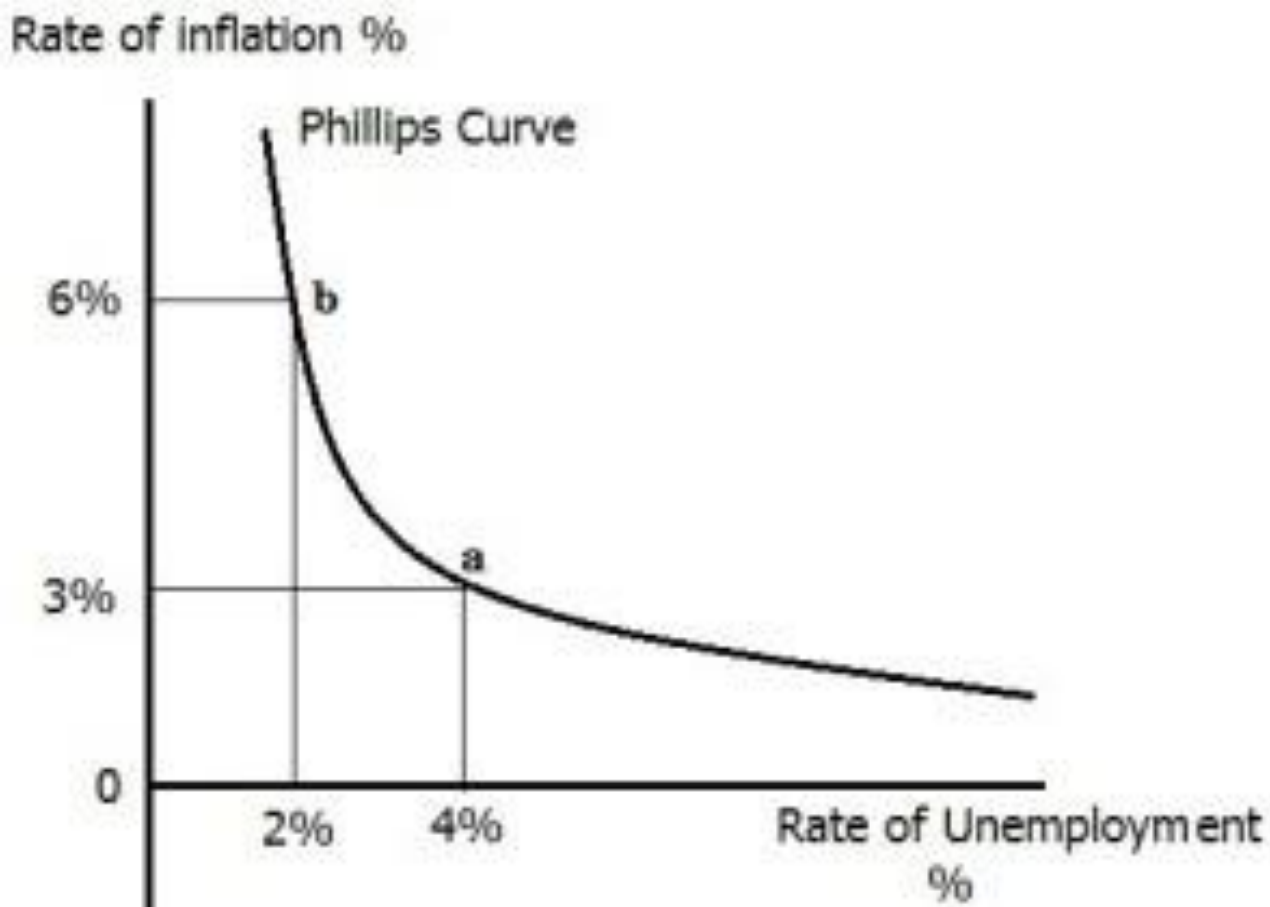
$$C + I + G + (X - M) = Y = M_d = M_s$$

Phillips Curve

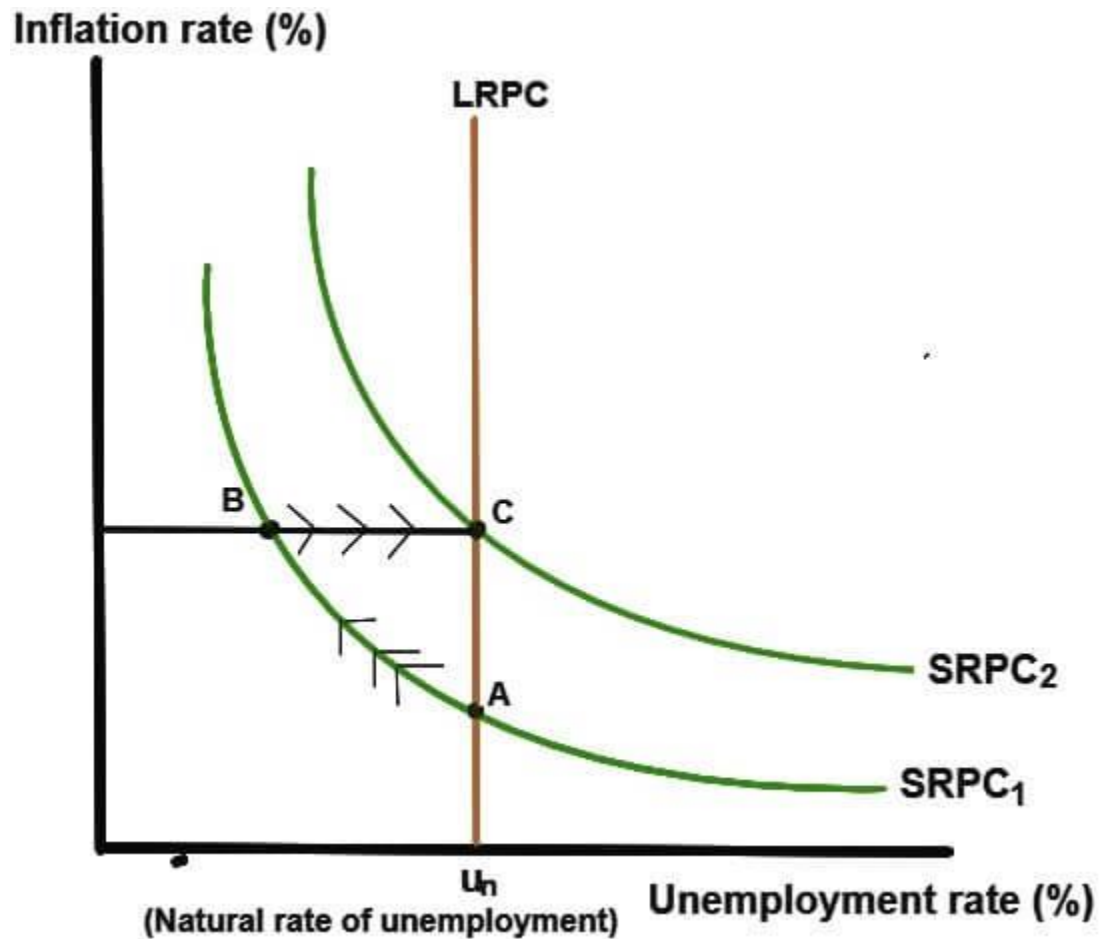
Introduction:

- Prof. A. W. Phillips studied wage behaviour in UK.
- The Philips curve brings out the inverse relation between the rate of unemployment and rate of increase in money wages.
- The higher the rate of unemployment, the lesser the wage rate and vice versa.
- Thus there is a trade-off between the rate of unemployment and wage rate.
- But there is direct relation between money wages and price. As price increases, the labour class bargains for increase in wages.

Shortrun Phillips curve



Longrun Phillips Curve



Meaning of Inflation

- A continuous increase in the general price level
- It is the process of sustained rise in general price level
- Too much money and too few goods and services.
- Where Mss in far in excess to goods and services
- Some definitions :

A persistent and appreciable rise in general price level.

When money income is expanding more than in proportion to income earning activity.

According to Friedman its 'Inflation is taxation without representation.'

Not Sporadic, Not temporary Not sectoral, Not micro economic.

Concepts of Inflation

- Single digit : Normal feature : Moderate inflation
- Double digit inflation: Above 10% per year: Issue of concern
- Headline : Top-line inflation. It is based on WPI. It is the current rate of inflation at which prices are rising now. Does not consider prices services.
- Core inflation= Headline inflation - Food & Fuel Prices.
- Food inflation:
- Retail Inflation: Calculated on the basis of Consumer price index. Actual inflation borne by individual

Methods to calculate Rate of Inflation

- Using Wholesale price Index:

$$\text{Rate of Inflation} = \frac{WPI_T - WPI_{T-1}}{WPI_{T-1}}$$

- GNP deflator = $\frac{\text{Nominal GNP}}{\text{Real GNP}}$

Causes of Inflation

Demand Pull causes of Inflation

1. Increase in money supply
2. Deficit finance
3. Credit creation
4. Exports
5. Repayment of Public debt
6. Black money
7. Increase in Population

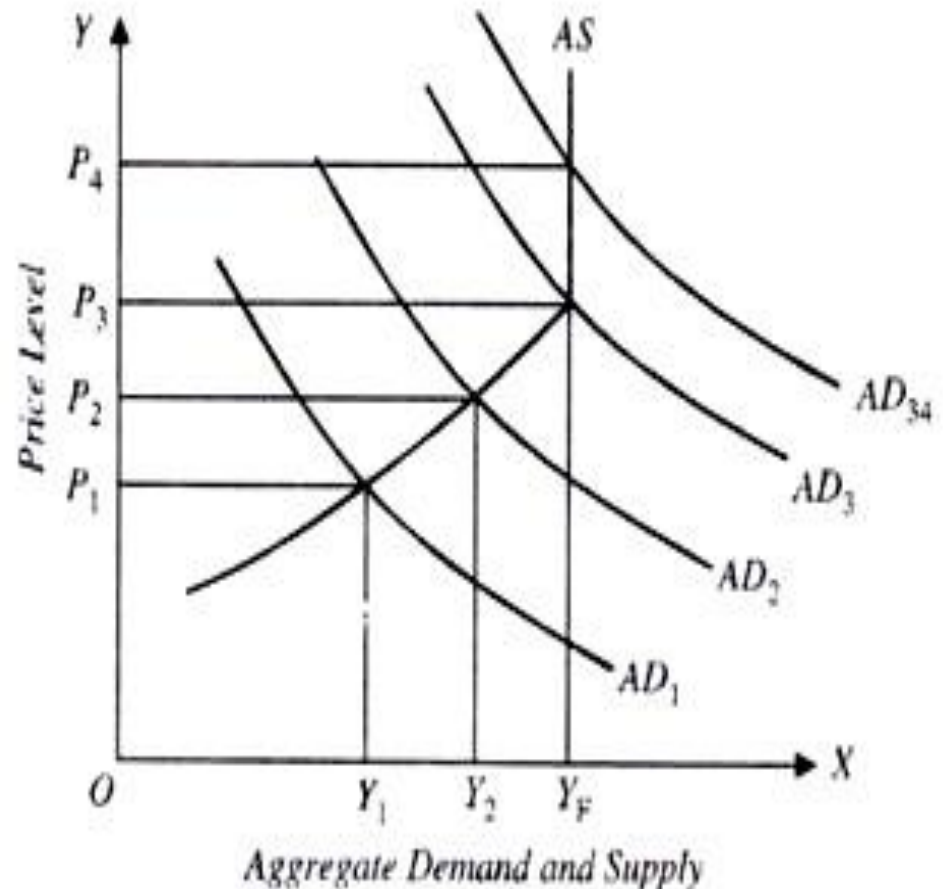


Fig. 23.1. Demand-Pull Inflation

Causes of Inflation

- Cost Push causes of Inflation:
 1. Increase in wages
 2. Increase in material cost
 3. Increase in profit margin
 4. Other factors

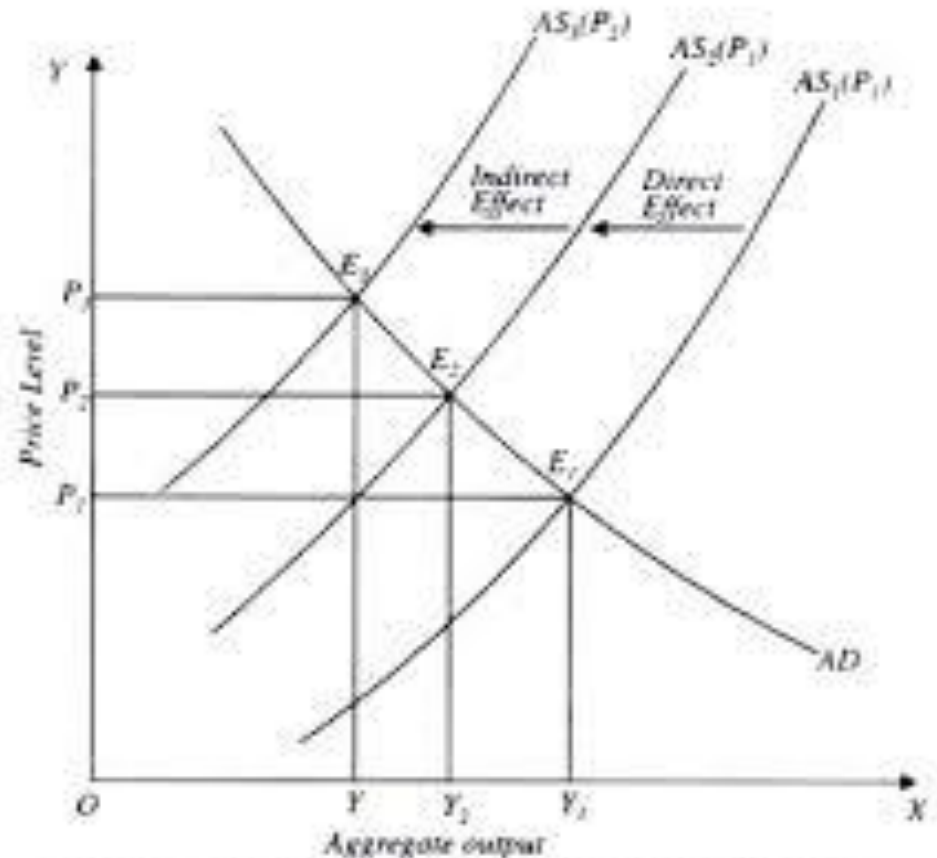


Fig. 23.4. Cost-Push Inflation: Accounting for both Direct and Indirect Effects of Oil Price Shock

Causes of Inflation in Developing Economies

- **Demand Pull Causes of Inflation :**

1. Increase in income
2. Huge expenditure
3. Gestation period
4. Increase in population
5. Unproductive expenditure
6. Foreign aid

- **Cost Push Causes of Inflation**

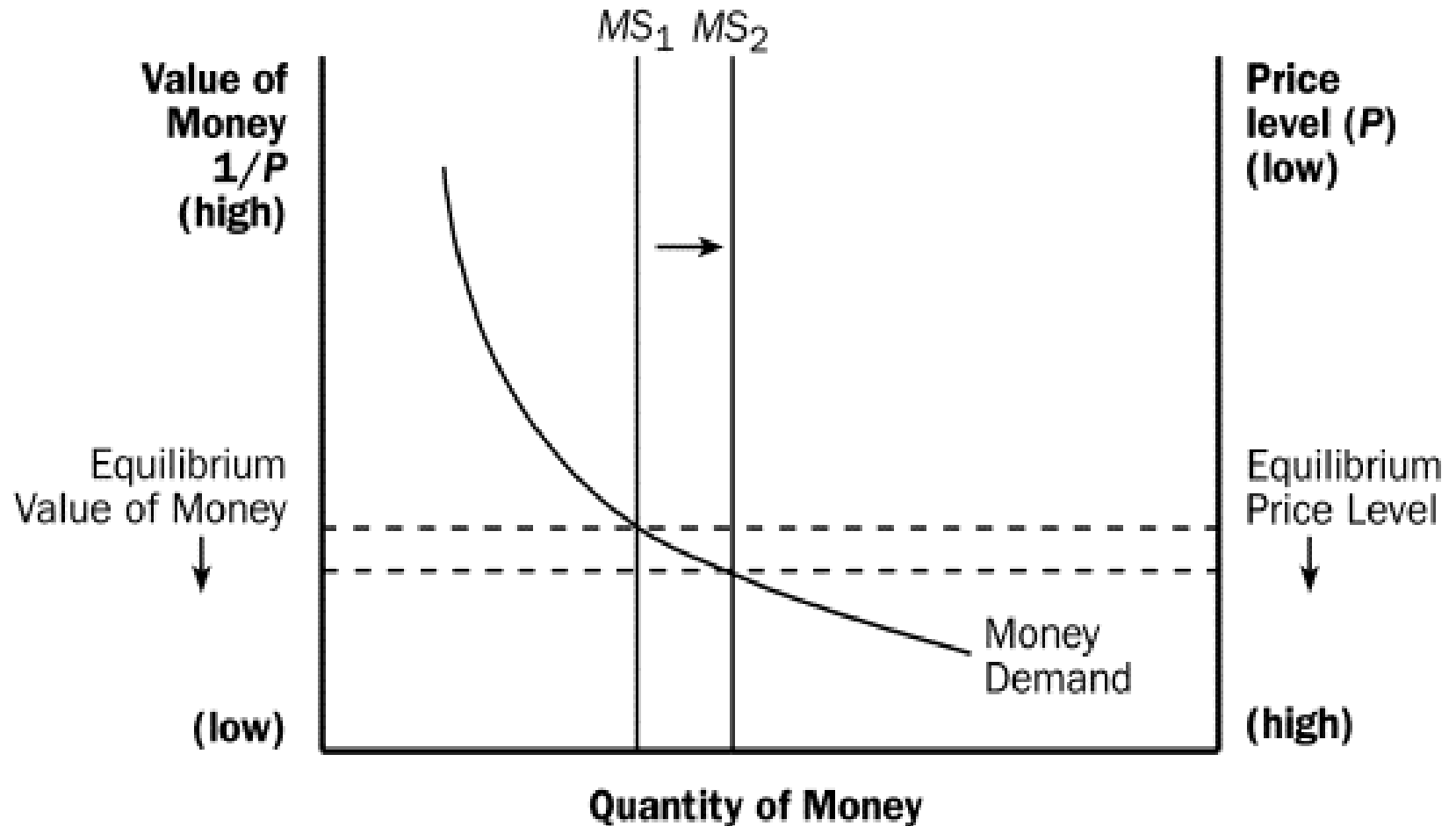
1. Inelastic supply
2. Backward agriculture sector
3. Supply shocks
4. Structural rigidities
5. Change in exchange rates
6. Increase in wages
7. Infrastructure bottlenecks
8. Inefficient public sectors
9. Inefficient and Dishonest administration.

Effects of Inflation

1. Decline in the value of money:

- Value of money is the purchasing power of money.
- As price increases, the value of money decreases.
- The following diagram explains the inverse relation between value of money and prices

Effects of Inflation



Effects of Inflation

- Decline in the value of money:
- Investment and production
- Real Income
- Employment
- Income Distribution
- Farmers
- Fixed income group
- Debtors and creditors
- Social and Political disturbances

Measures to control Inflation

1. Monetary Measures :

Monetary Policy :

a) *The Quantitative Methods:*

- i. Bank rate
- ii. Open market operations :
selling Govt securities to
banks.
- iii. CRR
- iv. SLR
- v. Repo and Reverse repo
- vi. Liquidity adjustment
facility(LAF)

b) *Qualitative measures:*

- i. Selective credit controls
- ii. Margin requirements
- iii. Consumer credit controls
- iv. Rationing of credit
- v. Directives

2. Fiscal Measures : Fiscal Policy :

a) Direct and Indirect Taxes

b) Public Borrowings

c) Compulsory savings

d) Public expenditure

3. Direct (Administrative) Measures:

a) Price Control/ Price ceiling

b) PDS

c) Imports

d) Control or freezing of wages, profits, dividends and bonus

e) Increase in supply

f) Indexation

Monetary Policy and Inflation Targeting

- Various targets : Inflation, Exchange rate, Mss
- Inflation targeting involves:
 1. Public announcements of medium term numerical targets.
 2. Institutional commitment to price stability
 3. An information about variables used
 4. Increased transparency of monetary policy
 5. Increased accountability of Central Bank