Macroeconomics provides a framework for the study of the determinants & movements of such key economic variables as unemployment, inflation, interest rates, exchange rate, productivity and growth, government budget deficit/surplus, foreign trade deficit etc

Economy comes from a Greek word for **“one who manages a household”**

A household and an economy face many decisions like:

Who will work?

What goods and how many of them should be produced?

What resources should be used in production?

At what price should the goods be sold?

Scarcity means that society has limited resources and therefore cannot produce all the goods and services people wish to have.

Prices rise when the government prints too much money.

Society faces a short-run tradeoff between inflation and unemployment.

**TEN PRINCIPLES OF MACROECONOMICS**

1. **PEOPLE FACE TRADEOFFS.**

We usually have to give up another thing e-g guns vs. butter, food vs. clothing, leisure time vs. work, efficiency vs. equity. Making decisions requires trading off one goal against another

**Efficiency** means society gets the most that it can from its scarce resources.

**Equity** means the benefits of those resources are distributed fairly among the members of society

**The opportunity cost** of an item is what you give up to obtain that item

1. **COST OF SOMETHING IS WHAT YOU GIVE UP TO GET IT.**

Decisions require comparing costs and benefits of alternatives

1. **RATIONAL PEOPLE THINK AT THE MARGIN**

People make decisions by comparing costs and benefits at the margin.

1. **PEOPLE RESPOND TO INCENTIVES.**

Marginal changes in costs or benefits motivate people to respond. The decision to choose one alternative over another occurs when that alternative’s marginal benefits exceed its marginal costs!

1. **TRADE CAN MAKE EVERYONE BETTER OFF**

People gain from their ability to trade with one another. Competition results in gains from trading. Trade allows people to specialize in what they do best.

1. **MARKETS ARE A GOOD WAY TO ORGANIZE ECONOMIC ACTIVITY**

A market economy is an economy that allocates resources through the decentralized decisions of many firms and households as they interact in markets for goods and services e-g

• Households decide what to buy and who to work for.

• Firms decide who to hire and what to produce.

1. GOVERNMENTS CAN SOMETIMES IMPROVE MARKET OUTCOMES

**Market failure** occurs when the market fails to allocate resources efficiently. When the market fails (breaks down) government can intervene to promote efficiency and equity.

Market failure may be caused by:

• An externality, which is the impact of one person or firm’s actions on the well- being of a bystander.

• Market power, which is the ability of a single person or firm to unduly influence market prices.

1. **THE STANDARD OF LIVING DEPENDS ON A COUNTRY’S PRODUCTION**

Almost all variations in living standards are explained by differences in countries’ productivities. **Productivity** is the amount of goods and services produced from each hour of a worker’s time. Standard of living may be measured in different ways:

• By comparing personal incomes.

• By comparing the total market value of a nation’s production.

1. **PRICES RISE WHEN THE GOVERNMENT PRINTS TOO MUCH MONEY**

Inflation is an increase in the overall level of prices in the economy. One cause of inflation is the growth in the quantity of money. When the government creates large quantities of money, the value of the money falls.

1. **SOCIETY FACES A SHORT-RUN TRADEOFF BETWEEN INFLATION AND UNEMPLOYMENT**

The Phillips Curve illustrates the tradeoff between inflation and unemployment:

as inflation decreases, unemployment increases. It’s a short-run tradeoff

**IMPORTANT ISSUES IN MACROECONOMICS**

• Why does the cost of living keep rising?

• Why are millions of people unemployed, even when the economy is booming?

• Why are there recessions?

• Can the government do anything to combat recessions? Should it??

• What is the government budget deficit? How does it affect the economy?

• Why do the economies have such a huge trade deficit?

• Why are so many countries poor?

• What policies might help them grow out of poverty**?**

**WHY LEARN MACROECONOMICS?**

1. The macro economy affects society’s well-being e-g unemployment and social problems.
2. The macro economy affects your well-being e-g unemployment and earnings growth, interest rates and mortgage payments etc
3. The macro economy affects politics & current events e-g inflation and unemployment in election years.

The market is **competitive** i-e each buyer and seller is too small to affect the market price.

**The demand curve** shows the relationship between quantity demanded and price, other things equal. The demand curve shows that there is an inverse relationship between quantity demanded and price.

**Demand equation can be written as: Qd = D (P, Y)**

**The supply curve** shows the relationship between quantity supplied and price, other things equal. The supply curve shows that there is positive relationship between quantity supplied and price

**Supply equation** i-e QS = S (P, Ps).

The upward sloping supply curve and downward sloping demand curve give rise to equilibrium.

**An increase in income** increases the quantity of cars consumers demand at each price which increases the equilibrium price and quantity.

**An increase in price of steel** (Ps) reduces the quantity of cars producers supply at each price which increases the market price and reduces the quantity.

