

Bij Investment Consultants

Economic Analysis



Introduction

Definition

- ✿ Fundamental analysis is a Method of Evaluating a Security in an attempt to assess its Intrinsic Value, by examining related **Economic, Financial, and other Qualitative and Quantitative factors**.
- ✿ Fundamental analysts study anything that can affect the security's value, including Macroeconomic factors (e.g. **Economy and Industry conditions**) and Microeconomic factors (e.g. **Financial Conditions and Company Management**).
- ✿ The End Goal is to produce a Quantitative Value that an Investor can compare with a security's current price, thus indicating whether the security is **Undervalued or Overvalued**.

Concept

- ✿ Fundamental analysis is a **Stock Valuation Methodology** to predict the movement of stock prices by using
 - **Economic Analysis**
 - **Financial Analysis**
- ✿ The outcome of Fundamental analysis is a **Value** (or a range of values) of the stock of the company called its '**Intrinsic Value**' (often called '**Price Target**' in fundamental analysts' parlance).

Concept

The Fundamental data that is analyzed **could include a Company's Financial Reports and Non-financial Information** such as

- ✿ Economy wide Changes
- ✿ Changes in Government Policies
- ✿ Industry Comparisons
- ✿ Estimates of its Growth
- ✿ Demand for Products Sold by the company, etc.

Objectives and Goals

- ✿ Predicting **Future Price Movement**
- ✿ Determining **Fair Value or Intrinsic Value**
- ✿ **Management Evaluation**
- ✿ Determining Company's **Ability to Beat its Competitor**
- ✿ Analyzing Company's **Financial Strength**

Intrinsic Value

- ✿ Fundamental Analysis is based on the premise that every share has certain Intrinsic Value at a period of time.
- ✿ This Intrinsic Value changes from time to time as consequence of both Internal and External Factors.
- ✿ The Theory submits that Buy a share when it is available below its Intrinsic Value and Sell it when it rises above its Intrinsic Value.
- ✿ The purpose is to Buy underpriced and Sell overpriced Shares.
- ✿ Market price may deviate from the Intrinsic Value in Short Term, in the Long Term the Market price will be equal to the Intrinsic Value.

Intrinsic Value

- ✿ Intrinsic Value is based on the benefits that accrue to Investors in the Share.
- ✿ As the return to shareholders is in the form of Dividends, under strict Fundamental Analysis, the Present Value of Future Dividends Discounted on the basis of its perceived safety or risk is its Intrinsic Value.
- ✿ The Intrinsic Value is based on the dividend because that is what a shareholder or investor receives from a company and not on the Earnings Per Share of the company.

Finding Intrinsic Value

Example: Finding Present Value of 3 Year of Investments

- ☀ Face Value of Share = Rs. 10
- ☀ Every Year Return on Investment = 20%
- ☀ Dividend 1st Year = 20% so, Rs. 2.0 / Share
- ☀ Dividend 2nd Year = 25% so, Rs. 2.5 / Share
- ☀ Dividend 3rd Year = 30% so, Rs. 3.0 / Share
- ☀ Expected Share price after 3 years = 200

$$\text{Intrinsic Value} = \frac{2}{1.2} + \frac{2.5}{(1.2)^2} + \frac{3+200}{(1.2)^3} = \text{Rs. 120.88}$$

Implications of Intrinsic Value

Example: Finding Present Value of 3 Year of Investments

- ✿ If the Market Price of the share is below Calculated Intrinsic Value i.e 120.88 then its well worth purchasing.
- ✿ If the Market Price of the share is above Calculated Intrinsic Value i.e 120.88 then its overpriced and giving sell signal so the share should be sold.

Intrinsic Value Considerations

- ✿ It must be noted that Intrinsic Value of a share can and will be different for different individuals.
- ✿ If Mr. X expects a **Return of 16%** whereas MR. Z expects a **Return of 25%** the intrinsic value will be:

$$\text{For Mr. X} \quad \frac{2}{1.16} + \frac{2.5}{(1.16)^2} + \frac{3 + 200}{(1.16)^3} = \text{Rs. } 133.63$$

$$\text{For Mr. Z} \quad \frac{2}{1.25} + \frac{2.5}{(1.25)^2} + \frac{3 + 200}{(1.25)^3} = \text{Rs. } 107.14$$

- ✿ Now Mr. X May Add new share at IV 133 and Market Price 120, Mr. Y may hold if Expect Return of 20% at IV Rs. 120 but Mr. Z Expecting 25% Return will sell at market price as IV is 107.

Prudent Logical Intrinsic Value

- ✿ The Return expected should be the return one can expect from an alternate, reasonably safe investment in that market.
- ✿ This Rate should be supported by a Risk Factor as the Return is Greater from Riskier Investments.
- ✿ A **very Safe Investment – Blue chip** will have a risk rate of 0.
- ✿ A **Mature near Blue chip** share will have a risk rate of 1.
- ✿ A **Growing Company** will have a risk rate of 2.
- ✿ A **Risky New Company** will have a risk rate of 3.
- ✿ If it is assumed that the return one can expect from a reasonably safe investment (like ITC, TCS, HUL) is 16%.

Prudent Logical Intrinsic Value

- Dividend expected is Rs. 2 in first Year, 2.5 in Second and 3 in 3rd year and the Stock price Expected to be Rs. 200 then:

Blue Chip $\frac{2}{1.16} + \frac{2.5}{(1.16)^2} + \frac{3 + 200}{(1.16)^3} = \text{Rs. } 133.63$

Mature Company $\frac{2}{1.17} + \frac{2.5}{(1.17)^2} + \frac{3 + 200}{(1.17)^3} = \text{Rs. } 130.28$

Growing Company $\frac{2}{1.18} + \frac{2.5}{(1.18)^2} + \frac{3 + 200}{(1.18)^3} = \text{Rs. } 127.04$

New Company $\frac{2}{1.19} + \frac{2.5}{(1.19)^2} + \frac{3 + 200}{(1.19)^3} = \text{Rs. } 123.91$

- Safer the Stock, the Higher its Intrinsic Value.**

Prudent Logical Price Estimate

- ✿ One Important factor that is assumed or **estimated price at the end of expected years.**
- ✿ The reasonable method for estimating price is based on a Price Earnings Multiple.
- ✿ The PE Multiple is stock's Market Price / EPS.
- ✿ If a company has earned Rs. 7/Share in the current year representing a growth of 20% and if it is conservatively believed that the Earning Per Share will grow 10% every year:
 - ❖ EPS at the end of Year 1 = 7×1.10 = 7.70
 - ❖ EPS at the end of Year 2 = $7 \times (1.10)^2$ = 8.47
 - ❖ EPS at the end of Year 3 = $7 \times (1.10)^3$ = 9.32

Prudent Logical Price Estimate

- ✿ If it is believed that a reasonable P/E for a company of such a size in that Industry should be 15.
- ✿ The Market price at the end of year 3 would be $9.32 \times 15 = \text{Rs. } 139.80$

Example: (To Find out IV after finding after 3 years price) on 31st May 2020 the price of the shares of a company is Rs. 465.

- ✿ The Company declared a dividend of 65% for year ended 31 March 2020 and EPS of Rs. 13.3.
- ✿ If we **assume that this dividend will remain constant** and that a PE of 20 is reasonable, the Current year Intrinsic Value of a company should be $(13.3 \times 20 = \text{Rs. } 266)$

Prudent Logical Price Estimate

Example Continued: (To Find out IV after finding after 3 years price)

After 3 Years Price:

- After 3 years EPS would be Rs. 22.98 (13.3 x 1.2 x 1.2 x 1.2).
- The Price after 3 years would be 22.98 x 20 = 459.6.

Intrinsic Value Today:

- Based on an expected return of 20% :

$$IV = \frac{6.5}{1.20} + \frac{6.5}{(1.20)^2} + \frac{6.5 + 459.6}{(1.20)^3} = \text{Rs. } 279.66$$

- The company's share price at Rs. 465 was nearly 67% above its Intrinsic Value and on the basis of this it should be sold.

Analysis Steps

- ✿ Economic Analysis
- ✿ Industry Analysis
- ✿ Company Analysis
- ✿ Valuation Methodologies

Economic Analysis

- ✿ Economics is the **Social Science** which studies Economic activity: **How people make choices to get what they want.**
- ✿ It has been defined as "**the Study of Scarcity and Choice**" and is basically about the choices people make.
- ✿ It also studies what affects the Production, Distribution and Consumption of Goods and Services in an Economy.

Economic Analysis

- ✿ Economics is the study of how people make choices under conditions of scarcity and the impact of those choices for people at an Individual at Micro level and Society at Macro level.
- ✿ **Economic analysis of Human Behaviour** begins with the **Assumption** that
 - ❖ People are Rational - they have Well-defined Goals
 - ❖ Try to achieve them as best they can.

Economic Analysis

- ✿ In trying to achieve their goals, people normally **face trade-offs**: resources both material and human are limited and making one choice would generally mean letting go of something else.
- ✿ It requires prioritization of needs and wants and allocation of limited resources to the desired goals.

Economic Analysis

Branches of Economics

- ✿ Behavioral economics
- ✿ Business economics
- ✿ Constitutional economics
- ✿ Cultural economics
- ✿ Development economics
- ✿ Ecological economics
- ✿ Economic geography
- ✿ Economic policy Analysis

Economic Analysis

Branches of Economics

- ✿ Environmental economics
- ✿ Energy economics
- ✿ Financial economics
- ✿ Industrial economics
- ✿ Information economics
- ✿ International economics
- ✿ Labor economics
- ✿ Managerial economics

Economic Analysis

Branches of Economics

- ✿ Mathematical economics or econometrics
- ✿ Resource economics
- ✿ Urban economics
- ✿ Public economics
- ✿ Descriptive, theoretical and policy economics
- ✿ Monetary economics

Economic Analysis

- ✿ Although there are several branches of economic study, **Microeconomics and Macroeconomics** are the most well-known.
- ✿ **Microeconomics** is the study of Economics on a Smaller (Micro), more Detailed Scale and
- ✿ **Macroeconomics** is the study of Economics on a Larger (Macro), Broader Scale.

Economic Analysis

- ✿ Principles of Microeconomics
- ✿ Principles of Macroeconomics
- ✿ Microeconomic Variables
- ✿ Macroeconomic Variables
- ✿ Economic Cycle Analysis
- ✿ Sources of Information

Economic Analysis

Principles of Microeconomics

- ✿ Microeconomics is the study of the Behaviour of Individuals and their Decisions on what to buy and consume based on prevalent prices which in turn signals where the Economy has to direct its productive activities.

Economic Analysis

Principles of Microeconomics

- ✿ The Philosophy of Microeconomics is that Prices and Production Levels of goods and services in an Economy are driven by Consumer Demand.
- ✿ Focus is on the Drivers of decision making, as well as the ways in which individuals' decisions affect the overall Demand and Supply of particular goods and services in an economy and in turn their Prices.

Economic Analysis

Principles of Microeconomics

- ✿ Microeconomics also deals with the "**Theory of the Firm.**" Extending the concept of Individuals, here it deals with how firms adopt different strategies to increase their profits.
- ✿ It deals with the decision making process at the level of **Inputs, Outputs, Prices, Production Levels, Profits and Losses of Individual Firms.**

Economic Analysis

Principles of Macroeconomics

- ✿ Macroeconomics is the study of "The Big Picture" in the economy and deals with the **Economy as a whole**.
- ✿ The Focus of Macroeconomics is on factors that influence **aggregate Demand and Supply** in an Economy such as Unemployment Rates, Gross Domestic Product (GDP), overall Price Levels, Inflation, Savings Rate, Investment Rate etc.
- ✿ Most of these factors are highly affected by changes in the Public Policies.

Economic Analysis

Principles of Macroeconomics

- ✿ Two major influencers of the public policies in an economy are the **Government** and the **Central Bank**.
- ✿ **Decisions of the Government**, known collectively as **Fiscal Policy** and **actions of the Central Bank**, known collectively as **Monetary Policy**, affect the overall economy activity to a large extent.

Difference Micro and Macro

BASIS	MICROECONOMICS	MACROECONOMICS
Meaning	Study of the behavior of an Individual Consumer, Family, Group, Company is known as Microeconomics.	Study the behavior of the whole Economy , (both National and International) is known as Macroeconomics.
Deals with	Individual Economic Variables	Aggregate Economic Variables
Business Application	Applied to Operational or Internal Issues	Environment and External Issues
Scope	Covers various issues like Demand, Supply, Product Pricing, Factor Pricing, Production, Consumption, Economic Welfare , etc.	Covers various issues like, National Income, General Price Level, Distribution, Employment, Money etc.

Difference Micro and Macro

BASIS	MICROECONOMICS	MACROECONOMICS
Importance	Helpful in determining the Prices of a Product along with the Prices of Factors of production (Land, Labor, Capital, Entrepreneur etc.) within the economy.	Maintains stability in the general Price Level and resolves the Major Problems of the economy like Inflation, Deflation, Reflation, Unemployment and Poverty as a whole.
Limitations	It is based on unrealistic assumptions, i.e. In microeconomics it is assumed that there is a full Employment in the society which is not at all possible.	It has been analyzed that ' Fallacy of Composition ' involves, which sometimes doesn't proves true because it is possible that what is true for aggregate may not be true for individuals too.

Economic Analysis

- ✿ **Factors of production** can be defined as inputs used for producing goods or services with the aim to make economic profit.
- ✿ In economics, there are **four main factors of production**, namely Land, Labor, Capital and Enterprise. The price that an entrepreneur pays for availing the services of these factors is called **Factor Pricing**.

Economic Analysis

Variables of Microeconomics

- ✿ Consumer Demand Theory
- ✿ Production Theory
- ✿ Costs of Production Theory
- ✿ Opportunity Cost
- ✿ Price Theory
- ✿ Demand, Supply and Equilibrium
- ✿ Measurement of Elasticities

Economic Analysis

Variables of Microeconomics

☀ Market Structure

- ❖ Perfect Competition

- ❖ Imperfect Competition

☀ Game Theory

☀ Labour Economics

☀ Welfare Economics

☀ Economics of Information

Source: https://en.wikipedia.org/wiki/Microeconomics#Monopolistic_competition

Variables of Microeconomics

1. Consumer Demand Theory

- ✿ Consumer demand theory relates preferences for the consumption of both goods and services to the consumption expenditures.
- ✿ This relationship between preferences and consumption expenditures is used to relate preferences to consumer demand curves.

Variables of Microeconomics

1. Consumer Demand Theory

- ✿ The link between Personal Preferences, Consumption and the Demand curve is one of the **most closely studied relations in economics**.
- ✿ It is a way of analyzing how consumers may achieve **equilibrium between preferences and expenditures** by maximizing utility subject to consumer budget constraints.

Variables of Microeconomics

2. Production Theory

- ✿ Production theory is the study of production, or the Economic process of converting Inputs into Outputs.
- ✿ Production uses resources to create a Good or Service that is suitable for use, gift-giving in a Gift Economy, or exchange in a Market Economy.
- ✿ This can **include Manufacturing, Storing, Shipping, and Packaging.** Some economists define production broadly as all economic activity other than consumption. They see every commercial activity other than the final purchase as some form of production.

Variables of Microeconomics

3. Cost of Production Theory of Value

- ✿ The cost-of-production theory of value states that the **price of an object or condition is determined by the sum of the cost of the resources that went into making it.**
- ✿ The cost can **comprise any of the factors of production** (including Labor, Capital, or Land) and Taxation. **Technology** can be viewed either as a form of **Fixed Capital** (e.g. an Industrial Plant) or **Circulating capital** (e.g. Intermediate Goods).

Variables of Microeconomics

3. Cost of Production Theory of Value

- ✿ In the mathematical model for the cost of production, the short-run **total cost is equal to Fixed Cost plus Total Variable Cost.**
- ✿ The **Fixed Cost** refers to the cost that is incurred regardless of how much the firm produces.
- ✿ The **Variable Cost** is a function of the quantity of an object being produced.
- ✿ The **Cost Function** can be used to characterize production through the duality theory in economics.

Variables of Microeconomics

4. Opportunity cost

- ☀ Opportunity cost is **closely related to the idea of time constraints.**
- ☀ **One can do only one thing at a time**, which means that, inevitably, one is always giving up other things.
- ☀ The opportunity cost of **any activity is the value of the next-best alternative thing one may have done instead.**
- ☀ Opportunity cost depends only on the value of the **next-best alternative.** It doesn't matter whether one has five alternatives or 5,000.

Variables of Microeconomics

4. Opportunity cost

- ☀ Opportunity costs can tell when not to do something as well as when to do something.
- ☀ **For Example, one may like Waffles, but like Chocolate even more.** If someone offers only waffles, one would take it. But if offered waffles or chocolate, one would take the chocolate.
- ☀ The Opportunity Cost of eating waffles is sacrificing the chance to eat chocolate. Because the cost of not eating the chocolate is higher than the benefits of eating the waffles, it makes no sense to choose waffles.

Variables of Microeconomics

4. Opportunity cost

- ✿ Of course, if one chooses chocolate, they are still faced with the opportunity cost of giving up having waffles. But one is willing to do that because the **Waffle's Opportunity Cost is Lower than the benefits of the Chocolate.**
- ✿ Opportunity costs are unavoidable constraints on behaviour because **one has to decide what's best and give up the next-best alternative.**

Variables of Microeconomics

5. Price Theory

- ☀ Price theory is a field of economics that **uses the Supply and Demand framework to explain and predict human behavior.**
- ☀ Price theory studies competitive equilibrium in markets to yield testable hypotheses that can be rejected.
- ☀ Price theory is **not the same as microeconomics.** Strategic behavior, such as the interactions among sellers in a market where they are few, is a significant part of microeconomics but is not emphasized in price theory.

Variables of Microeconomics

5. Price Theory

- ✿ Price theorists focus on competition believing it to be a reasonable description of most markets that **leaves room to study additional aspects of Tastes and Technology**. As a result, price theory tends to use less Game Theory than Microeconomics does.
- ✿ Price theory **focuses on how agents respond to prices**, but its framework can be applied to a wide variety of socioeconomic issues that might not seem to involve prices at first glance.

