Chapter Three: Macro Economics

Macro economics is a branch of economics which is concerned with the nature, relationships and behavior of aggregate quantities and averages (such as national income, total consumption, savings and investments, total employment, general price level, aggregate expenditure, aggregate demand and supply of goods and services).

Since macro economics deals with aggregate quantities of the economy as a whole, it is sometimes also called **Aggregate Economics**.

The objectives of macro economics include:

- High economic growth
- Reduce unemployment
- Stable inflation
- Reduce budget deficit and balance of payment (BoP) deficit
- Fair income distribution

The basic problems in macro economics include:

- Business cycle
- Unemployment
- Inflation
- Budget deficit
- BoP deficit
- Income distribution

1. **Business Cycle**

Business cycle refers to the recurrent ups and downs in the level of economic activities. It is the fluctuations in economic activity overtime.

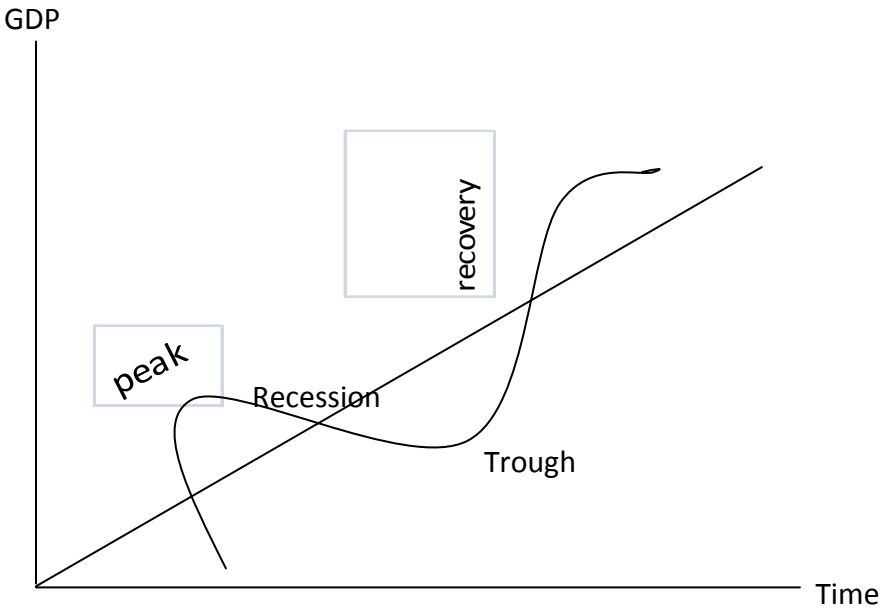
* Peak (Boom): it is a period of maximum output during a cycle. It is the highest level of economic activity. There is:

- High employment
- High demand
- High degree of utilization of resources
- High level of production

* Recession (Contraction): it is a period when economic activities slow down.

- Price declines
- Output decline
- Employment decline

- Investment decline as demand decreases.



* Trough: it is the lowest level of economic activity over the Business Cycle. When the economy is at trough, there is idle resource.

- lowest level of output
- Massive (large) unemployment
- Low level of demand
- Idle productive capacity

* Recovery/Expansion: it is an upturn of economic activity during the Business Cycle. There is:

- Rise in production
- Rise in employment
- Rise in demand
- Price of factors of production increases.

Note: Recession is a decline in the level of economic activity in a very short period of time. If the decline in economic activity lasts for extended period it is called **depression**.

2. Unemployment

Unemployment refers to a pool of people above a certain age who do not have job and are actively seeking a job. The unemployed people are those who are not employed and actively seeking a job. And individuals who are currently working are called employed.

Thus, the sum of employed and unemployed people gives the total labor force.

Labor force = unemployed people + employed people

$$\text{unemployment rate} = = \frac{Unemployed}{Labor\_force} \times 100$$

Forms of Unemployment

There are different forms of unemployment:

- Cyclical unemployment
- Frictional unemployment
- Structural unemployment

a) Cyclical Unemployment: is the type of unemployment resulting from decline in national output in periods of low economic activity (recession). Macro economic policy is largely concerned with this type of unemployment.

b) Frictional Unemployment: is the type of unemployment that resulted from change of new jobs, entering the labor force (like new graduates), etc.

This type of unemployment is the result of frictions in the labor market that limit speedy movement to new employment.

c) Structural Unemployment: is the type of unemployment due to changes in the composition or structure of the goods and services produced and demanded in the economy. It is the result of decline in demand of certain industry products due to change in fashion or technology.

- Training those people with the technology will reduce this type of unemployment.

Total Unemployment = Level	Frictional Unemployment +	Structural Unemployment +	Cyclical Unemployment

Frictional	Structural	Normal Unemployment

Unemployment +	Unemployment =	(Natural Unemployment)

b/c these two types of unemployment are regarded as unavoidable.

Full employment does not mean zero unemployment. When there is full employment, there may be some unemployment. But that unemployment is not more than the natural unemployment.

3. Inflation

Inflation is a situation of continuous increase in the general price level. It is a sustained increase in the general price level.

Inflation can be measured using price index.

Price Index = $\frac{\text{Current Cost of Fixed Amount of Goods}}{\text{Base Year Cost of the Fixed Amount of Goods}}$

Eg. CPI and PPI

CPI = Consumer Price Index

It measures the change in the average price of a market basket of goods and services which represent consumption pattern of households.

$$\textit{Inflation rate} = \left(\frac{CPI_1 - CPI_0}{CPI_0}\right) \times 100\%$$

Where: CPI_1 is the current consumer price index and CPI_0 is that of the base year's.

Eg. Inflation Rate in 2007 $= \left(\frac{CPI_{2007} - CPI_{2006}}{CPI_{2006}}\right) \times 100\%$

		2006		2007	
Goods	Qty	Price	Cost	Price	Cost
Cloth	5	100	500	120	600
Wheat	10	6	60	15	90
Egg	50	0.8	40	1	50
Total Cost			600		740

$$CPI_{2007} = \left(\frac{Cost_{2007}}{Cost_{2006}}\right) \times 100\%$$

CPI 07 = $\frac{740}{600}$ X 100 = 123.3

Rate of inflation $= \left(\frac{123.3 - 100}{100}\right) \times 100\%$ = 23.3%

4. Budget Deficit

Government deficit is said to occur when government outlays in a given year exceeds receipts in the same year. Deficit means that the government spends more than its revenue

Budget = T – G

T = Revenue collected

G = Expenditure of the government

If T<G, budget deficit

If T>G, budget surplus

If T=G, balanced budget

5. Trade Deficit

When the value of imports exceeds the value of exports in a given year, the economy faces trade deficit.

Trade Balance = X – M(=Value of export – value of import)

If X>M, trade surplus

If X<M, trade deficit

If X=M, balanced Trade

3.2. National Income Accounting (NIA)

3.2.1. Basic Concepts: GDP and GNP

NIA is the method of measuring the aggregate output and income of an economy. It is based on the principle of the circular flow of economic activity. The value of total output equals the value of total income and expenditure.

Two important measures: GDP and GNP

Gross Domestic Product (GDP) is the market value of all final goods and services produced in the economy, in a given time period, and *within* the boundary of a country.

In the calculation of GDP, intermediate goods are excluded to avoid double counting.

Intermediate goods are goods that are produced by one firm for use in further processing by another firm.

Eg. Stages of Production	Values of Sales
Wheat	3.00
Flour	3.50
Bread	5.00

GDP = Market Value of All products – Market Value of intermediate products

GDP = 11.50 – 6.50 = 5.00

Gross National Product (GNP) is the monetary value of all (final) goods and services produced by resources owned and supplied by the country's citizen irrespective of where the resources are located.

* GDP is the value of output (final) produced by factors of production located within a country who ever has produced it.

GNP = GDP + NFI

Where NFI=net property income from abroad, which is the difference of the income inflow and income outflow.

NFI = Received – Paid=R-P

If R>P, NFI>O, then GNP>GDP

If R<P, NFI<O, then GNP<GDP

If R=P, NFI =O, then GNP = GDP

- In the production process there is wear and tear of capital goods, which is referred to as depreciation.

It refers to the value of the total output which is needed to replace worn out capital.

Net National Product (NNP) = GNP – depreciation

Net Domestic Product (NDP) = GDP - depreciation

- National output is measured at market prices including direct taxes.

National income (NI) = NNP –IBT +S

IBT = indirect business tax

S = subsidy

- National income is the total income earned by the factors of production owned by citizens.

But it does not represent the total income received by individuals.

Total income received by individuals is known as **personal income**.

$$PI = NI - (UCP + CYT + SSC) + TP$$

UCP=Undistributed corporate profit
CYP=Corporate income tax
SSC=Social security contribute
TP=Transfer payments

- Personal disposable income

$$PDI = PI - PIT$$

PIT=Personal income tax.

3.2.2. Approaches to Measuring GDP

The total output of a country can be measured in three different ways.

a) The Value Added Approach

b) The Income Approach

c) The Expenditure Approach

A) The Value Added Approach

The total value added of a country is the difference between the monetary value of all outputs products and the monetary value of all intermediate inputs i.e.

GDP = Value added = Total output Value – Total intermediate Output Value

Eg.

	Value	Value Added
Wheat	3.00	3.00
Flour	3.50	0.50
Bread	5.00	1.50
		GDP=5.00

B) Expenditure Approach

It is the sum of all expenditures on final goods and services.

The expenditures can be: Personal consumption exp (C)

Private investment Expenditure (I)

Government expenditure (G)

Net exports (X –M)

GDP = C+G+I+(X-M)

C) Income Approach

It measures GDP in terms of income earned. It is the sum of all incomes accrued to factors of production that contribute to the production process.

The major components of a country's income include:

- Wage and salary = it is compensation for employees
- Rental income = income earned from land
- Profit = income earned by entrepreneurs.
- Interest = return for capital
- Depreciation = the wear out of capital goods in the production process.
- Indirect business taxes: eg. Sales tax, Excise tax paid by businesses to the government.

Depreciation and indirect business taxes are part of the incomes of owners of factors of production.

GDP = (W + S) + R + I + Π+ IBT + D

3.2.3. Nominal GDP Vs Real GDP

Since GDP is measured in monetary units (values), the amount of GDP can change because of the changes in quantity of goods and services produced and/or changes in price of goods and services.

However, we are usually interested in the changes in the actual goods and services produced, not because of prices. Therefore there are two types of GDP: Nominal and Real GDP.

a) **Nominal GDP (GDP at market price)**: is simply the value of final goods and services produced during the year based on current market prices.

*nominal GDP can change when the amount of goods and services produced change and/or when current price changes.

b) **Real GDP (GDP at constant price):** is the measure of the values of final goods and services by using price which prevailed during the base or reference year.

Thus, real GDP varies when the actual production of goods and services change.

$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price index}} = \frac{\text{Nominal GDP}}{\text{GDP deflator}}$$

Eg.

	Total Output		Price/Kg		Nominal			Real		
Year	Teff	Wheat	Teff	Wheat	T	W	GDP	T	W	GDP
2002	70	30	2	1	140	30	170	140	30	170
2003	50	60	3	2	150	120	270	100	60	160
2004	100	60	2.5	3	250	180	430	200	60	260

The base year is 2002.

3.2.4. GDP and Welfare

How good is GDP as a measure of national welfare? Total welfare depends on a number of factors such as leisure, security etc. That is, welfare depends not only on income but also other factors that affect the quality of life. Hence GDP is not a perfect measure of welfare, since it does not take to account several factors like

a) Non-market goods and services are not included in the GDP

Eg. Household activities

b) Leisure: GDP does not consider the satisfaction that people get from leisure time (recreational activity).

GDP is understated

c) Distribution of Income

GDP does not account for changes in the distribution of income across households. It does not tell us any thing about whether output is distributed fairly/equally or not.

d) Loss of environmental damage

Environmental degradation, air & water pollution.

e) The informal (underground) Economy

This includes transactions of output that are not in the government's statistics because they are different to measure or because they are illegal.

GDP understates welfare.

f) It is difficult to take into account the changes in the quality of goods and services.