**Endogenous variable** is a variable that is identified within the workings of the model. Also termed a dependent variable, an endogenous variable is in essence the "output" of the model. **Exogenous variable** is a variable that is identified outside the workings of the model. Also termed an independent variable, an exogenous variable is in essence the "input" of the model. The values of endogenous variables are determined in the model whereas the values of exogenous variables are determined outside the model. In the model of supply & demand for cars: **Endogenous variables are: P, Qd, Qs Exogenous variables are: Y, Ps**

**Flexible prices** mean that prices adjust in the long run in response to market shortages or

surpluses. This condition is most important for long-run macroeconomic activity and long-run

aggregate market analysis.

**Sticky prices** mean that some prices adjust slowly in response to market shortages or

surpluses. This condition is most important for macroeconomic activity in the short run and

short-run aggregate market analysis.

Prices tend to be the **most sticky** in resource markets, especially labor markets, and the **least sticky** in financial markets, with product markets falling somewhere in between.

**Market clearing** is an assumption that prices are flexible and adjust to equate supply and

demand. In the short run, many prices are sticky i.e.; they adjust only sluggishly in response

to supply/demand imbalances

**GROSS DOMESTIC PRODUCT (GDP)** Gross Domestic Product is the total market value of all goods and services produced within the political boundaries of an economy during a given period of time, usually one year. This is the government's official measure of how much output our economy produces

1. Used goods are NOT included in the calculation of GDP.
2. Treatment of inventories depends on if the goods are stored or if they spoil.
3. Intermediate goods are not counted in GDP– only the value of final good
4. Some goods are not sold in the marketplace and therefore don’t have market prices. We

must use their imputed value as an estimate of their value. For example, home ownership and government services.

Apt Rent will be included in GDP e-g your expenditure and landlord’s income.

What about people who own houses? They pay themselves their rent.

What about services of police officers, firefighters and senators? All public goods and

services. These are all included in GDP

**VALUE ADDED** of a firm equals the value of the firm’s output less the value of the intermediate goods the firm purchases.

**Nominal GDP** is the value of final goods and services measured at current prices.

Nominal GDP Y = P × y, Where P is the price level & y is real output.

**Real GDP** is the value of goods and services measured using a constant set of prices.

Hence, real GDP y = Y/P

**GDP DEFLATOR The GDP** deflator, also called the implicit price deflator for GDP, measures the price of output relative to its price in the base year. It reflects what’s happening to the overall level of prices in the economy.

GDP Deflator = Nominal GDP / Real GSP × 100

COMPONENTS OF EXPENDITURES Y = C + I + G + NX

Y =>Total Demand for domestic

C => Consumption Spending by Households

I => Investment spending by businesses and households

G => Govt. purchases of goods and services

NX=> Net exports or net foreign demand

**Capital** is one of the factors of production. At any given moment, the economy has a certain overall stock of capital. While **investment** is spending on new capital.

Stock: A variable or measurement that is defined for an instant in time (as opposed to a period of time). A stock can only be measured at a specific point in time.

Flow: A variable or measurement that is defined for a period of time (as opposed to an instant in time). A flow can only be measured over a period.

NET EXPORTS (NX = EX - IM)

The value of total exports (EX) minus the value of total imports (IM)

**Gross National Product (GNP)** Gross National Product is the total market value of all goods and services produced by the citizens of an economy during a given period of time, usually one year. **Gross Domestic Product (GDP)** Gross Domestic Product is the total market value of all goods and services produced within the political boundaries of an economy during a given period of time, usually one year.

(GNP–GDP) = (Factor payments from abroad) minus (Factor payments to abroad

Net National Product (NNP) It is GNP adjusted for depreciation. NNP = GNP – Depreciation

National Income (NI) NI = NNP – Indirect Business Taxes

Personal Income (PI) = NI – Corporate Profits – Social Insurance Contributions – Net Interest + Dividends + Govt. transfers to Individuals + Personal Interest Income

Disposable Personal Income (DPI) = PI – Tax

**CPI** is a measure of the overall level of prices

REASONS WHY THE CPI MAY OVERSTATE INFLATION

• Substitution bias:

• Introduction of new goods:

• Unmeasured changes in quality





**Okun’s Law states** that a one-percent decrease in unemployment is associated with two percentage points of additional growth in real GDP

The extra output the firm can produce using an additional unit of labor (holding other inputs fixed). MPL = F (K, L +1) – F (K, L)

**THE NEOCLASSICAL THEORY OF DISTRIBUTION** This theory states that each factor input is paid its marginal product.

Disposable income is total income minus total taxes: Y – T.

Keynesian Consumption function can be written as: C = C (Y – T).