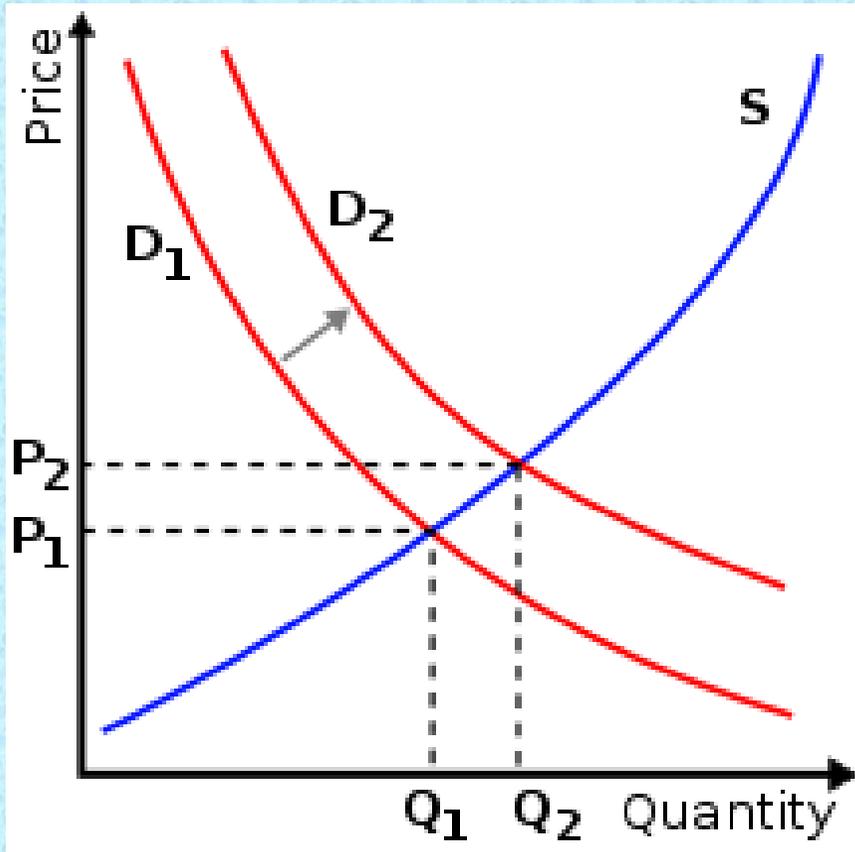
Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✱ Demand and Supply is an Economic Model of Price determination in a Perfectly Competitive Market.
- ✱ It concludes that in a Perfectly Competitive Market with no externalities, per unit taxes, or price controls, the unit price for a particular good is the price at which the quantity demanded by consumers equals the quantity supplied by producers. This price results in a stable Economic Equilibrium.

Variables of Microeconomics

6. Demand, Supply and Equilibrium



✿ A graph depicting Quantity on the X-axis and Price on the Y-axis

The graph depicts an increase (that is, right-shift) in demand from D₁ to D₂ along with the consequent increase in price and quantity required to reach a new equilibrium point on the supply curve (S).

Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✿ Prices and Supply have been described as the most directly observable attributes of goods produced and exchanged in a market economy.
- ✿ **The Theory of Demand and Supply** is an organizing principle for explaining how Prices coordinate the amounts Produced and Consumed.
- ✿ In Microeconomics, it applies to Price and Output determination for a Market with Perfect Competition, which includes the **condition of no Buyers or Sellers large enough to have Price-setting Power.**

Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✿ For a given market of a commodity, Demand is the relation of the Quantity that all Buyers would be prepared to Purchase at each unit price of the Good.
- ✿ Demand is often **represented by a table or a graph showing Price and Quantity demanded** (as in the figure).
- ✿ **Demand Theory describes Individual Consumers as rationally choosing the most preferred Quantity of each Good, given Income, Prices, Tastes, etc.**

Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✿ The “**Law of Demand**” states that, in general, Price and Quantity demanded in a given market are inversely related. That is, the Higher the Price of a Product, the Less of it people would be prepared to Buy (other things unchanged).
- ✿ As the Price of a commodity falls, consumers move toward it from relatively more expensive goods (**The Substitution Effect**).
- ✿ In addition, Purchasing Power from the Price Decline Increases ability to Buy (**The Income Effect**).

Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✿ Assumptions or Determinants of Demand are predominantly taken as constant factors
 - ❖ No Substitute is available
 - ❖ No Rise of Income

Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✿ The "**Law of Supply**" states that, in general, a Rise in Price leads to an Expansion in Supply and a Fall in Price leads to a Contraction in Supply.
- ✿ **Assumptions or the determinants of supply**, are all taken to be constant for a specific time period of evaluation of supply. Such as
 - ❖ Price of Substitutes,
 - ❖ Cost of Production,
 - ❖ Technology applied and various factors of inputs of production.

Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✿ **Market Equilibrium** occurs where Quantity Supplied Equals Quantity Demanded, the intersection of the supply and demand curves in the figure above.
- ✿ **At a Price below Equilibrium**, there is a Shortage of Quantity Supplied Compared to Quantity Demanded. This is posited to bid the price up.
- ✿ **At a Price above Equilibrium**, there is a Surplus of Quantity Supplied compared to Quantity Demanded. This pushes the price down.

Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✿ The model of **Supply and Demand** predicts that for given Supply and Demand curves, Price and Quantity will stabilize at the price that makes Quantity Supplied Equal to Quantity Demanded.
- ✿ Similarly, **Demand-and-supply Theory** predicts a new Price-quantity combination from a shift in Demand (as to the figure), or in Supply.

Variables of Microeconomics

Marginal Utility and Marginal Cost Equilibrium

- ✿ For a given quantity of a consumer good, the **point on the Demand Curve indicates the value, or marginal utility**, to consumers for that unit. It measures what the consumer would be prepared to pay for that unit.
- ✿ The corresponding **point on the Supply Curve measures Marginal Cost**, the increase in total cost to the supplier for the corresponding unit of the good.
- ✿ The price in equilibrium is determined by supply and demand. **In a perfectly Competitive Market, Supply and Demand equate Marginal Cost and Marginal Utility at Equilibrium.**

Variables of Microeconomics

Marginal Utility and Marginal Cost Equilibrium

- ✿ **Marginal Utility:** In economics, Utility is the Satisfaction or Benefit derived by consuming a product; thus the marginal utility of a good or service is the change in the utility from an increase in the consumption of that good or service.
- ✿ **Marginal Cost :** In economics, Marginal Cost is the change in the Total Cost that arises when the Quantity produced is incremented by one unit; that is, it is the cost of producing one more unit of a good or Variable Cost of Producing 1 Extra Unit.

Variables of Microeconomics

Marginal Utility and Marginal Cost Equilibrium

- ✿ **Marginal Cost:** Intuitively, Marginal Cost at each level of production includes the cost of any additional inputs required to produce the next unit.
- ✿ Marginal Costs include all costs that vary with the level of production, whereas other costs that do not vary with production are Fixed and thus have no marginal cost.
- ✿ **For Example,** the Marginal Cost of producing an Automobile will generally include the Costs of Labor and Parts needed for the additional automobile but not the Fixed Costs of the factory that have already been incurred.

Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✿ On the supply side of the market, some factors of production are described as (relatively) variable in the short run, which affects the cost of changing output levels. Their usage rates can be changed easily, such as Electrical Power, Raw-material inputs, and Over-time and Temp work.
- ✿ Other inputs are relatively **Fixed**, such as Plant and Equipment and Key Personnel. In the long run, all inputs may be adjusted by management.

Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✿ These distinctions translate to differences in the elasticity (responsiveness) of the supply curve in the Short and Long Runs and corresponding differences in the price-quantity change from a shift on the supply or demand side of the market.

Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✿ Marginalist theory, such as above, describes the Consumers as attempting to reach most-preferred positions, subject to income and wealth constraints.
- ✿ While Producers attempt to maximize profits subject to their own Constraints, including Demand for goods Produced, Technology, and the Price of Inputs.
- ✿ **For the Consumer**, that point comes where Marginal Utility of a good, net of price, reaches zero, leaving no net gain from further Consumption Increases.

Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✿ Analogously, the **Producer** compares Marginal Revenue (identical to price for the perfect competitor) against the Marginal Cost of a good, with Marginal Profit the difference. At the point where Marginal Profit reaches Zero, further increases in Production of the good stop.
- ✿ For movement to market Equilibrium and for changes in Equilibrium, Price and Quantity also change "at the margin": more-or-less of something, rather than necessarily all-or-nothing.

Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✿ **Other applications of Demand and Supply** include the Distribution of Income among the Factors of Production, including Labour and Capital, through Factor Markets.
- ✿ In a **competitive Labour Market** for Example the Quantity of Labour employed and the Price of Labour (the Wage Rate) depends on the Demand for Labour (from Employers for Production) and Supply of Labour (from potential workers).

Variables of Microeconomics

6. Demand, Supply and Equilibrium

- ✿ Labour Economics examines the interaction of Workers and Employers through such markets to explain
 - ❖ Patterns and changes of Wages and other Labour Income,
 - ❖ Labour Mobility and (Un)employment,
 - ❖ Productivity through Human Capital, and
 - ❖ Related Public-policy issues.

Variables of Microeconomics

7. Elasticity

- ✿ In economics, **Elasticity** is the measurement of the percentage change of one economic variable in response to a change in another.
- ✿ An **Elastic Variable** (with an absolute elasticity value greater than 1) is one which responds more than proportionally to changes in other variables.
- ✿ In contrast, an **Inelastic Variable** (with an absolute elasticity value less than 1) is one which changes less than proportionally in response to changes in other variables.

Variables of Microeconomics

7. Elasticity

- ✿ A variable can have different values of its elasticity at different starting points: **For Example**, the Quantity of a good supplied by Producers might be Elastic at Low Prices but Inelastic at Higher Prices, so that a rise from an initially Low Price might bring on a more-than-proportionate increase in quantity supplied while a rise from an Initially high price might bring on a less-than-proportionate rise in quantity supplied.

Variables of Microeconomics

7. Elasticity

- ✿ Elasticity can be quantified as the ratio of the percentage change in one variable to the percentage change in another variable, when the latter variable has a causal influence on the former.
- ✿ It is a tool for measuring the responsiveness of one variable to changes in another, causative variable. Elasticity has the advantage of being a **unitless ratio**, independent of the type of quantities being varied.

Variables of Microeconomics

7. Elasticity

✿ It is useful in understanding the incidence of

❖ Indirect Taxation,

❖ **Marginal Concepts** as they relate to the Theory of the Firm, and Distribution of Wealth and

❖ **Different types of Goods** as they relate to the Theory of Consumer Choice.

✿ Elasticity is also crucially important in any discussion of Welfare Distribution, in particular Consumer Surplus, Producer Surplus, or Government Surplus.

Variables of Microeconomics

7. Elasticity

- ✿ **Consumer Surplus**, or Consumers' Surplus, is the Monetary Gain obtained by consumers because they are able to purchase a product for a price that is less than the highest price that they would be willing to pay.
- ✿ **Producer Surplus**, or Producers' Surplus, is the Amount that Producers Benefit by selling at a market Price that is Higher than the least that they would be willing to sell for; this is roughly equal to profit.

Variables of Microeconomics

7. Elasticity

- ✿ **Government Surplus or a Budget Surplus** : A Budget Surplus occurs when Income exceeds Expenditures. The term often refers to a Government's Financial state, as Individuals have "Savings" rather than a "Budget Surplus." A Surplus is an indication that a Government's Finances are being effectively managed.

Variables of Microeconomics

7. Elasticity

✿ Frequently used Elasticities include

- ❖ Price Elasticity of Demand,
- ❖ Price Elasticity of Supply,
- ❖ Income Elasticity of Demand,
- ❖ Elasticity of Substitution between Factors of Production
- ❖ Elasticity of Intertemporal Substitution.

Variables of Microeconomics

7. Elasticity

Price Elasticity of Demand

- ✿ A Good's Price Elasticity of Demand is a measure of how Sensitive the Quantity Demanded of it is to its Price.
- ✿ When the Price rises, Quantity demanded Falls for almost any good, but it Falls more for some than for others.
- ✿ The Price Elasticity gives the percentage change in Quantity demanded when there is a One percent increase in Price, holding everything else constant.
- ✿ If the Elasticity is -2, that means a One percent Price rise leads to a Two percent decline in Quantity Demanded.

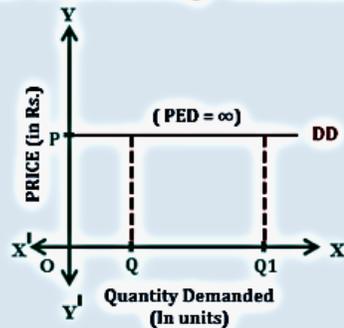
Variables of Microeconomics

7. Elasticity

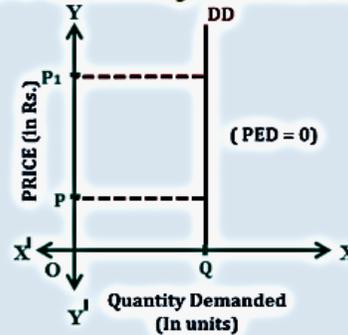
Price Elasticity of Demand

Price Elasticity of Demand

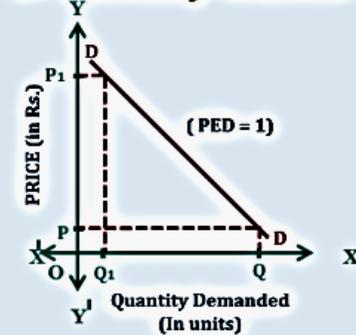
1. Perfectly elastic



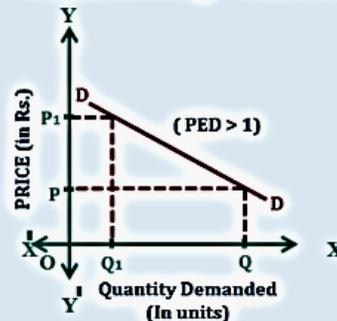
2. Perfectly inelastic



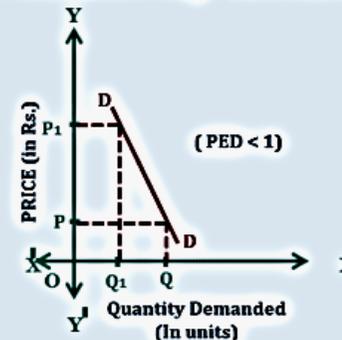
3. Unitary elastic



4. Relatively elastic



5. Relatively inelastic



Variables of Microeconomics

7. Elasticity

Price Elasticity of Demand

- ✿ **Perfectly Elastic Demand:** When a small change in Price of a Product causes a major change in its Demand, it is said to be Perfectly Elastic Demand.
- ✿ **Perfectly Inelastic Demand:** When there is no change produced in the Demand of a Product with change in its Price.
- ✿ **Unitary Elastic Demand:** When the proportionate change in Price produces the same change in the Demand of the Product, the Demand is referred as Unitary Elastic Demand.

Variables of Microeconomics

7. Elasticity

Price Elasticity of Demand

- ✿ **Relatively Elastic Demand:** When the proportionate change produced in Demand is Greater than the proportionate change in Price of a Product.
- ✿ **Relatively Inelastic Demand:** When the percentage change produced in Demand is less than the percentage change in the Price of a Product.

For Example, if the Price of a Product increases by 30% and the Demand for the Product decreases only by 10%, then the Demand would be called Relatively Inelastic.

Variables of Microeconomics

7. Elasticity

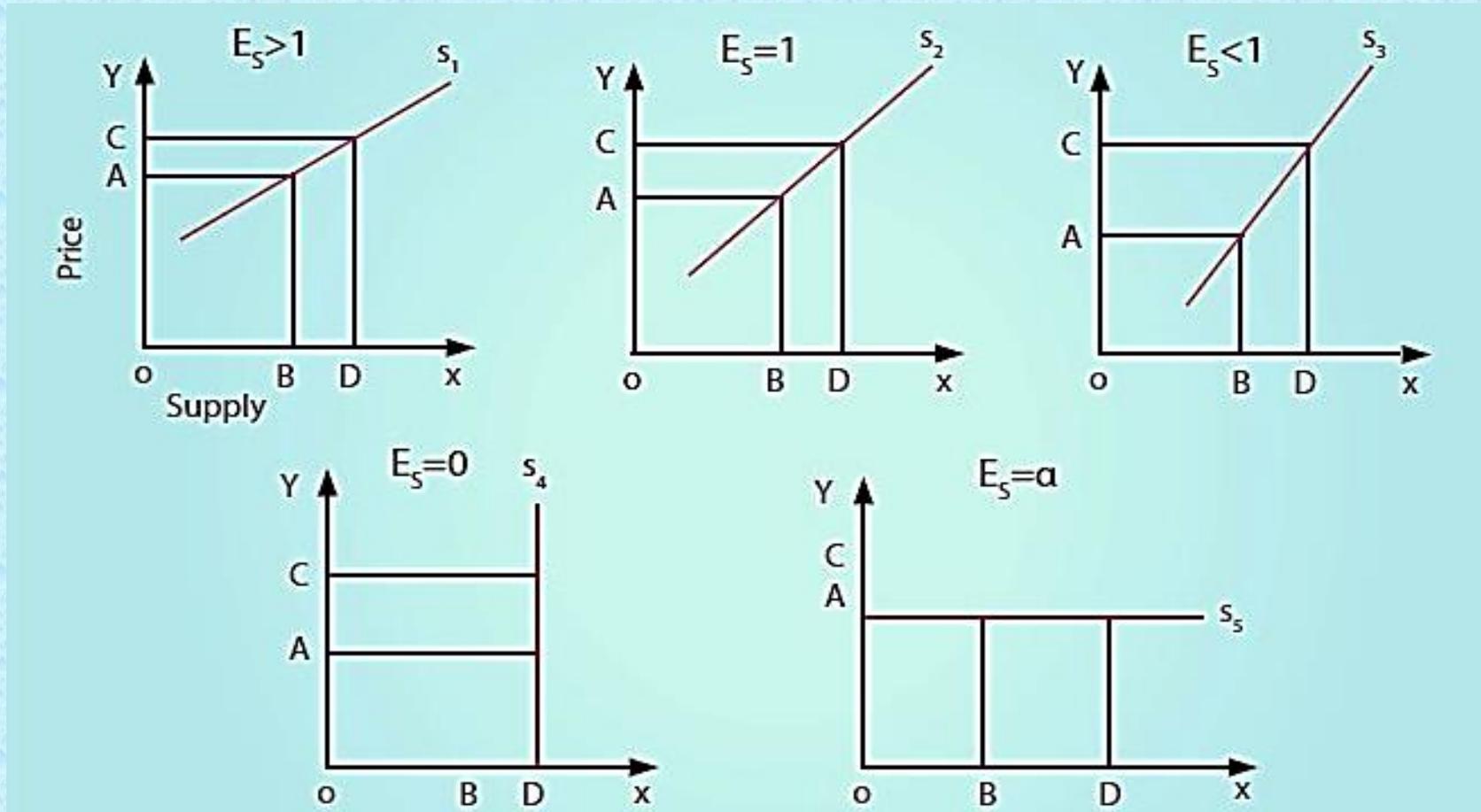
Price Elasticity of Supply

- ✿ The Price Elasticity of Supply (PES or E_s) is a measure used in Economics to show the Responsiveness of the Quantity supplied of a Good or Service to a change in its Price.
- ✿ The elasticity is represented in numerical form, and is defined as the percentage change in the Quantity supplied divided by the percentage change in Price.
- ✿ When the Elasticity is Less than One, the **Supply of the good can be described as Inelastic.**

Variables of Microeconomics

7. Elasticity

Price Elasticity of Supply (PES) or E_s



Variables of Microeconomics

7. Elasticity

Price Elasticity of Supply

- ✿ When it is Greater than One, the supply can be described as **Elastic**.
- ✿ An Elasticity of Zero indicates that Quantity supplied **does not respond to a Price change**: the Good is "Fixed" in Supply. Such goods often have no labor component or are not produced, limiting the short run prospects of expansion.
- ✿ If the elasticity is Exactly One, the good is said to be unit-elastic.

Variables of Microeconomics

7. Elasticity

Income Elasticity of Demand

- ✿ In Economics, the Income Elasticity of Demand is the responsiveness of the Quantity demanded for a good to a Change in Consumer Income.
- ✿ It is measured as the ratio of the Percentage Change in Quantity demanded to the Percentage Change in Income.
- ✿ **For Example:** If a 10% increase in Mr. A's income causes him to buy 20% more Wheat, A's income Elasticity of Demand for Wheat is $20\%/10\% = 2$.

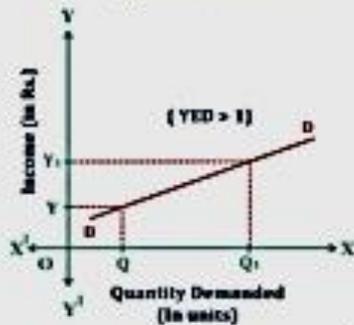
Variables of Microeconomics

7. Elasticity

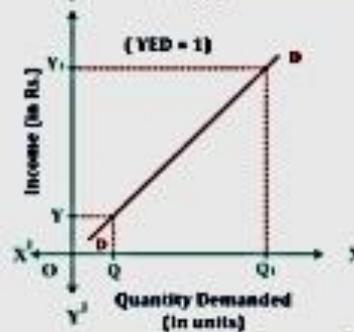
Income Elasticity of Demand

Income Elasticity of Demand

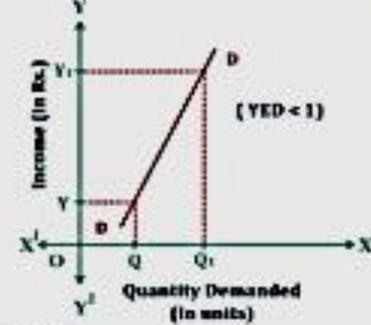
1. High elastic



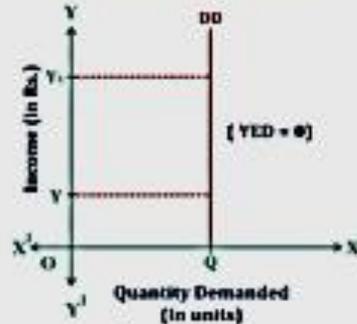
2. Unitary elastic



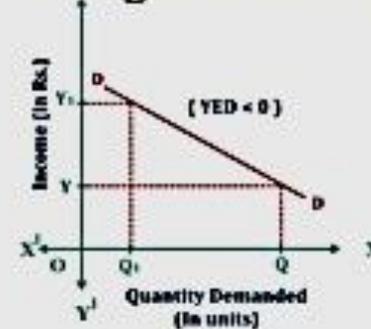
3. Low elastic



4. Zero elastic



5. Negative elastic



Variables of Microeconomics

7. Elasticity

Income Elasticity of Demand

- ✿ A **Negative Income Elasticity of Demand** is associated with **Inferior Goods**; an Increase in Income will lead to a fall in the Demand and may lead to changes to more Luxurious Substitutes.
- ✿ A **Positive Income Elasticity of Demand** is associated with **Normal Goods**; an Increase in Income will lead to a rise in Demand. If income **Elasticity of Demand of a commodity is less than 1**, it is a necessity good. If the Elasticity of Demand is Greater than 1, it is a **Luxury Good** or a **Superior Good**.

Variables of Microeconomics

7. Elasticity

Income Elasticity of Demand

- ✿ A **Zero Income Elasticity of Demand** occurs when an Increase in Income is not associated with a change in the Demand of a good.
- ✿ Income Elasticity of Demand can be **used as an Indicator of Future Consumption patterns and as a guide to Firms' Investment Decisions.**
- ✿ **For Example**, the "Selected Income Elasticities" below suggest that an increasing portion of Consumers' budgets will be devoted to purchasing Automobiles and Restaurant Meals and a smaller share to Tobacco and Margarine.

Variables of Microeconomics

7. Elasticity

Income Elasticity of Demand

- ✿ Income Elasticities are closely related to the Population Income Distribution and the fraction of the Product's Sales attributable to Buyers from different Income Brackets.
- ✿ Specifically, when a buyer in a certain Income Bracket experiences an Income Increase, their purchase of a product changes to match that of Individuals in their new Income Bracket.

Variables of Microeconomics

7. Elasticity

Elasticity of Substitution

- ✿ Elasticity of Substitution is the Elasticity of the **Ratio of two inputs to a Production (or Utility) function with respect to the Ratio of their Marginal Products (or Utilities)**.
- ✿ In a Competitive Market, it measures the Percentage Change in the two Inputs used in response to a Percentage change in their Prices.
- ✿ It gives a measure of the curvature of an Isoquant (Equal), and thus, the substitutability between Inputs (or goods), i.e. how easy it is to Substitute one Input (or good) for the other.

Variables of Microeconomics

7. Elasticity

✿ **Elasticity of Intertemporal Substitution** (or Intertemporal Elasticity of Substitution) is a measure of Responsiveness of the Growth Rate of Consumption to the Real Interest Rate.

✿ If the Real Rate rises, current Consumption may Decrease due to Increased Return on Savings; but Current Consumption may also Increase as the household decides to consume more immediately, as it is feeling Richer.
The **Net Effect on Current Consumption is the Elasticity of Intertemporal Substitution.**

Variables of Microeconomics

Market Structure

Market Structure refers to features of a market:

- ❖ **Number of Firms in the Market**
- ❖ **The Distribution of Market Share between them**
- ❖ **Product Uniformity across Firms**
- ❖ **How easy it is for Firms to Enter and Exit the market**
- ❖ **Forms of Competition in the market.**

✿ A Market Structure can have several types of interacting market systems. Different forms of markets are a **feature of Capitalism and Market Socialism**, with advocates of state Socialism often criticizing Markets and aiming to Substitute or Replace Markets with varying degrees of Government-directed Economic Planning.

Variables of Microeconomics

Market Structure

- ✿ **Socialism** is an Economic and Political System under which the Means of Production are Publicly Owned.
- ✿ Production and Consumer Prices are controlled by the Government to best meet the needs of the people.
- ✿ **Capitalism** is an Economic System under which the Means of Production are Privately Owned.

Variables of Microeconomics

Market structure

- ✿ Competition acts as a regulatory mechanism for market systems, with government providing regulations where the market cannot be expected to regulate itself.
- ✿ **Example of this is with regards to Building Codes,** which if absent in a purely competition regulated market system, might result in several horrific injuries or deaths to be required before companies would begin improving structural safety, as **consumers may at first not be as concerned or aware of safety** issues to begin putting pressure on companies to provide them, and companies would be motivated not to provide proper safety features due to how it would cut into their profits.

Variables of Microeconomics

Market structure

✿ The concept of "Market Type" is different from the concept of "Market Structure." Nevertheless, it is worth noting here that there are a variety of types of markets.

✿ Examples of Markets:

a. Commodity Markets

b. Insurance Markets

c. Bond Markets

d. Energy Markets

e. Flea Markets

f. Debt Markets

g. Stock Markets

h. Online Auctions

h. Media Exchange Markets

j. Real-estate Market

Variables of Microeconomics

Perfect competition

- ✿ Perfect competition is a situation in which **numerous small firms producing identical products compete against each other in a given industry.**
- ✿ Perfect competition leads to firms producing the socially optimal output level at the minimum possible cost per unit.
- ✿ Firms in perfect competition are "Price Takers" (they do not have enough Market Power to profitably increase the Price of their goods or services).

Variables of Microeconomics

Perfect competition

- ✿ A **good Example** would be that of digital marketplaces, such as **Amazon**, on which many different sellers sell similar products to many different buyers.
- ✿ Consumers in a perfect competitive market have perfect knowledge about the products that are being sold in this market.

Variables of Microeconomics

Imperfect Competition: Imperfect competition is a type of market structure showing some but not all features of competitive markets.

1. Monopolistic Competition: A situation in which Many Firms with slightly different products compete.

- ✿ Production costs are above what may be achieved by perfectly competitive firms, but society benefits from the product differentiation.
- ✿ **Examples** of Industries with Market Structures similar to Monopolistic Competition include Restaurants, Cereal, Clothing, Shoes and Service Industries in large cities.

Variables of Microeconomics

Imperfect Competition:

2. Monopoly : A Market or Industry is dominated by a Single Supplier of a particular good or service.

✿ Because monopolies have no competition, they tend to sell Goods and Services at a Higher Price and produce below the Socially Optimal Output Level.

✿ However, not all monopolies are a bad thing, especially in industries where Multiple Firms would result in more costs than benefits (i.e. Natural Monopolies.)

✿ **Natural Monopoly**: A Monopoly in an industry where one producer can produce output at a Lower Cost than many Small Producers.

Variables of Microeconomics

Imperfect Competition:

3. Oligopoly: A Market or Industry is dominated by a Small number of Firms (Oligopolists).

- ✿ Oligopolies can create the incentive for firms to engage in Collusion and form Cartels that reduce competition leading to Higher Prices for Consumers and Less overall Market Output.
- ✿ Alternatively, Oligopolies can be Fiercely Competitive and engage in Flamboyant Advertising Campaigns.
- ✿ **Duopoly:** A special case of an oligopoly, with **only two firms**. Game theory can elucidate behavior in Duopolies and Oligopolies.

Variables of Microeconomics

Imperfect Competition

4. Monopsony: A Market where there is only One Buyer and Many Sellers.

5. Oligopsony: A Market where there are a Few Buyers and Many Sellers.

6. Bilateral Monopoly: A Bilateral Monopoly is a Market consisting of both a Monopoly (a Single Seller) and a Monopsony (a Single Buyer)

Variables of Microeconomics

Market Structure

Quick Reference to Basic Market Structures

Market Structure	Seller Entry Barriers	Seller Number	Buyer Entry Barriers	Buyer Number
Perfect Competition	No	Many	No	Many
Monopolistic competition	No	Many	No	Many
Oligopoly	Yes	Few	No	Many
Oligopsony	No	Many	Yes	Few
Monopoly	Yes	One	No	Many
Monopsony	No	Many	Yes	One

Variables of Microeconomics

Market Structure

Market Structure	
Perfect Competition 100's of firms	<ul style="list-style-type: none">• Freedom of entry/exit• Homogenous goods - Perfect information• Normal profit
Monopoly 1 firm with at least 25% market share	<ul style="list-style-type: none">• Barriers to entry• Higher prices than competitive markets• Economies of scale
Oligopoly 5 firm concentration ratio > 50%	<ul style="list-style-type: none">• A few large firms dominate market• Interdependence of firms• Some barriers to entry
Monopolistic competition Several firms with brand loyalty	<ul style="list-style-type: none">• Low barriers to entry• Firms produce differentiated products• Less profit than monopoly
Contestable markets Number of firms not important	<ul style="list-style-type: none">• Freedom of entry and exit. Low sunk costs.
Collusive oligopoly A few firms fix prices	<ul style="list-style-type: none">• A few firms fix prices and deter entry• High profits like monopoly

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Variables of Microeconomics

Game Theory

- ✿ Game Theory is a theoretical framework to conceive Social Situations among Competing Players and Produce Optimal Decision-making of Independent and Competing Actors in a Strategic setting.
- ✿ Using Game Theory, Real-world scenarios for such situations as **Pricing Competition and Product Releases** (and many more) can be laid out and their outcomes predicted.
- ✿ Scenarios include the Prisoner's Dilemma and the Dictator Game among many others.
- ✿ **Assumption:** Players within the game are Rational and will Strive to Maximize their Payoffs in the game.

Variables of Microeconomics

Game Theory

- ✿ The focus of Game theory is the game, which serves as a Model of an Interactive Situation among Rational Players.
- ✿ The key to Game Theory is that One Player's Payoff is contingent on the Strategy implemented by the Other Player.
- ✿ The Game identifies the Players' Identities, Preferences, and Available Strategies and how these strategies affect the outcome. Depending on the model, various other requirements or assumptions may be necessary.

Variables of Microeconomics

Game Theory

- ✿ Game theory has a **wide range of applications**, including Psychology, Evolutionary Biology, War, Politics, Economics, and Business. Despite its many advances, game theory is still a Young and Developing Science.
- ✿ **According to Game Theory, the Actions and Choices of all the Participants affect the Outcome of each.**

Variables of Microeconomics

Game Theory Definitions

- ✿ Any time we have a situation with two or more Players that involve known Payouts or Quantifiable Consequences, we can use Game Theory to help determine the most likely outcomes.

Terms commonly used in the study of game theory:

- ✿ **Game:** Any Set of Circumstances that has a result dependent on the actions of two or more Decision-makers (Players)
- ✿ **Players:** A Strategic Decision-maker within the context of the Game.

Variables of Microeconomics

Game Theory

Terms commonly used in the study of game theory:

- ✿ **Strategy:** A Complete Plan of Action a player will take given the Set of Circumstances that might arise within the Game.
- ✿ **Payoff:** The Payout a Player Receives from arriving at a particular Outcome (The payout can be in any quantifiable form, from dollars to utility).
- ✿ **Information set:** The Information available at a given point in the Game (The term information set is most usually applied when the Game has a sequential component.)
- ✿ **Equilibrium:** The Point in a Game where both Players have made their Decisions and an Outcome is reached.

Variables of Microeconomics

Game Theory

Nash Equilibrium

- ✿ Nash Equilibrium is named after its inventor, **John Forbes Nash Jr**, an American mathematician.
- ✿ Nash Equilibrium is an outcome reached that, once achieved, **means no Player can increase Payoff by changing decisions unilaterally.**
- ✿ It can also be **thought of as "No Regrets,"** in the sense that once a decision is made, the player will have no regrets concerning decisions considering the consequences.

Variables of Microeconomics

Game Theory

What Is the Nash Equilibrium?

- ✿ Nash equilibrium is a concept within game theory where the Optimal Outcome of a Game is where there is no Incentive to deviate from their initial Strategy.
- ✿ More specifically, the Nash equilibrium is a concept of Game theory where the optimal outcome of a game is one where no Player has an incentive to deviate from his chosen Strategy after considering an Opponent's Choice.
- ✿ Overall, an Individual can receive no incremental benefit from changing actions, assuming other Players remain constant in their Strategies.

Variables of Microeconomics

Game Theory

Game Theory Impact on Economics and Business

- ✿ Game theory brought about a revolution in **Economics** by addressing crucial problems in prior Mathematical Economic Models.
- ✿ **For Instance,** Neoclassical Economics struggled to understand Entrepreneurial Anticipation and could not handle the Imperfect Competition.
- ✿ Game Theory turned attention away from Steady-state Equilibrium toward the Market Process.

Variables of Microeconomics

Game Theory

Impact on Economics and Business

- ✿ In Business, Game Theory is **beneficial for Modeling Competing Behaviors between Economic Agents.**
- ✿ Businesses often have several strategic choices that affect their ability to realize Economic Gain.
- ✿ **For Example**, Businesses may face dilemmas such as
 - ❖ Whether to Retire Existing Products or Develop New Ones,
 - ❖ Lower Prices relative to the Competition or Employ new Marketing Strategies.

Variables of Microeconomics

Game Theory

Impact on Economics and Business

- ✿ Economists often use Game Theory to understand Oligopoly Firm behavior.
- ✿ It helps to predict likely outcomes when firms engage in certain behaviors, such as **Price-fixing and Collusion.**

Variables of Microeconomics

What Is Collusion?

- ✿ Collusion is a **Non-competitive, Secret, and sometimes Illegal Agreement between Rivals** which attempts to **disrupt the Market's Equilibrium**.
- ✿ The act of collusion involves people or companies which would typically compete against one another, but who conspire to work together to gain an unfair Market Advantage.
- ✿ The colluding **parties may collectively choose to influence the Market Supply** of a good or **agree to a Specific Pricing Level** which will help the partners maximize their profits at the detriment of other competitors. It is common among duopolies.

Variables of Microeconomics

Game Theory

Collusion Key Points

- ✿ Collusion occurs when Entities or Individuals work together to influence a Market or Pricing for their own advantage.
- ✿ Acts of collusion include Price Fixing, Synchronized Advertising, and Sharing Insider Information.
- ✿ Antitrust and Whistleblower Laws help to deter Collusion.

Variables of Microeconomics

Types of Collusion – Price Fixing

✿ Price Fixing occurs when there are a small number of companies, commonly referred to as an **Oligopoly**, in a particular supply marketplace. This limited number of businesses offer the same product and form an agreement to set the price level.

✿ Prices may be forcibly lowered to drive out smaller competitors or may have an inflated level to support the interest of the group at a disadvantage to the buyer.

✿ Overall, Price Fixing **can eliminate or reduce competition** while also leading to even higher barriers for new entrants.

Variables of Microeconomics

Game Theory

Types of Collusion – Advertising Campaigns

✿ Collusion may also happen if companies synchronize their advertising campaigns.

✿ In this case, the partnering businesses may wish to limit the consumers' knowledge about a product or service for an added advantage.

Variables of Microeconomics

Game Theory

Types of Collusion – Insider Information

- ✿ In the Financial Industry, collective partnering through the use of insider information can also be a type of collusion.
- ✿ Colluding groups may have the opportunity to gain several advantages through the sharing of private or preliminary information with one another.
- ✿ This Financial **Collusion** can allow the parties to **Enter and Exit Trades** before the shared Information is **Publicly available.**

Variables of Microeconomics

Types of Game Theory

✿ Although there are many types (e.g., Symmetric / Asymmetric, Simultaneous / Sequential, etc.) of game theories, **Cooperative** and **Non-cooperative** game theories are the most common.

✿ **Cooperative Game Theory** deals with how Coalitions, or Cooperative Groups, **interact when only the payoffs are known**. It is a game between coalitions of players rather than between individuals, and it questions how groups form and how they allocate the payoff among players.

Variables of Microeconomics

Types of Game Theory

✿ **Non-cooperative Game Theory** deals with how rational economic agents deal with each other to achieve their own goals.

✿ The most common non-cooperative game is **the Strategic Game(Chess)**, in which only the available Strategies and the Outcomes that result from a combination of choices are listed.

✿ A simplistic **Example** of a real-world non-cooperative game is Rock-Paper-Scissors Game. A hand Game usually played between two people, in which each player simultaneously forms one of three shapes with an outstretched hand.

Variables of Microeconomics

Examples of Game Theory – The Prisoner's Dilemma

✱ Consider the example of Two Criminals arrested for a crime. Prosecutors have no hard evidence to convict them. However, to gain a confession, officials remove the prisoners from their solitary cells and question each one in separate chambers. Neither prisoner has the means to communicate with each other.

Variables of Microeconomics

Examples of Game Theory – The Prisoner's Dilemma

- ✿ Officials present four deals, often displayed as a 2 x 2 box.
- 1. If **both confess**, they will each receive a Five-year prison sentence.
- 2. If **Prisoner-A confesses**, but Prisoner-B does not, Prisoner-A will get 1 Year and Prisoner-B will get 8 Years.
- 3. If **Prisoner-B confesses**, but Prisoner-A does not, Prisoner-A will get 8 Years and Prisoner-B will get 1 Year.
- 4. If **neither confesses**, each will serve 2 years in prison.

Variables of Microeconomics

Examples of Game Theory – The Prisoner's Dilemma

		Prisoner B	
		Remain silent	Confess
Prisoner A	Remain silent	A gets 2 years B gets 2 years	A gets 8 years B gets 1 year
	Confess	A gets 1 year B gets 8 years	A gets 5 years B gets 5 years

✿ The most favorable strategy is to not confess.

✿ However, neither is aware of the other's strategy and without certainty that one will not confess, both will likely confess and receive a five-year prison sentence.

Variables of Microeconomics

Examples of Game Theory – The Prisoner's Dilemma

- ✿ The **Nash equilibrium** suggests that in a prisoner's dilemma, both players will make the move that is best for them individually but worse for them collectively.
- ✿ The expression "TIT FOR TAT" has been determined to be the optimal strategy for optimizing a prisoner's dilemma.
- ✿ Tit for tat was introduced by Anatol Rapoport, who developed a strategy in which each participant in an iterated prisoner's dilemma follows a course of action consistent with his opponent's previous turn. **For Example**, if provoked (caused), a player subsequently responds with retaliation; if unprovoked, the player cooperates.

Variables of Microeconomics

Examples of Game Theory – Dictator Game

✿ This is a simple game in which **Player A must decide how to split a cash prize with Player B**, who has no input into Player A's decision. While this is not a game theory strategy per se, it does provide some interesting insights into people's behavior.

✿ Experiments reveal about 50% keep all the money to themselves, 5% split it equally, and the other 45% give the other participant a smaller share.

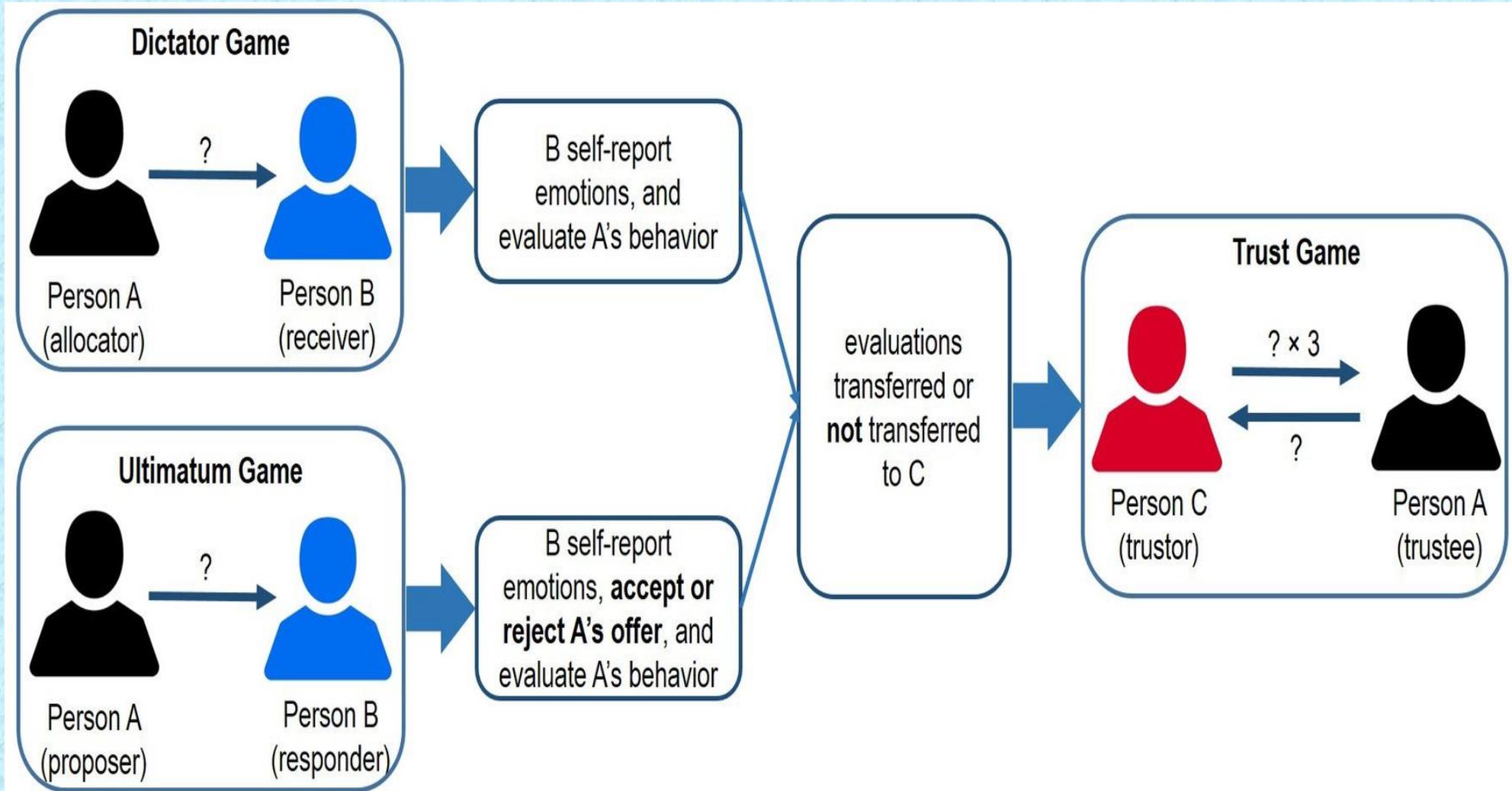
Variables of Microeconomics

Examples of Game Theory – Dictator Game

- ✿ The Dictator Game is closely related to the Ultimatum Game, in which Player A is given a set amount of money, part of which has to be given to Player B, who can accept or reject the amount given.
- ✿ The **catch** is if the second player rejects the amount offered, both A and B get nothing.
- ✿ The Dictator and Ultimatum games hold important lessons for issues such as Charitable giving and Philanthropy.

Variables of Microeconomics

Examples of Game Theory – Dictator Game



Variables of Microeconomics

Examples of Game Theory – Volunteer's Dilemma

✿ In a Volunteer's Dilemma, someone has to undertake a chore or job for the common good. The worst possible outcome is realized if nobody volunteers.

✿ **For Example**, consider a company in which accounting fraud is rampant, though top management is unaware of it. Some Junior Employees in the Accounting Department are aware of the fraud but hesitate to tell Top Management because it would result in the Employees involved in the fraud being fired and most likely prosecuted.

✿ Being labeled as a whistleblower may also have some repercussions down the line. But if nobody Volunteers, the large-scale fraud may result in the company's eventual bankruptcy and the loss of everyone's jobs.

Variables of Microeconomics

Examples of Game Theory – Volunteer's Dilemma

- Volunteer's Dilemma: Data breach cost info sharing

		All other victims	
		At least one shares	All keep quiet
Victim	Share	0	0 Cost, limited benefit
	Keep quiet	1 Benefit w/o cost	-10 Everyone's in the dark

Variables of Microeconomics

Examples of Game Theory – The Centipede Game

✿ The Centipede Game is an extensive-form game in game theory in which Two Players alternately get a chance to take the Larger Share of a Slowly increasing Money Stash. It is arranged so that if a player passes the stash to his opponent who then takes the stash, the player receives a smaller amount than if he had taken the pot.

✿ The centipede game concludes as soon as a player takes the stash, with that player getting the larger portion and the other player getting the smaller portion. The game has a pre-defined total number of rounds, which are known to each player in advance.

Variables of Microeconomics

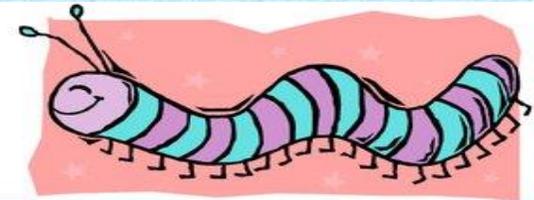
Examples of Game Theory – The Centipede Game

- ☀ Centipede game also highlights the conflict between self-interest and mutual benefit with which people have to grapple. It was first introduced by psychologist Robert Rosenthal in 1982. “Centipede Game” is so-called because its original version consisted of a 100-move sequence.
- ☀ The Centipede Game is a Game in which Two Players alternate to take a share of an ever-increasing sum of money.
- ☀ It is an innovative approach to The Conflict Between Self-interest and Mutual Benefit.
- ☀ Studies show that only a very small percentage of subjects chose to pass the stash to increase the quantity of their stash.

Variables of Microeconomics

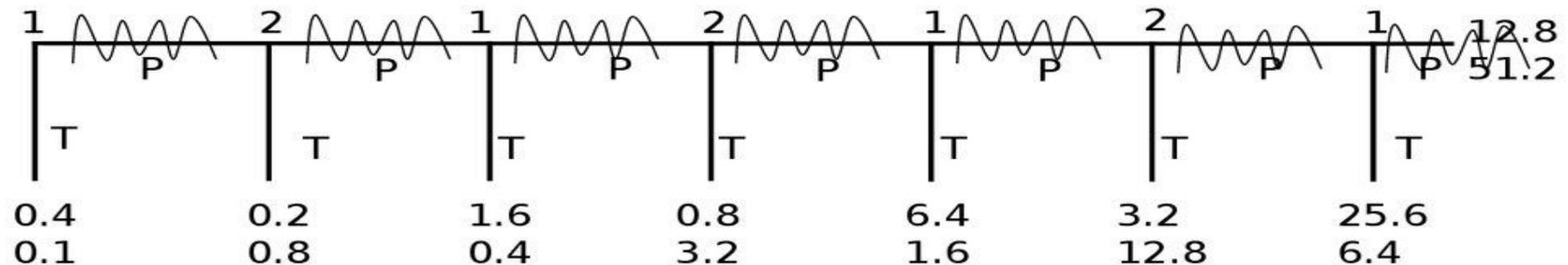
Examples of Game Theory – The Centipede Game

Centipede game



5

- Each node a player can take (T) or pass (P)
 - Pass: let the other player move, the pie gets bigger
 - Take: take 80% of the growing pie



- SPE: Using rollback: Player 1 chooses T in the last period...
player 1 plays T in period 1

Variables of Microeconomics

Limitations of Game Theory

- ✿ The biggest issue with game theory is that, like most other economic models, it relies on the assumption that people are Rational Actors that are self-interested and Utility-maximizing.
- ✿ Of course, we are social beings who do cooperate and do care about the welfare of others, often at our own expense. Game theory cannot account for the fact that in some situations we may fall into a Nash equilibrium, and other times not, depending on the social context and who the players are.

Variables of Microeconomics

Labour Economics

- ✿ Labour Economics seeks to understand the **Functioning and Dynamics of the Markets for Wage Labour.**
- ✿ Labour is a commodity that is supplied by Labourers in exchange for a Wage paid by demanding Firms. Because these Labourers exist as parts of a Social, Institutional, or Political System, Labour Economics is often regarded as a Sociology or Political Science.
- ✿ Labour Markets or Job Markets function through the interaction of Workers and Employers.

Variables of Microeconomics

Labour Economics

- ✿ Labour Economics looks at the Suppliers of Labour Services (Workers) and the Demanders of Labour Services (Employers), and attempts to understand the resulting Pattern of Wages, Employment, and Income.
- ✿ These patterns exist because each individual in the market is presumed to make rational choices based on the information that they know regarding Wage, Desire to provide Labour, and Desire for Leisure.
- ✿ Labour markets are normally geographically bounded, but the **rise of the internet** has brought about a '**Planetary Labour Market**' in some sectors.

Variables of Microeconomics

Labour Economics

- ✿ Labour Economics can generally be seen as the application of Microeconomic or Macroeconomic techniques to the Labour Market.
- ✿ **Microeconomic Techniques** study the role of Individuals and Individual Firms in the Labour Market.
- ✿ **Macroeconomic Techniques** look at the interrelations between the Labour Market, the Goods Market, the Money Market, and the Foreign Trade Market. It looks at how these interactions influence macro variables such as Employment Levels, Participation Rates, Aggregate Income and Gross Domestic Product.

Variables of Microeconomics

Welfare Economics

- ✿ Welfare Economics is a branch of Economics that uses Microeconomic techniques to evaluate Well-being (Welfare) at the Aggregate (Economy-wide) Level.
- ✿ Attempting to apply the principles of Welfare Economics gives rise to the **field of Public Economics**, the study of how Government might intervene to improve Social Welfare.
- ✿ Welfare Economics also provides the Theoretical Foundations for instruments of Public Economics, including Cost–Benefit Analysis.

Variables of Microeconomics

Welfare Economics

- ✿ Welfare Economics is the study of how the Structure of Markets and the Allocation of Economic Goods and Resources determines the overall Well-being of Society.
- ✿ Welfare Economics seeks to evaluate the Costs and Benefits of changes to the Economy and Guide Public Policy toward increasing the Total good of Society, using tools such as **Cost-benefit Analysis** and **Social Welfare Functions.**
- ✿ Welfare Economics depends heavily on assumptions regarding the Measurability and Comparability of Human Welfare across Individuals, and the value of other Ethical and Philosophical ideas about Well-being.

Variables of Microeconomics

Cost Benefit Analysis

- ✿ A Cost-benefit Analysis is a process Businesses use to Analyze Decisions.
- ✿ The Business or Analyst sums the Benefits of a situation or action and then subtracts the Costs associated with taking that action.
- ✿ Before building a New Plant or taking on a New Project, prudent managers conduct a Cost-benefit analysis to evaluate all the Potential Costs and Revenues that a company might generate from the Project.
- ✿ The outcome of the analysis will determine whether the Project is Financially Feasible or if the Company should Pursue another Project.

Variables of Microeconomics

Cost Benefit Analysis

- ✿ In many models, a Cost-benefit Analysis will also **factor the Opportunity Cost** into the Decision-making Process.
- ✿ A Cost-benefit Analysis (CBA) is the process used to measure the Benefits of a decision or taking action minus the Costs associated with taking that action.
- ✿ A CBA involves measurable Financial Metrics such as Revenue Earned or Costs Saved as a result of the decision to Pursue a Project.
- ✿ A CBA can also include Intangible Benefits and Costs or effects from a Decision such as Employee Morale and Customer Satisfaction.

Variables of Microeconomics

Cost Benefit Analysis

The Cost-Benefit Analysis Process

- ✿ With Cost-benefit Analysis, there are a number of forecasts built into the process, and if any of the forecasts are inaccurate, the results may be called into question.
- ✿ A Cost-benefit Analysis (CBA) should begin with compiling a **Comprehensive List of all the Costs and Benefits associated with the Project or Decision.**

Variables of Microeconomics

Cost Benefit Analysis

The Cost-Benefit Analysis Process

The Costs involved in a CBA

- ❖ **Direct Costs** would be Direct Labor involved in Manufacturing, Inventory, Raw Materials, Manufacturing Expenses.
- ❖ **Indirect Costs** might include Electricity, Overhead Costs from Management, Rent, Utilities.
- ❖ **Intangible Costs** of a Decision, such as the Impact on Customers, Employees, or Delivery Times.
- ❖ **Opportunity Costs** such as Alternative Investments, or Buying a Plant versus Building one.
- ❖ **Cost of Potential Risks** such as Regulatory Risks, Competition, and Environmental Impacts.

Variables of Microeconomics

Cost Benefit Analysis

The Cost-Benefit Analysis Process

The Benefits might include:

- ❖ **Revenue and Sales increases** from Increased Production or New Product.
- ❖ **Intangible Benefits**, such as improved Employee Safety and Morale, as well as Customer Satisfaction due to Enhanced Product Offerings or Faster Delivery.
- ❖ **Competitive Advantage or Market Share gained** as a result of the decision.

Variables of Microeconomics

Limitations Cost Benefit Analysis

- ✿ For Projects that involve small - to mid-level capital expenditures and are short to intermediate in terms of time to completion, an in-depth Cost-benefit Analysis may be sufficient enough to make a Well-informed, Rational Decision.
- ✿ For Very Large Projects with a Long-term Time Horizon, a Cost-benefit analysis might fail to account for important Financial concerns such as Inflation, Interest Rates, varying Cash Flows, and the Present Value of Money.

Variables of Microeconomics

Limitations Cost Benefit Analysis

- ✿ **Alternative capital budgeting analysis methods, including Net Present Value, could be more appropriate for these situations.**
- ✿ **One of the benefits of using Net Present Value for deciding on a project is that it uses an Alternative Rate of Return that could be earned if the project had never been done. That Return is Discounted from the results.**
- ✿ **In other words, the project needs to earn at least more than the Rate of Return that could be earned elsewhere or the Discount Rate.**

Variables of Microeconomics

Social Welfare Functions

- ✿ In Welfare Economics, a Social Welfare Function is a function that ranks Social States (alternative complete descriptions of the society) as Less Desirable, More Desirable, or Indifferent for every possible pair of social states.
- ✿ Inputs of the function include any variables considered to affect the Economic Welfare of a Society.
- ✿ In using Welfare measures of persons in the society as inputs, the **Social Welfare function is Individualistic in form.**

Variables of Microeconomics

Social Welfare Functions

- ✿ One use of a Social Welfare Function is to represent Prospective Patterns of Collective Choice as to alternative social states.
- ✿ The social welfare function provides the Government with a Simple Guideline for achieving the Optimal Distribution of Income.

Variables of Microeconomics

Economics of Information

- ✿ Information Economics is a branch of microeconomic theory that **studies how Information and Information Systems affect an Economy and Economic Decisions.**

Information has special characteristics.

- ✿ It is easy to Create but Hard to Trust.
- ✿ It is easy to Spread but hard to Control.
- ✿ It Influences many Decisions.

Variables of Microeconomics

Economics of Information

These special characteristics (as compared with other types of goods) complicate many standard Economic Theories.

✿ The Economics of Information has recently become of great interest to many - possibly due to the rise of information-based companies inside the Technology Industry.

✿ There are several subfields of Information Economics.

✿ Information as Signal has been described as a kind of Negative measure of Uncertainty.

Variables of Microeconomics

Economics of Information

- ✿ Information Economics is formally related to Game Theory as two different types of Games that may apply, including Games with Perfect Information, Complete Information, and Incomplete Information.
- ✿ Experimental and Game-theory methods have been developed to Model and Test theories of Information Economics.

Variables of Microeconomics

The Theory of Asymmetric Information in Economics

- ✿ The theory proposes that an imbalance of Information between Buyers and Sellers can lead to Market Failure.
- ✿ **Market Failure**, to economists, means an Inefficient Distribution of Goods and Services in a Free Market, in which Prices are determined by the law of Supply and Demand.

Variables of Microeconomics

The Theory of Asymmetric Information in Economics

- ✿ Asymmetric Information Theory suggests that Sellers may possess more information than Buyers, skewing the price of Goods sold.
- ✿ The Theory argues that Low-quality and High-quality products can command the same price, given a lack of Information on the Buyer's side.
- ✿ Others argue that ignorance of the facts is not a given, as wary Buyers have access to information on Demand.

Economic Analysis

- ✿ Macroeconomics (from the Greek prefix makro- meaning "**Large**" + **Economics**) is a branch of Economics dealing with the Performance, Structure, Behavior, and Decision-making of an Economy as a whole.
- ✿ **For Example**, using Interest Rates, Taxes and Government Spending to regulate an Economy's Growth and Stability.
- ✿ This includes Regional, National, and Global Economies.

Economic Analysis

- ☀ Macroeconomists study topics such as
 - ❖ GDP,
 - ❖ Unemployment Rates,
 - ❖ National Income,
 - ❖ Price Indices,
 - ❖ Output,
 - ❖ Consumption,
 - ❖ Unemployment,
 - ❖ Inflation,
 - ❖ Saving, Investment,
 - ❖ Energy,
 - ❖ International Trade, and International Finance.

Economic Analysis

Variables of Macroeconomics

- ✿ National Income – GDP/GNP
 - a. Product Method
 - b. Income Method
 - c. Expenditure Method
- ✿ Savings and Investments
- ✿ Inflation (CPI/WPI) and Interest Rate
- ✿ Unemployment Rate

Economic Analysis

Variables of Macroeconomics

- ✿ Flows from FII and FPI
- ✿ Fiscal Policy and Its Impact
- ✿ General Anti-Avoidance Rules (GAAR)
- ✿ Monetary Policies and their Impact
- ✿ International Trade, Exchange Rate and Trade Deficit
- ✿ Globalization

Variables of Macroeconomics

1. National Income

- ✿ National Income of an Economy is defined through a variety of measures such as Gross Domestic Product (**GDP**) and Gross National Product (**GNP**).
- ✿ **GDP** measures the value of goods and services produced within a country's borders, by Citizens and Non-citizens alike.
- ✿ **GNP** measures the value of goods and services produced by only a country's citizens but both Domestically and Abroad.

Variables of Macroeconomics

1. National Income

- ✿ Computation of these numbers is a humongous task in terms of data-collection and its processing.
- ✿ Measured through three methods:
 - (i) Product Method
 - (ii) Income Method and
 - (iii) Expenditure Method.

Variables of Macroeconomics

1. National Income

a. Product Method

- ✿ National Income is measured as an **Aggregated Flow of Goods and Services in the Economy** from the different **Sectors: Agriculture, Industry and Services.**
- ✿ Economists calculate Money Value of all final Goods and Services produced in the Economy during a specified period.

Variables of Macroeconomics

1. National Income

- ✿ Final goods refer to only those goods which are consumed by Economy Participants and not the ones used in further production processes (intermediate goods).
- ✿ Product method deals with the Economy Sector-wise.
- ✿ The **Total Output** in the Economy is computed as the sum of the outputs of various sectors.

Variables of Macroeconomics

Income Method

✿ In this method, National Income is measured as the aggregate Income of Individuals in the Economy.

✿ **Robert Kiyosaki**, an Author and Businessman, divides the whole working population in the world in **Four broad Categories**

- ❖ Employees (Labour and other employees)
- ❖ Professionals
- ❖ Entrepreneurs and
- ❖ Investors

Variables of Macroeconomics

Income Method

- ✿ **Employees** earn Wages and Salaries,
- ✿ **Professionals** earn their Income based on their services,
- ✿ **Entrepreneurs** earn Profits (including undistributed Corporate Profits)
- ✿ **Investors** earn Return on their Capital and Rent on their Land.
- ✿ **Sum of all these Incomes** for a specified period is called National Income for the Economy.

Variables of Macroeconomics

Expenditure Method

✿ As all the Goods and Services produced in an Economy are bought (consumed) by someone, National Income may also be Calculated from the Consumption End.

✿ **Consumers** in an Economy are broadly divided into

Three Categories

- ❖ Individuals
- ❖ Corporates
- ❖ Government

Variables of Macroeconomics

Expenditure Method

- ✿ As an Economy would also have **Exports and Imports** necessary adjustments are made for the same by the economist while arriving at the National Income through this method.
- ✿ The aggregate demand for goods and services is computed as the sum of **Private Consumption, Government Spending, Gross Capital Formation and Net Exports.**

Variables of Macroeconomics

1. National Income

- ✿ All three counting methods produce similar results with minor differences for several reasons including errors in the statistics.

Uses of national income statistics:

- ❖ Level of Economic Welfare and Growth
- ❖ Distribution of Income among Constituents of the Economy
- ❖ Support to Fiscal and Monetary Policies

Variables of Macroeconomics

1. National Income

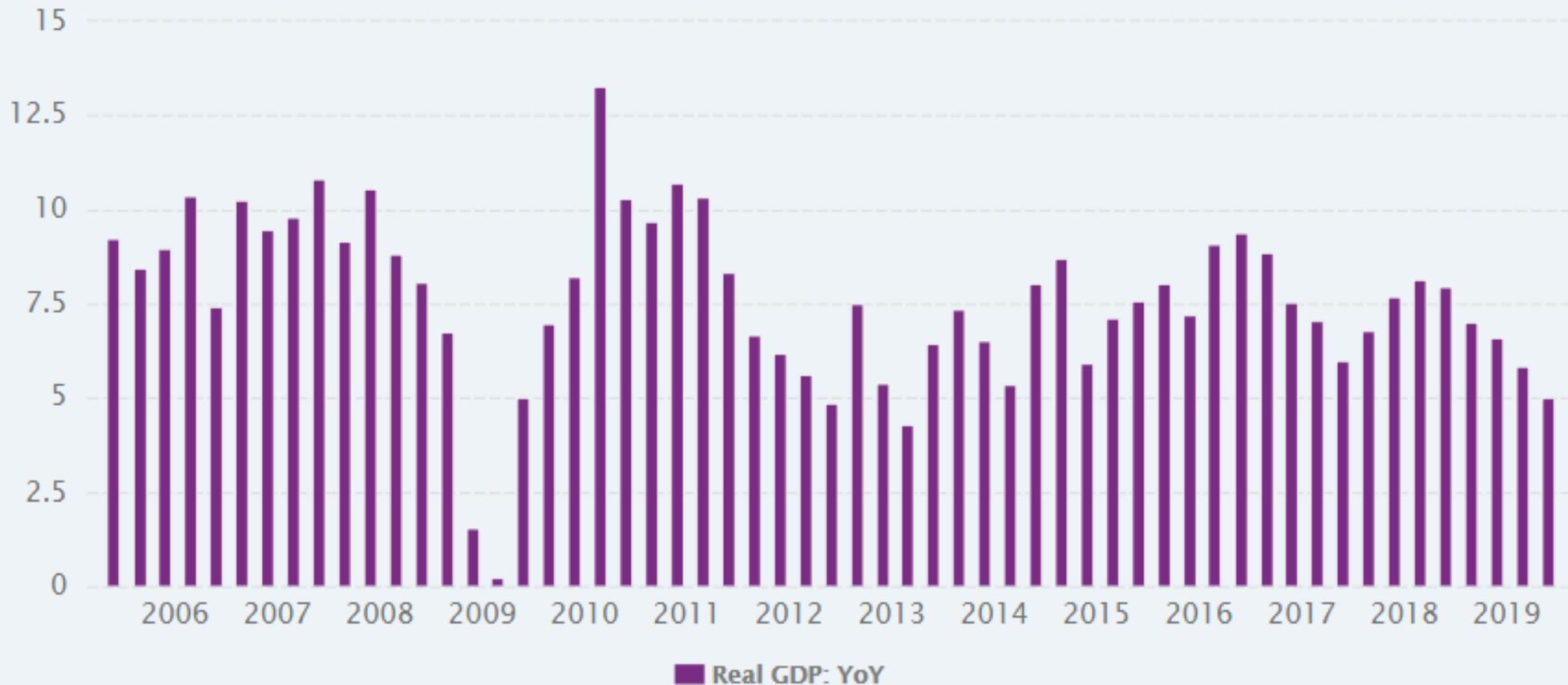
✿ India's Nominal GDP Growth from Jun 2012-Sep2020



Variables of Macroeconomics

1. National Income

✿ India's Real GDP Growth from Jun 2005-Jun2020:



SOURCE: WWW.CEICDATA.COM | CEIC Data

Variables of Macroeconomics

2. Savings and Investments

- ✿ Savings, defined as Income over Expenses, are computed for all three categories separately.
- ✿ **Savings of Individuals** is called “**Personal Savings**”.
- ✿ **Savings of Corporates** (undistributed profits) is called “**Corporate Savings**”.
- ✿ **Savings of Government** is called “**Public Savings**” (rarely there; Governments generally run Budget Deficits).

Variables of Macroeconomics

2. Savings and Investments

- ✿ Individuals and corporate entities may be clubbed together as Private Savings.
- ✿ Economists arrive at National Saving by summing savings of these three constituents - Personal, Corporate and Public Savings.
- ✿ It is also important to understand that savings does not mean investment.

Variables of Macroeconomics

2. Savings and Investments

- ✿ Savings are to be channelized towards Productive Venues called Investments – given to Corporates or Government to invest to **generate further Earnings**.
- ✿ Savings take the shape of some Financial Instrument – Equity, Bonds, Government Securities and others to transfer the funds from the savers to users (issuers of securities) who are expected to employ these savings to productive activities.

Variables of Macroeconomics

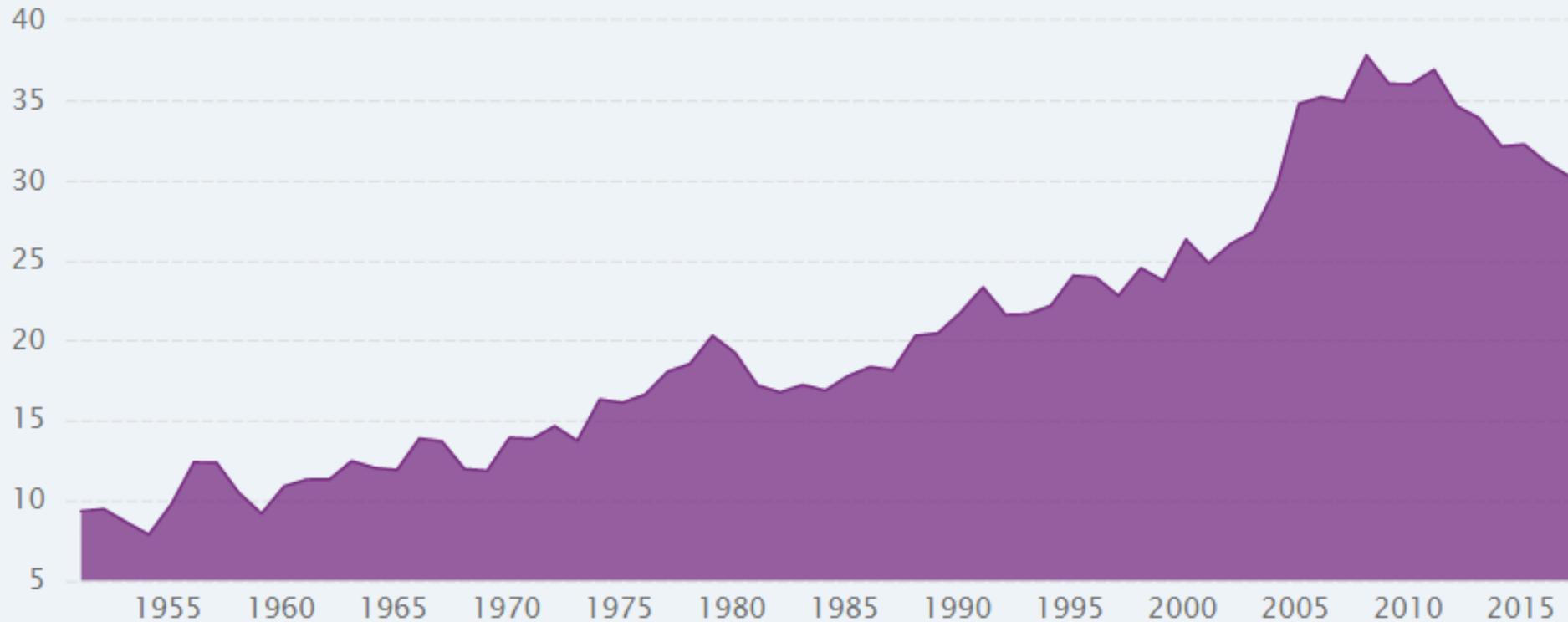
2. Savings and Investments

- ✿ Government and Central Bankers continuously focus on facilitating the conversion of savings into investments through creation of efficient and effective Financial Markets – wide Range of Products, Ease of Conversion, Simplicity in Transactions, Safety in Dealing, Low Cost and Transparency in Operations.
- ✿ Higher Levels of Savings and Higher Conversion of those Savings in to investments are considered good for an economy.

Variables of Macroeconomics

2. Savings and Investments

India's Gross Savings Rate From 1951-2019.



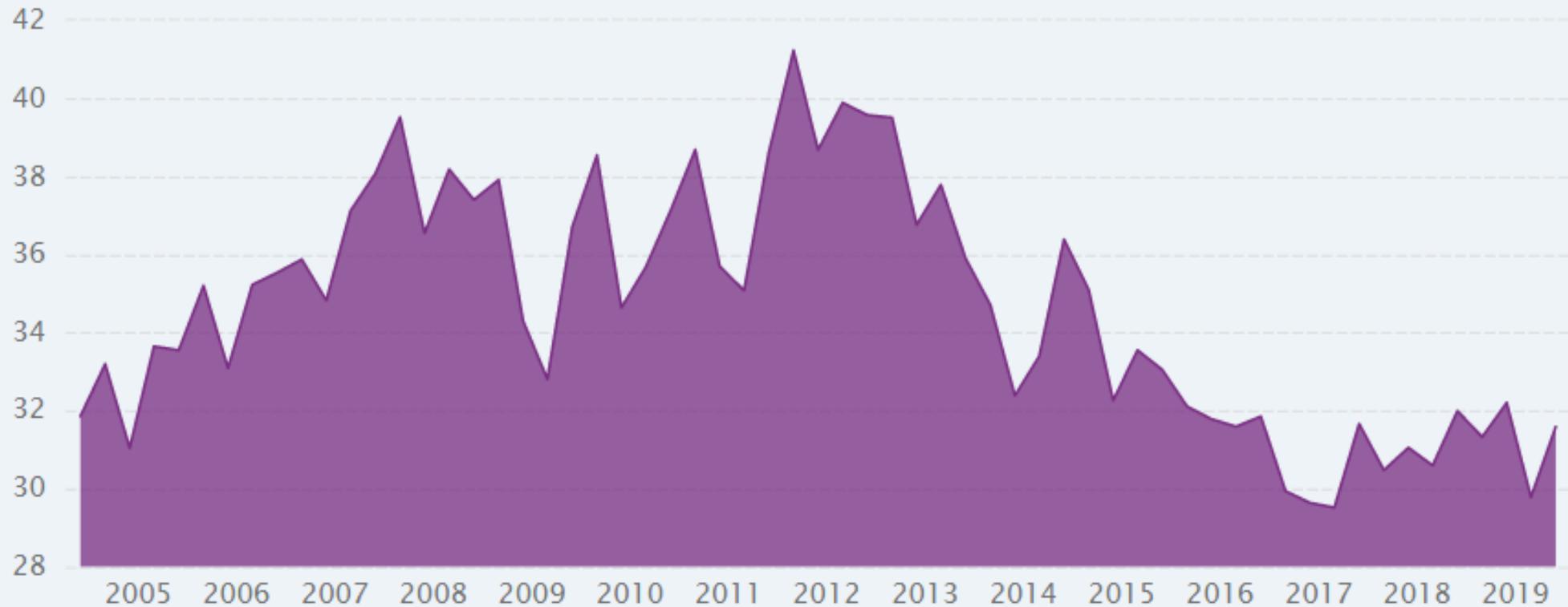
■ Gross Domestic Savings Rate: Annual: India

SOURCE: WWW.CEICDATA.COM | CEIC Data

Variables of Macroeconomics

2. Savings and Investments

India's Investment: % of GDP from Jun 2004-Sep2020



■ Investment: % of Nominal GDP: Quarterly: India

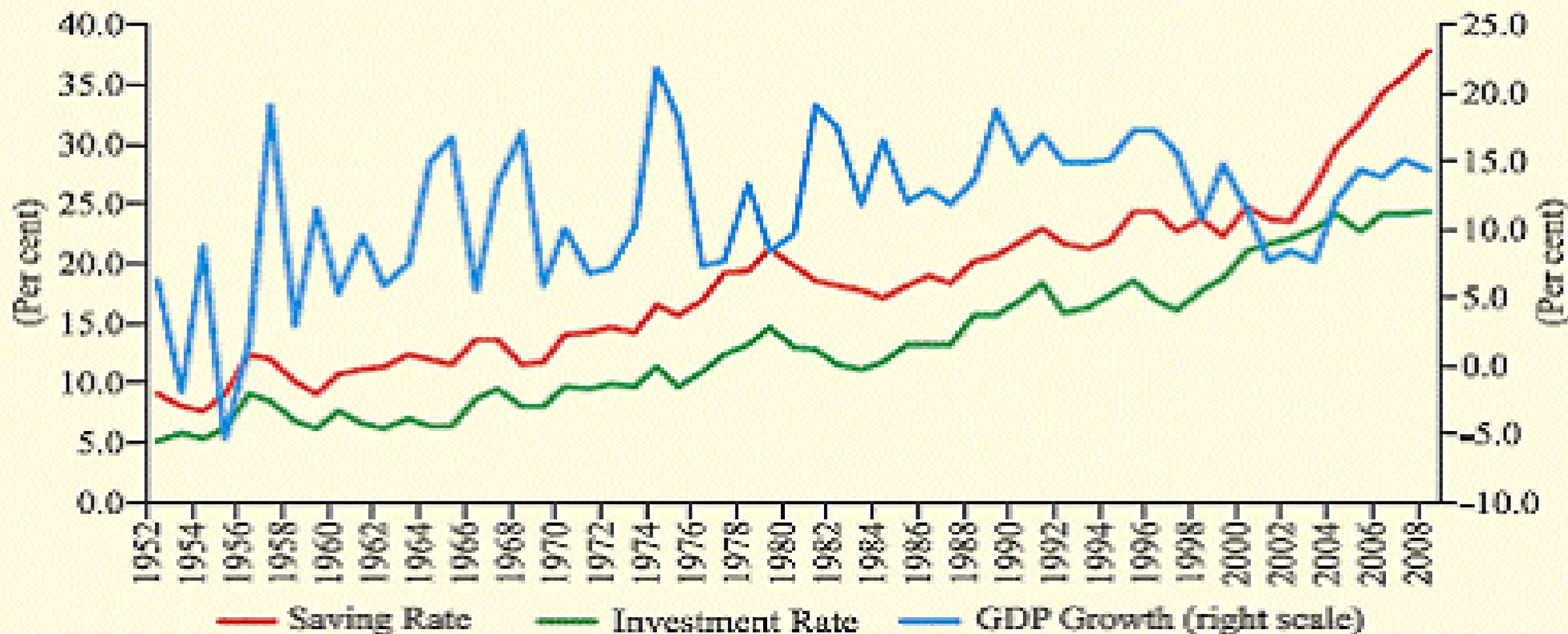
SOURCE: WWW.CEICDATA.COM | CEIC Data

Variables of Macroeconomics

2. Savings and Investments

Saving, Investment and National Income Trend

Chart 1: Saving, Investment rates and nominal growth



Variables of Macroeconomics

2. Saving, Investment and National Income Trend

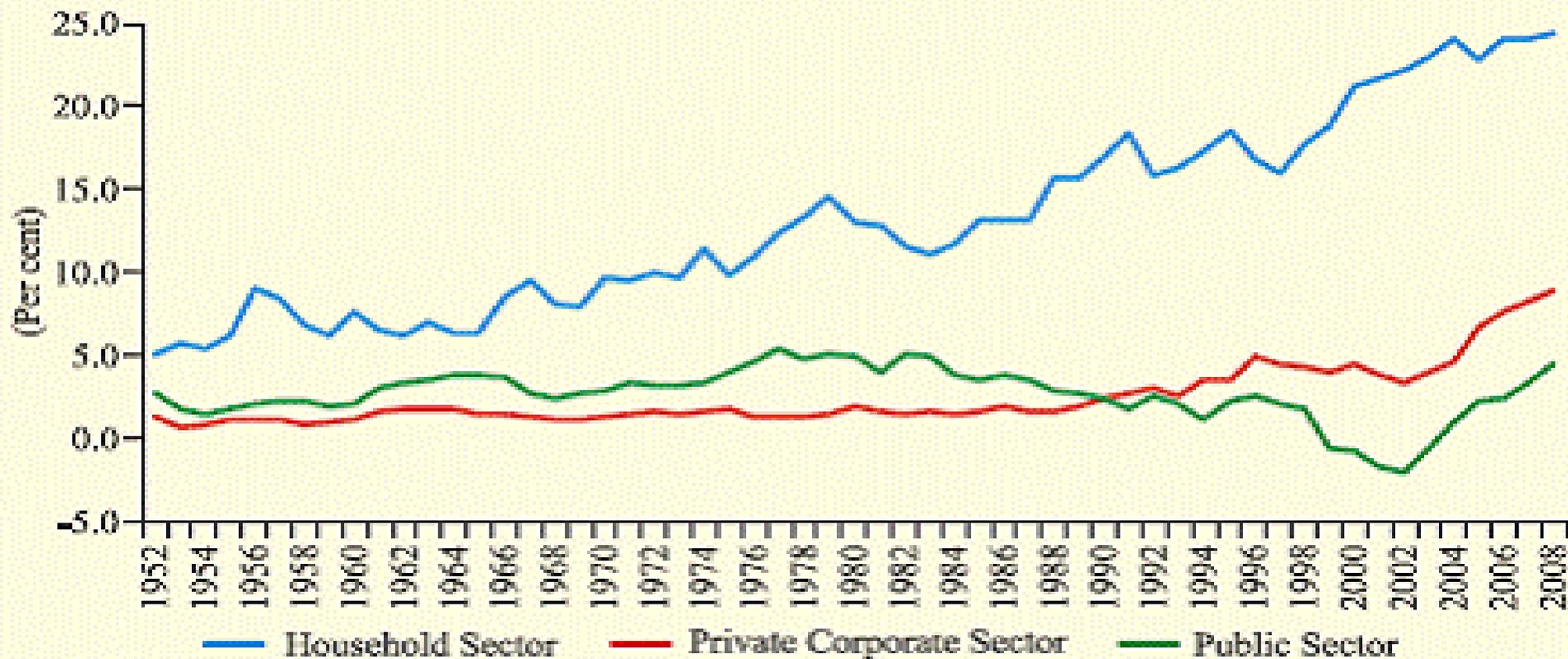
- ✿ As is evident from Chart 1, Economic Growth was largely led by Investment Demand, which is captured by the Gross Domestic Fixed Capital Formation in National Accounts.
- ✿ Though growing Foreign Investment, both Direct and Portfolio Investment play a role, the rise in investment was largely financed domestically.
- ✿ From a low of 21.6 per cent in 1991-92, India's domestic saving rate jumped to a record high of 37.7 per cent in 2007-08. This fuelled investment, raising the demand for all types of investment related goods. This, in turn, had a multiplier effect on Economic Growth.

Variables of Macroeconomics

2. Savings and Investments

Composition of Savings

Chart 2: Composition of Saving



Variables of Macroeconomics

2. Saving and Investment - Composition of Savings

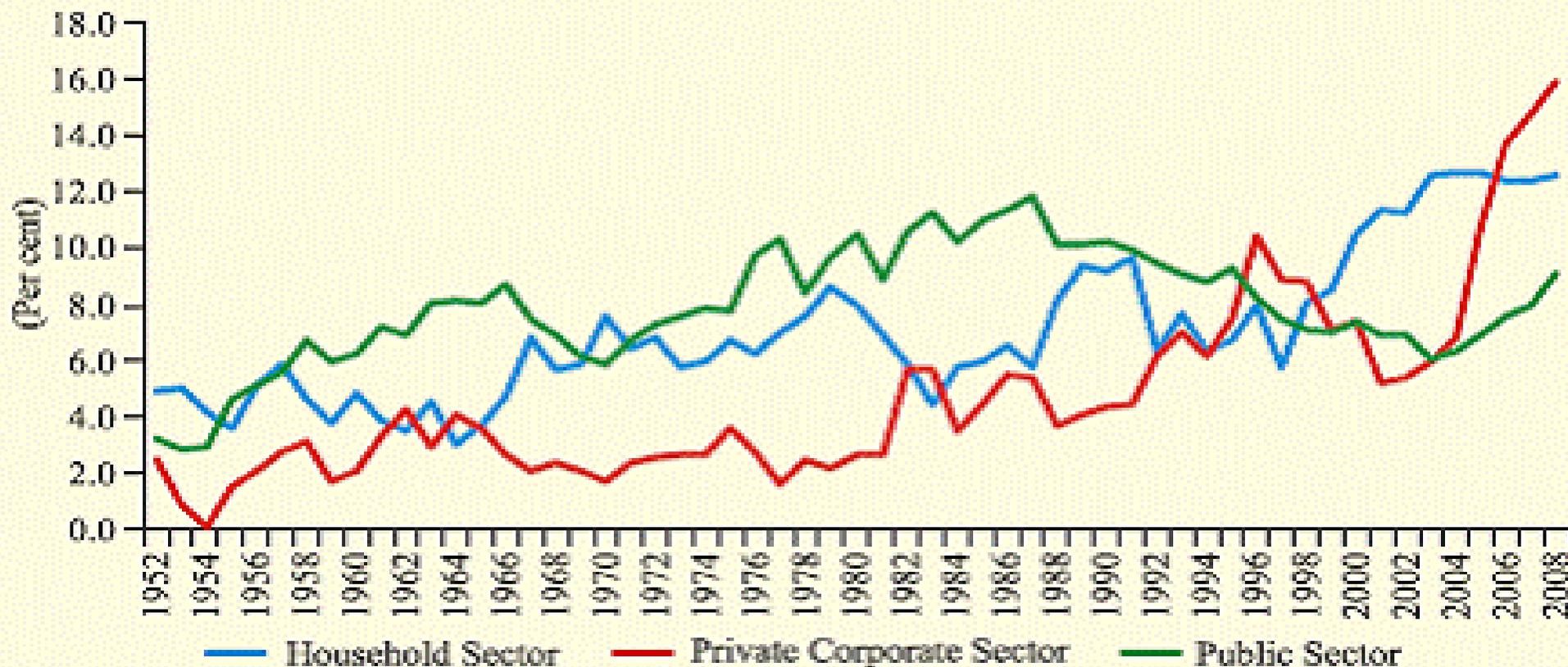
- ✿ While India's saving and investment rates have steadily increased over time, their composition has undergone a considerable change (Chart 2).
- ✿ The most noticeable trend is the growing divergence between the public and private saving. Public saving declined from its peak level of 4.9 per cent of GDP in 1976-77 to – 2.2 per cent in 2001-02, from where it increased to 4.5 per cent in 2007-08.
- ✿ During the same period, saving rates of both the household and private corporate sectors have steadily increased, offsetting the decline in the public sector.

Variables of Macroeconomics

2. Saving and Investment- Composition of Investments

While India's saving and investment rates have steadily

Chart 3: Composition of Investment



Variables of Macroeconomics

2. Saving and Investment- Composition of Investments

- ✿ Until late 1980s Public Investment rate was dominating and reached its peak of 12 per cent in 1986-87. Following the Liberalisation in early 1990s, the role of Public Sector has gradually reduced in number of sectors, and its place has been taken over by the Private Sector. Hence, the Private Corporate Investment has steadily increased offsetting the decline in the Public Sector Investment.
- ✿ The share of Public Sector Investment in total investment was stagnant at around 50 per cent till 1980s, and has declined to 23 per cent in 2007-08.

Variables of Macroeconomics

2. Saving and Investment- Composition of Investments

- ✿ The share of Private Corporate Investment, which was little more than 20 per cent in 1980s, has steadily increased to 40 per cent in 2007-08.
- ✿ Household Sector Investment rate also increased from low base of 3.2 per cent in 1963-64 to 14.2 per cent in 2004-05 and it moderated thereafter. However, its share in total investment broadly remained the same.

Variables of Macroeconomics

3. Inflation (CPI/WPI) and Interest Rate

- ✿ Often people are heard saying that “Things have become very Expensive over a period of time”.
- ✿ How do things become expensive? i.e. Value of 1000 bill after a year will be lesser than previous year.
- ✿ **The Rise in the price of general goods and services in the Economy is Called “Inflation”.**
- ✿ Leading to an Erosion of purchasing power of Money.

Variables of Macroeconomics

3. Inflation (CPI/WPI) and Interest Rate

Causes of Inflation:

- ☀ **Demand Pull Inflation**: An increase in the price of goods and services because demand being in excess of available supply, is called demand pull inflation.
- ☀ **Cost-push Inflation** : An increase in prices because of an increase in input costs is called cost-push inflation.
- ☀ To defuse the Inflation, policy makers adopt several measures to reduce the Demand or increase the Supply or both.

Variables of Macroeconomics

3. Inflation (CPI/WPI) and Interest Rate

Ways to Measure Inflation:

- ☀ **Wholesale Price Index (WPI)**: Economists define a basket of products based on general consumption in the economy and compute its Prices based on wholesale prices defining WPI.
- ☀ **Consumer Price Index (CPI)**: Economists define a basket of products based on general consumption in the economy and compute its prices based retail prices defining CPI.

Variables of Macroeconomics

3. Inflation (CPI/WPI) and Interest Rate

- ☀ **Interest Rate** is used to control Inflation by the central banks.
- ☀ **Inflation** is the continued increase in the general price levels of an Economy.
- ☀ **Interest is the Cost of Borrowing Funds.**

Variables of Macroeconomics

3. Inflation (CPI/WPI) and Interest Rate

Effect of High Inflation on Interest Rates:

- ✿ In high Inflationary Situations, **Interest Rate Rises.**
- ✿ When the Interest Rate rises, the Cost of Borrowing rises. This makes borrowing Expensive. Hence borrowing will decline and as such the Money Supply (i.e the amount of Money in Circulation) will fall. A Fall in the Money Supply will lead to people having lesser Money to spend on Goods and Services. Hence, they will buy a lesser amount of Goods and Services.

Variables of Macroeconomics

3. Inflation (CPI/WPI) and Interest Rate

Effect of High Inflation on Interest Rates:

- ✿ This, in turn, will lead to a fall in the Demand for Goods and Services. With the Supply remaining constant and the Demand for Goods and Services declining; the Price of Goods and Services will Fall.
- ✿ As Inflation is a continuous increase in the General Price Level of Goods and Services so a Fall in the General Price Level of Goods and Services will lead to a Decline in Inflation Levels.

Variables of Macroeconomics

3. Inflation (CPI/WPI) and Interest Rate

Effect of Low Inflation on Interest Rates:

- ✿ In Low Inflationary situations; the Interest Rate is Reduced.
- ✿ Interest Rates will make Borrowing cheaper. Hence, Borrowing will increase and the Money Supply will also increase. With a Rise in the Money Supply, people will have More Money to Spend on Goods and Services..
- ✿ So; the Demand for Goods and Services will increase and with Supply remaining constant this leads to a rise in the Price Level i.e Inflation.

Variables of Macroeconomics

3. Inflation (CPI/WPI) and Interest Rate

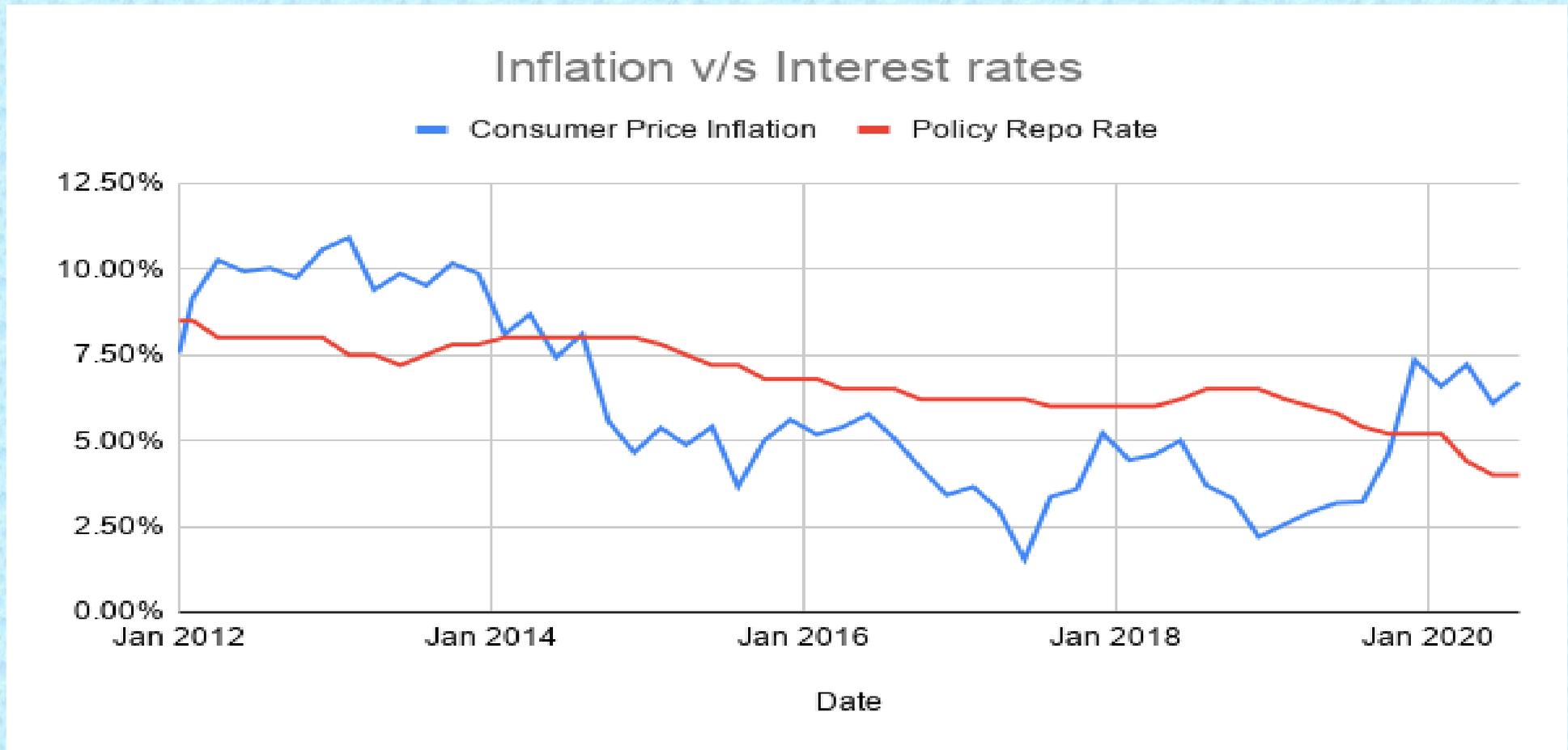
Example of Inflation and Interest Rates

- On 2 August 2017: RBI reduced the Repo Rate from 6.25% to 6 % (i.e by 0.25%) due to low Inflation. India's Consumer Inflation declined to 1.54 (five year low) for the period: April-September in 2017.

Variables of Macroeconomics

3. Inflation (CPI/WPI) and Interest Rate

Comparison Chart of Inflation and Interest Rates



Source: <https://blog.smallcase.com/the-relationship-between-inflation-and-interest-rates/>

Variables of Macroeconomics

4. Unemployment Rate

- ✿ Unemployment rate refers to the Eligible and Willing to work Unemployed Population of the country in percentage terms.
- ✿ During a Slowdown in Economies, Unemployment rate Rises and during an Expansion Phase, the Unemployment rate Falls as more Jobs are created as Production goes Up.

Variables of Macroeconomics

4. Unemployment Rate

- ✿ Higher Employment means Higher Income, which improves the ability of people to Spend, which implies potential Growth in the Economy.
- ✿ Lower Employment means Low Income, which reduces Purchasing Power and implies Economy going through Tough times and High Unemployment Rates.

Variables of Macroeconomics

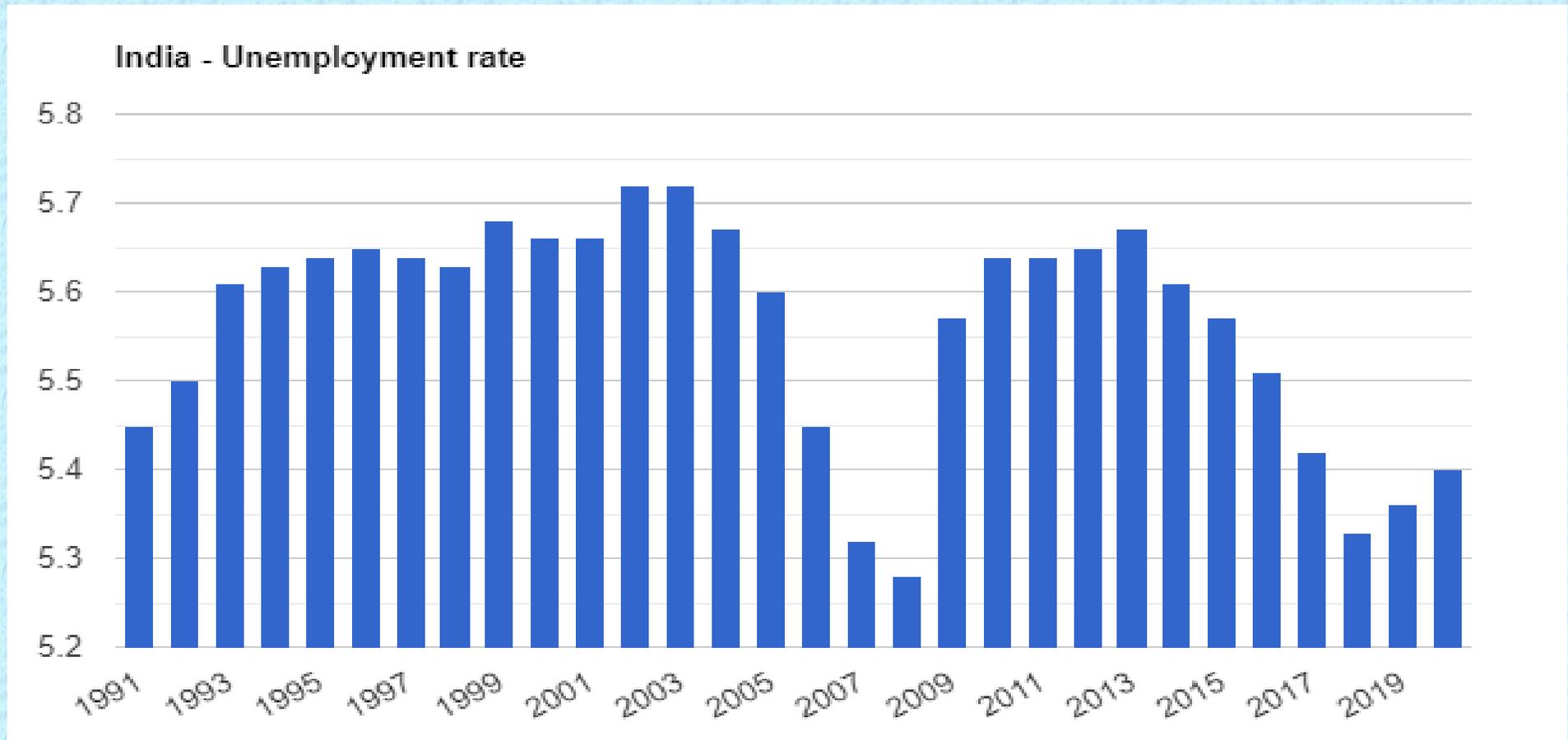
4. Unemployment Rates Higher Income, which

Effect of Employment	Increase	Decrease
Income	+	-
Demand	+	-
Spending	+	-
Consumption	+	-
Production	+	-
Growth	+	-
GDP	+	-
Inflation	+	-
Cycle Repeat		

Variables of Macroeconomics

4. Unemployment Rate

✿ Unemployment Chart from 1991-2020:



Variables of Macroeconomics

5. Flows from FDI and FII/FPIs

- ✿ Active Form: Investing entities participate in decision making and drive the businesses.
- ✿ Passive Form: Investing entities don't participate in decision making.
- ✿ Foreign Direct Investment (FDI) known as Active form.
- ✿ Foreign Portfolio Investment (FPI) known as Passive Form, they invest in markets – equity or bonds without any management participation.

Variables of Macroeconomics

5. Flows from FDI and FII/FPIs

- ✿ There are Upper Limits on the **Individual and combined holding by FPIs** in the paid up capital of the Indian companies.
- ✿ FDI is welcomed by all the developing Economies and has multiple benefits in addition to bring in capital to the country.

Variables of Macroeconomics

5. Flows from FDI and FII/FPIs

✿ Multiple benefits of FDI:

- ❖ Job Creation
- ❖ New Managerial Skills
- ❖ New Technologies
- ❖ New Products and services

✿ FDI is Long Term in Nature and Stable Money,

✿ FPIs Money is considered as Hot Money as they can pull out the money at any time which could create **Systemic Risk** for the economy.

Variables of Macroeconomics

5. Flows from FDI and FII/FPIs

- ✿ Systematic Risk, also known as "Market Risk" or "Un-diversifiable Risk", is the uncertainty inherent to the entire market or entire market segment.
- ✿ Also referred to as Volatility, Systematic Risk consists of the Day-to-day Fluctuations in a stock's price.

Variables of Macroeconomics

6. Fiscal Policies and their Impact on Economy

- ✿ Fiscal policy contains the Measures of the Government which deal with its Revenues and Expenses.
- ✿ Fiscal measures are important in any economy because when Government changes the measures of its Income and Expenditure, it **influences Aggregate Demand, Supply, Savings, Investment and the overall Economic Activity** in the country.

Variables of Macroeconomics

6. Fiscal Policies and their Impact on Economy

- ☀ Government's Primary source of Income being **Taxation**.
- ☀ Government's Major Spending: Education, Healthcare, Police, Military Forces, Interest on Borrowing, Administrative Machinery, Welfare Benefits etc.
- ☀ Budgeted excess of Government's Expenditure over its Revenues in a specific year is known as **Fiscal Deficit**, which is generally defined as a percentage of GDP.

Variables of Macroeconomics

6. Fiscal Policies and their Impact on Economy

- ✿ The Fiscal Deficit is bridged by the government through Market borrowings, both Short term and Long term.
- ✿ A Large Fiscal Deficit, and consequently a Higher Borrowing by the Government, will Push Up Interest Rates in the Economy and make it difficult for Corporate Borrowers to access funds.
- ✿ A High Interest rate environment is detrimental to Economic Growth.

Variables of Macroeconomics

6. Fiscal Policies and their Impact on Economy

- ✿ Foreign transaction including Payments for Imports and Receipts for Exports, Interest and Dividend received and paid and other transfers from abroad also affect policy.
- ✿ The Current Account Balance is the difference between the Receipts and the Payments.
- ✿ A Country may have a **Current Account Surplus** (Receipts>Payments) or **Deficit** (Receipts<Payments).

Variables of Macroeconomics

6. Fiscal Policies and their Impact on Economy

- ✿ A High Fiscal Deficit in proportion to the GDP caused by Lack Of Competitiveness in trade or Excessive Consumption is a negative commentary on the Economy.
- ✿ A High CAD causes the nation's Currency to weaken relative to other currency.
- ✿ This makes imports more expensive and will affect the productivity of the Economy as Capital Goods and Commodities become expensive.

Variables of Macroeconomics

6. Fiscal Policies and their Impact on Economy

- ✿ It reduces the credit worthiness of the Nation and makes Borrowings more Expensive.
- ✿ A Depreciating Currency makes Exports of the nation more competitive and may help narrow the deficit.
- ✿ If the country is seen as an attractive investment destination, the capital inflows in the form of FDI and FPIs will **offset the CAD** and protect the currency from devaluation.

Variables of Macroeconomics

6. Fiscal Policies and their Impact on Economy

Expenditure is funded by the Government :

- ✿ **P/L measures** - Income from operations: Taxation, Interest and Dividend Income
- ✿ **B/S measures** - Borrowing and Sale of Assets

Variables of Macroeconomics

6. Fiscal Policies and their Impact on Economy

Fiscal Policy Categories:

- ✿ Neutral Fiscal Policy – When Governments' Income and Expenditure are in Equilibrium. No major changes required in the Fiscal policies.
- ✿ Expansionary Fiscal Policy – Fiscal measures when Government's Spending Exceeds its Income. This policy stance is usually undertaken during Recessions / Slow moving Economy.

Variables of Macroeconomics

6. Fiscal Policies and their Impact on Economy

Fiscal Policy Categories:

- ✿ Contractionary Fiscal Policy – Fiscal measures when Government's Spending is Lower than its Income.
- ✿ Government uses excess Income to Repay its Debts/Obligations or Acquire Assets.

Variables of Macroeconomics

7. General Anti-Avoidance Rules (GAAR)

✿ Entities in an Economy adopt various Methods to reduce their Tax Liabilities and the same may be categorized as:

- ❖ Tax Evasion
- ❖ Tax Avoidance
- ❖ Tax Mitigation
- ❖ Tax Planning

✿ General Anti-Avoidance Rules (**GAAR**) are framed to **Minimize Tax Avoidance.**

Variables of Macroeconomics

7. General Anti-Avoidance Rules (GAAR)

- ✿ **Example** : Routing of investments by investors through **Tax Havens such as Mauritius.**
- ✿ In India, these rules were proposed by the Union Budget 2012-2013.
- ✿ Initially, GAAR was to be effective from April 1, 2014, which was subsequently deferred to April 1, 2015 (FY 2015-16).

Variables of Macroeconomics

7. General Anti-Avoidance Rules (GAAR)

- ✿ It will be applied if the main purpose of the transaction was to get Tax Benefits.
- ✿ Investments made before 30th August 2010 are not to be covered under the rules and investments made under an FII structure in listed securities will not be covered.
- ✿ GAAR will not apply if the tax benefit is below Rs. 30 million.

Variables of Macroeconomics

7. General Anti-Avoidance Rules (GAAR)

- ✿ **Tax Evasion:** The illegal Non-payment or Underpayment of tax.
- ✿ **Tax Avoidance:** Avoiding Tax Payment by taking the Legal Opportunities provided to a Tax Payer.
- ✿ **Tax Mitigation:** Tax Mitigation is a situation where the Taxpayer uses a Fiscal Incentive (Tax Concession) available to him in the Tax legislation so that he need not pay Tax.

Variables of Macroeconomics

7. General Anti-Avoidance Rules (GAAR)

- ✿ **Example of Tax Mitigation:** Setting up of a business by a corporate in Special Economic Zone (SEZ) to claim a Tax Exemption (Sun Rise Clause).
- ✿ In such a case, the Taxpayer is taking advantage of a Fiscal Incentive in the form of a Tax Concession offered to him in the SEZ provisions in the Income-tax Act.
- ✿ **Tax Planning:** Tax Planning is framing of a Financial Plan by the Tax Payer in advance to minimize Tax Payment.

Variables of Macroeconomics

7. General Anti-Avoidance Rules (GAAR)

- ✿ General Anti-Avoidance Rules empower the revenue authorities in a country to deny the Tax Benefits to the entities on a transaction, which is primarily carried out in a specific manner to avoid taxes.
- ✿ GAAR provides discretionary powers to revenue authorities to impose taxes on such transactions.

Variables of Macroeconomics

8. Monetary Policies and their Impact on Economy

- ✿ Central Bank administer Monetary policies in an Economy, dealing with Money Supply, Inflation, Interest Rates for the purpose of promoting **Economic Growth** and managing **Price Stability** (Inflation).
- ✿ Monetary Policy, similar to Fiscal Policy, is referred to as either being **Expansionary** or **Contractionary** depending on policy stance.

Variables of Macroeconomics

8. Monetary Policies and their Impact on Economy

- ✿ **Expansionary Monetary Policy** is used to Push the Economy Up by increasing the Money Supply Steeply and Reduction in the Interest Rates.
- ✿ **Contractionary Policy** is intended to Cool Down the heated up Economy through Reduction in the Money Supply or Slow Increase in Money Supply and Increase in the Interest Rates.

Variables of Macroeconomics

8. Monetary Policies and their Impact on Economy

Tools to control the money supply and interest rates:

- ✿ **Repo Rate:** Rate at which the Central Bank Lends Money to Commercial Banks.
- ✿ **Reverse Repo Rate:** Rate at which the Central Bank Borrows Money from Commercial Banks.

Variables of Macroeconomics

8. Monetary Policies and their Impact on Economy

- ✿ **Cash Reserve Ratio (CRR):** Minimum percentage of the total deposits, which commercial banks have to hold as cash reserves with the central bank.
- ✿ **Statutory Liquidity Ratio (SLR):** Minimum percentage of the total deposits, which commercial banks have to hold in cash equivalents such as **Gold and Government of India Securities.**

Variables of Macroeconomics

8. Monetary Policies and their Impact on Economy

- ✿ There is no sure shot formula to handle economic issues such as slowing down in growth, inflation, exchange rate management and others.
- ✿ Given the variations in the composition of the GDP, Growth Rate, Demographic Features of different Economies, the same policy action may have different outcomes in different Economies.

Variables of Macroeconomics

8. Monetary Policies and their Impact on Economy

- ✿ Moreover, a policy action taken to correct one Economic problem may have unintended consequences and create a fresh probe.
- ✿ **Example:** Stimulating a Stagnant Economy by increasing Money Supply, Increasing Spending and/or Lowering Taxes runs the risk of causing Inflation to rise.

Variables of Macroeconomics

8. Monetary Policies and their Impact on Economy

- ✿ On the other hand, when Economy is heated up, it may need fiscal measures to slowdown. In such a situation, a Government can Increase Taxes to suck money out of the Economy or Decrease in its Spending thereby decreasing the money in circulation.
- ✿ Possible negative effects of such a policy in the long run could be a slow moving Economy and high Unemployment Levels.

Variables of Macroeconomics

8. Monetary Policies and their Impact on Economy

Effect of Repo Rate/CRR/SLR	Increase	Decrease
Savings and Investment	+	-
Income	-	+
Demand	-	+
Spending	-	+
Consumption	-	+
Production / Supply	-	+
Growth	-	+
GDP	-	+
Inflation	-	+

Variables of Macroeconomics

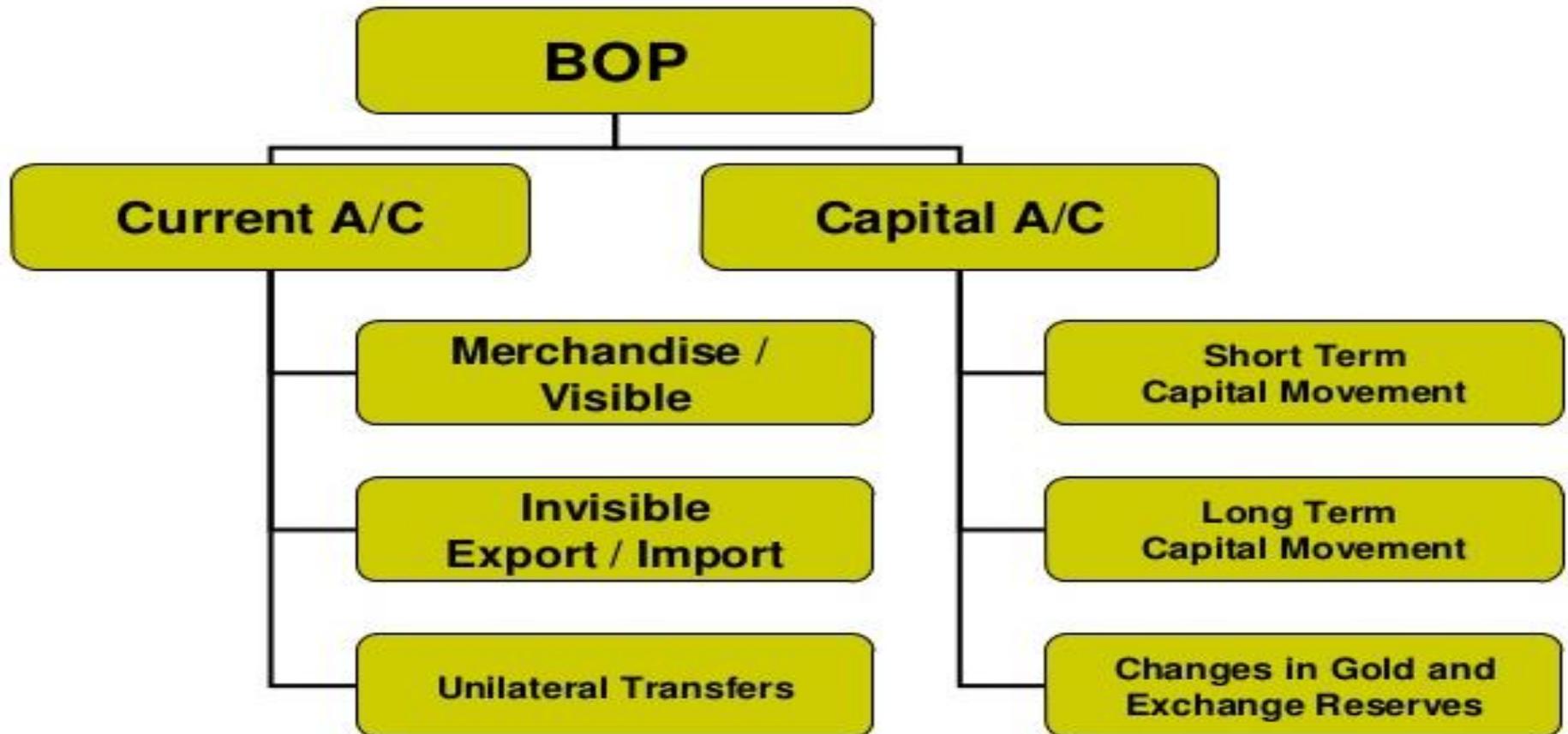
9. International Trade, Exchange Rate and Trade Deficit

- ✿ International Trade refers to the Total Trade that a country does with all other countries in the world.
- ✿ A country's Balance of Payment is the statement showing transactions of a country with the rest of the world.
- ✿ **Balance of Payment** statement is broadly divided into two accounts namely:
 - ❖ **Current Account and**
 - ❖ **Capital Account.**

Variables of Macroeconomics

9. International Trade, Exchange Rate and Trade Deficit

Components of BOP



Variables of Macroeconomics

9. International Trade, Exchange Rate and Trade Deficit

- ✿ The **Current Account** has all the details of transactions on Revenue Account viz. Imports and Exports of Goods and Services.
- ✿ The **Capital Account** captures all the Capital Flows like FDI, FII, Loans, and Grants etc.
- ✿ If **Imports are more than Exports**, then country will have a Current Account Deficit and if **Exports are more than Imports** then it will have Current Account Surplus.

Variables of Macroeconomics

9. International Trade, Exchange Rate and Trade Deficit

- ✿ Similarly, Capital Account will be in Surplus if Inflows are more than Outflows and in Deficit if Outflows are more than Inflows on Capital Account.
- ✿ Surplus and/or Deficit on both Current and Capital accounts put together makes it **Balance of Payment** number for a country.

Variables of Macroeconomics

9. International Trade, Exchange Rate and Trade Deficit

- ✿ If a country is running continuous Deficit on Current Account, it would need Surplus on Capital Account to Support that or Deplete its Foreign Currency Reserves.
- ✿ In both these situations, the country runs the risk of losing confidence of Market Participants in the country as the Currency of the country would lose value very fast.

Variables of Macroeconomics

9. International Trade, Exchange Rate and Trade Deficit

- ✿ Currencies get traded in the world markets like commodities.
- ✿ Exchange Rate refers to the value of one unit of a currency with respect to other currency/currencies.
- ✿ **Example:** Indian Rupee is quoted against the dollar as \$/Rs. 70, it means one dollar is priced at Rs. 70.
- ✿ Currencies can become more expensive or Cheap based on the relative strength of the countries' Economy.

Variables of Macroeconomics

10. Globalization – Positives and Negatives

- ✿ Globalization means the ability of the Individuals and Firms to Produce Anything Anywhere and Sell Anything Anywhere across the world.
- ✿ It also means that resources (people and capital) will flow to the places where they Produce Best and Earn Best.
- ✿ World is becoming flatter with less and less Entry Barriers with an objective to optimize the output of resources.

Variables of Macroeconomics

10. Globalization – Positives and Negatives

- ✿ Economies are realizing that protective attitude would not take them long and need to open up economies to the world to progress and allocate resource for maximum output.
- ✿ Many countries including the developing ones have embraced Globalization by opening up their Economies.
- ✿ However, there is no compulsion for any Economy to do so each country decides on the subject on its own based on its assessment of the perceived advantages.

Variables of Macroeconomics

10. Globalization – Positives and Negatives

Positives of Globalization:

- ✿ Best Allocation of Global resources as they are able to flow where they Produce Best and Earn Best.
- ✿ Integration of Developing Economies with the Developed World and **Opportunities** for them:
 - ❖ To Learn and Grow,
 - ❖ Access New Products and Services,
 - ❖ Exposure to New Technologies etc.

Variables of Macroeconomics

10. Globalization – Positives and Negatives

Positives of Globalization:

- ✿ Benefits to End Consumers through Global Competition, which encourages Creativity and Innovation and keeps Prices for Goods and Services under check.
- ✿ Greater access to Foreign Culture in the form of Art, Movies, Music, Food, Clothing etc. In other words, the world has more choices today.

Variables of Macroeconomics

10. Globalization – Positives and Negatives

Negative of Globalization:

- ✿ Increasing divide between the Rich and the Poor - the Rich are getting Richer and the Poor are becoming poorer.
- ✿ Competition results in Survival of the Fittest. As jobs can move to the most competitive countries, countries with less competent talent may be left without opportunities.

Variables of Macroeconomics

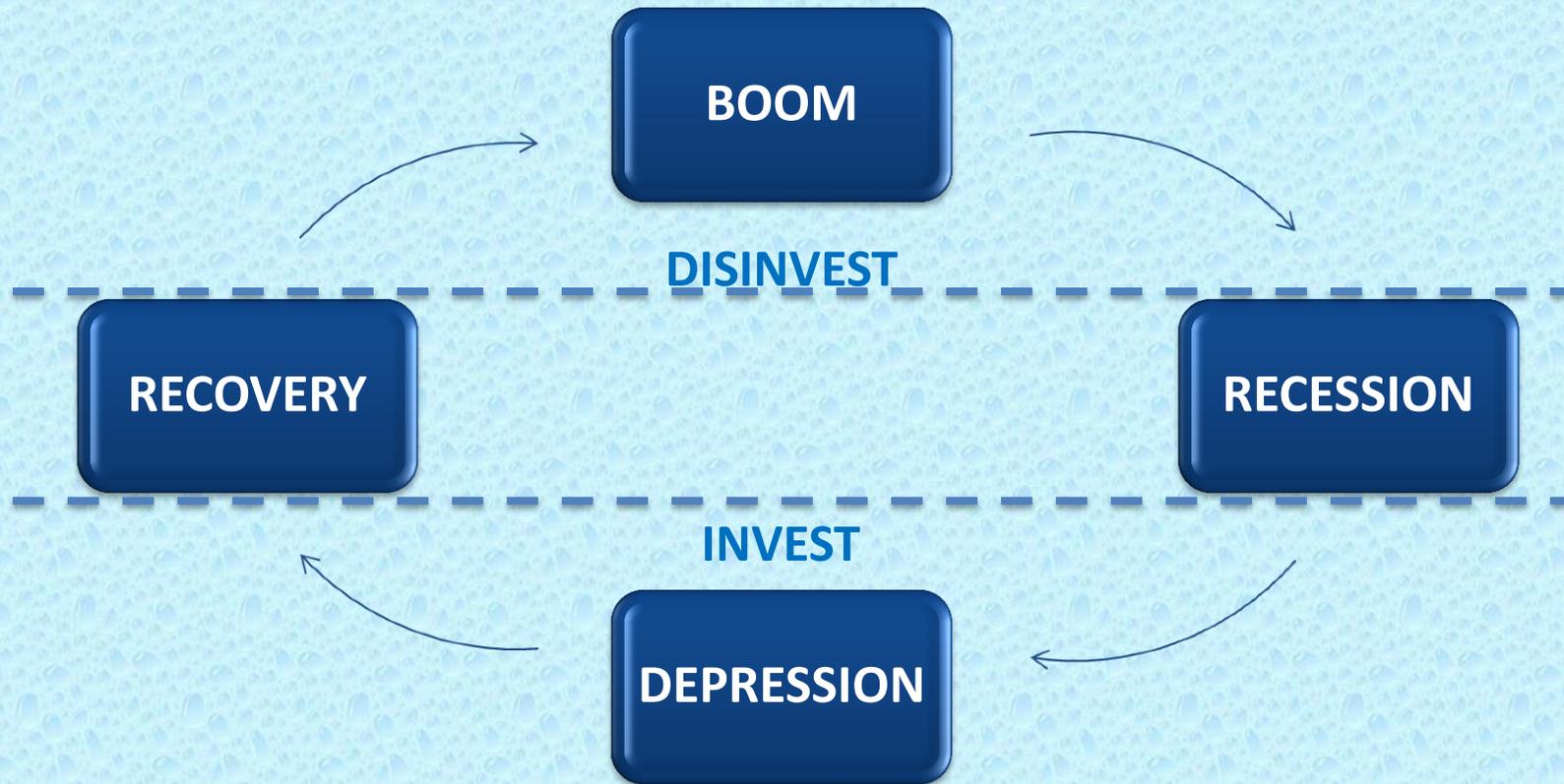
10. Globalization – Positives and Negatives

Negative of Globalization:

- ✿ **Integrated Economies** mean that problem in one part of the world would affect the other parts of the world.
- ✿ **Example:** Credit Crisis in U.S. in 2008 created havoc across the world.

Economic Analysis

Economic Cycle



Source: Fundamental Analysis for Investor written by Raghu Palat

Economic Cycle Analysis

Depression Phase Signs

- ✿ Demand is Low and Falling
- ✿ Inflation and Interest Rates High
- ✿ Companies cripple by High Borrowings
- ✿ Falling Sales of Companies forcing to cut Productions
- ✿ Low Employment

Economic Cycle Analysis

Recovery Phase Signs

- ✿ Economy begins to Recover
- ✿ **Demand** start Growing proportionately
- ✿ **Inflation** and Interest Rates start Falling gradually
- ✿ **Investments and Profits** start Growing
- ✿ **Employment** start Growing

Economic Cycle Analysis

Boom Phase Signs

- ✿ Demand Reaches at all time High
- ✿ Low **Inflation** and Interest Rates
- ✿ Supply begins to exceed Demand
- ✿ Prices begin to fall slowly
- ✿ **Employment** at High Level

Economic Cycle Analysis

Recession Phase Signs

- ✿ Economy slowly begins Downturn
- ✿ **Demand** start Falling
- ✿ Interest Rates and **Inflation** begin to Increase
- ✿ **Investments** and Profits start Falling
- ✿ **Employment** start to Decline

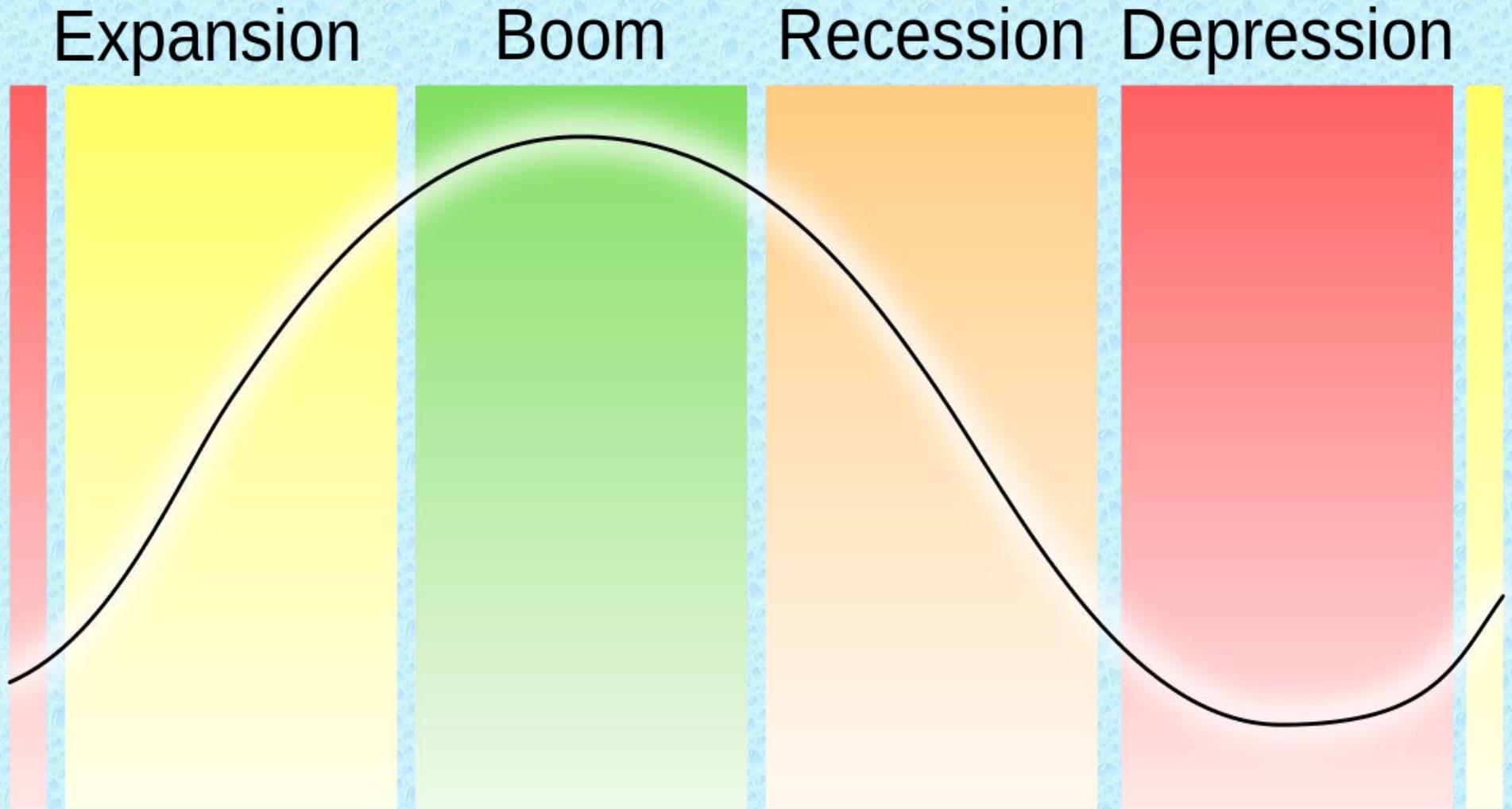
Economic Cycle Analysis

Investment Decision

- ✿ Determine Stage of Economic Cycle
- ✿ Invest at the End of Depression Phase
- ✿ Disinvest during or end of Boom Phase

Economic Analysis

Economic Cycle and Market Trend



Economic Analysis

Sources of Information

- ✿ Government Websites
- ✿ Websites of Regulators like SEBI, RBI, MOF, Etc.
- ✿ Published Economic Research Reports
- ✿ Economic Surveys Etc.

Economic Analysis

Variables of Microeconomics

- ☀ Consumer Demand Theory
- ☀ Production Theory
- ☀ Costs of Production Theory
- ☀ Opportunity Cost
- ☀ Price Theory
- ☀ Demand, Supply and Equilibrium
- ☀ Measurement of Elasticities
 - ❖ Price Elasticity of Demand
 - ❖ Price Elasticity of Supply
 - ❖ Income Elasticity of Demand
 - ❖ Elasticity of Substitution
 - ❖ Intertemporal Elasticity

Economic Analysis

Variables of Microeconomics

☀ Market Structure

- ❖ Perfect Competition

- ❖ Imperfect Competition

☀ Game Theory

☀ Labour Economics

☀ Welfare Economics

☀ Economics of Information

Source: https://en.wikipedia.org/wiki/Microeconomics#Monopolistic_competition

Economic Analysis

Variables of Macroeconomics

- ✿ National Income – GDP/GNP
 - a. Product Method
 - b. Income Method
 - c. Expenditure Method
- ✿ Savings and Investments
- ✿ Inflation (CPI/WPI) and Interest Rate
- ✿ Unemployment Rate

Economic Analysis

Variables of Macroeconomics

- ✿ Flows from FII and FPI
- ✿ Fiscal Policy and Its Impact
- ✿ General Anti-Avoidance Rules (GAAR)
- ✿ Monetary Policies and their Impact
- ✿ International Trade, Exchange Rate and Trade Deficit
- ✿ Globalization

Thank You!