**INFLATION**

In economics, inflation is a rise in the general level of prices of goods and services in an economy over a period of time. The term "inflation" is also defined as the increases in the money supply (monetary inflation) which causes increases in the price level. Inflation can also be described as a decline in the real value of money i-e a loss of purchasing power in the medium of exchange

MONEY is the stock of assets that can be readily used to make transactions

**Fiat money:** has no intrinsic value, example: the paper currency we use.

**Commodity money:** has intrinsic value, examples: gold coins

**The money supply** is the quantity of money available in the economy. **Monetary policy** is the control over the money supply

**To expand the Money Supply**: The State Bank buys Treasury Bills and pays for them with new money. **To reduce the Money Supply**: The State Bank sells Treasury Bills and receives the existing dollars and then destroys them

A simple theory linking the inflation rate to the growth rate of the money supply. This theory begins with a concept called **“velocity”.** Velocity is the rate at which money circulates, the number of times the average rupee bill changes hands in a given time period.

V = T / M

V = Velocity T = Value of all transactions M = Money supply

To spend more without raising taxes or selling bonds, the govt. can print money. The “revenue” raised from printing money is called **seigniorage**

**Nominal interest rate**, i is not adjusted for inflation. **Real interest rate**, r is adjusted for inflation:

r = i − π

The Fisher equation**: i = r + π**

A common **misperception** about inflation is that inflation reduces real wages. This is true only in the short run, when nominal wages are fixed by contracts. In the long run, the real wage is determined by labor supply and the marginal product of labor, not the price level or inflation rate

**The classical view** states that a change in the price level is merely a change in the units of measurement

**MENU COSTS** This is the costs of changing prices.

**Hyperinflation i**s caused by excessive money supply growth. When the central bank prints money, the price level rises. If it prints money rapidly enough, the result is hyperinflation.

**Real variables** are measured in physical units: quantities and relative prices, e.g. Quantity of output produced, real wage: output earned per hour of work, real interest rate

**Nominal variables** are measured in money units: e.g. nominal wage: dollars per hour of work, nominal interest rate, dollars earned in future by lending one dollar today.

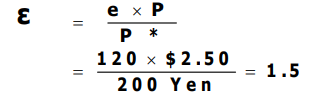
**Classical Dichotomy** is the theoretical separation of real and nominal variables in the classical model, which implies nominal variables do not affect real variables.

**Neutrality of Money**: Changes in the money supply do not affect real variables. In the real world, money is approximately neutral in the long run.

**THE NOMINAL EXCHANGE RATE** e = nominal exchange rate, the relative price of domestic currency in terms of foreign currency

**THE REAL EXCHANGE RATE** ε = real exchange rate, the relative price of domestic goods in terms of foreign goods

Let suppose that there is one good, Burger. The price of burger in Japan is P\* = 200Yen. And the price in USA is P = $2.50.Nominal exchange rate, e = 120 Yen/$. We can calculate the real exchange rate as

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A doctrine that states that goods must sell at the same (currency-adjusted) price in all countries is known as PPP. In PPP, the nominal exchange rate adjusts to equalize the cost of a basket of goods across countries. The reason for PPP is arbitrage, the law of one price.

PPP: e x P = P\*

Where, e x P - Cost of a basket of domestic goods, in foreign currency

P - Cost of a basket of domestic goods, in domestic currency

P\* - Cost of a basket of foreign goods, in foreign currency

PPP does not hold in the real world for two reasons:

1. International arbitrage not possible.

• Non traded goods • Transportation costs

1. Goods of different countries not perfect substitutes.

**Natural rate of unemployment** is the average rate of unemployment around which the economy fluctuates. In a recession, the actual unemployment rate rises above the natural rate. In a boom, the actual unemployment rate falls below the natural rate.

**The steady state condition.** The labor market is in steady state, or long-run equilibrium, if the unemployment rate is constant. The steady-state condition is: s x E = f x U.

**Frictional unemployment** is caused by the time it takes workers to search for a job. It occurs even when wages are flexible and there are enough jobs to go around. It occurs because:

• Workers have different abilities, preferences

• Jobs have different skill requirements

• Geographic mobility of workers not instantaneous

• Flow of information about vacancies and job candidates is imperfect

**SECTORAL SHIFTS** It occurs due to the changes in the composition of demand among industries or regions.

**SECTORAL SHIFTS ABOUND** In our dynamic economy, smaller (though still significant) sectoral shifts occur frequently, contributing to frictional unemployment.

**UNEMPLOYMENT INSURANCE (UI**) UI pays part of a worker’s former wages for a limited time after losing his/her job. UI increases search unemployment, because it:

• Reduces the opportunity cost of being unemployed.

• Reduces the urgency of finding work



**LABOR UNIONS.** Unions exercise monopoly power to secure higher wages for their members. When the union wage exceeds the equilibrium wage, unemployment results

**EFFICIENCY WAGE THEORY** Theories in which high wages increase worker productivity: