RELEVANCE OF ECONOMICS TO THE WORLD OF BUSINESS

Scarcity

Scarcity refers to the limited availability of resources compared to unlimited wants.

Opportunity Cost

The opportunity cost is the cost of an activity measured in terms of the best alternative that is forgone. Opportunity cost can be computed as:

$$\text{Opportunity cost} = \frac{\text{What is given up}}{\text{What is gained}}$$

Rational Choice

Rational choices are made by weighing up the benefit of any activity against its cost measured in terms of opportunity cost in such a way that the objective of the decision-maker is maximized.

Allocative Efficiency

Allocative Efficiency means that the resources of the economy are distributed such that the combination of goods produced and sold maximizes consumer satisfaction relative to the cost.

Productive Efficiency

This is the situation where firms combine inputs in a way that produces the maximum output at the least cost.

Economic Efficiency

This is the situation where each good or service in an economy is being produced at the minimum cost and the objectives of both firms and consumers are maximized.

Production Possibility Curve

The production possibility curve is a curve showing all the possible combinations of two goods that can be produced in a specific period when all of a country's resources are fully utilized. The slope of the PPF is the marginal rate of transformation.

Increasing Opportunity Cost

The law of increasing opportunity cost states that as the production of a good increase, the opportunity cost of producing additional units of the good increases.

Command economy

Also known as a planned economy. In this system, the means of production and distribution are owned and controlled by a central authority such as the state.

Free market economy

An economic system where all economic decisions are made by individual households and firms without any government intervention. Prices are determined by demand and supply forces

Mixed economy

A mixed economy is an economic system where economic decisions are made partly by the government and partly through the market.

Macroeconomics

The branch of economics that studies the economy at the aggregate level. For example, output, employment, and inflation.

Microeconomics

The branch of economics that studies individual units within the economy. For example, households, firms, and industries.

MAIN STRANDS OF ECONOMIC THINKING, MODELS, AND RECENT APPLICATIONS

The Classical School

The classical school is a non-interventionist school. It predicts that the economy is always at full employment because of the flexibility of wages, prices, and interest rates. The school advocates for minimal government involvement in the market.

The Keynesian School

This school argues that markets face significant rigidities that can keep them in disequilibrium for long periods. The school encourages government spending to stimulate aggregate demand as a means to spur economic growth during recessions.

The Monetarist School

The Monetarist school is an outgrowth of the classical school. At the heart of the monetarist school is the quantity theory of money which states that over the long run, changes in money supply will only affect prices in the economy without any effect on output.

The Neoclassical School

The neoclassical approach assumes markets are highly competitive and clear very rapidly, any expansion of demand will feed through instantaneously into higher prices, giving a vertical short-run as well as a vertical long-run Phillips curve.

THE WORKINGS OF COMPETITIVE MARKETS

Law of demand

Other things being equal, the higher the price of a good, the lower the quantity demanded, and the lower the price the higher the quantity demanded.

Change in quantity demanded

This is the term used to describe the change in the units of a commodity consumed that is due solely to a change in the price of the commodity. This is represented as a movement along the demand curve.

Change in demand

A term used to describe a change in the units of a commodity consumed due to changes in factors other than the price of the commodity. This is represented as a shift in the demand curve.

Law of supply

Other things being equal, the higher the price of a good, the higher the quantity supplied, and the lower the price the lower the quantity supplied.

Change in quantity supplied

This is the term used to describe the change in the units of a commodity supplied that is due solely to a change in the price of the commodity. This is represented as a movement along the supply curve.

Change in supply

A term used to describe a change the units of a commodity supplied due to changes in factors other than the price of the commodity. This is represented as a shift in the supply curve.

Price elasticity

The degree of responsiveness of quantity demanded (quantity supplied) to changes in the price of the commodity. The following formulas can be used to compute the price elasticity of demand and supply depending on what information is available:

1. Point elasticity: $\frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$ OR $\frac{\%\Delta Q}{\%\Delta P}$
2. Arc elasticity formula: $\frac{\Delta Q}{\Delta P} \times \frac{\text{Average } P}{\text{Average } Q_D}$

Where: Q = Quantity demanded or Supplied

P = The price of the commodity

$$\text{Average Quantity} = \frac{Q_1 + Q_2}{2}$$

$$\text{Average Price} = \frac{P_1 + P_2}{2}$$

Interpretation of price elasticity

The value of price elasticity (P_e) can be interpreted as follows:

1. Inelastic demand or supply: $|P_e| < 1$
2. Elastic demand or supply: $|P_e| > 1$
3. Unit elastic demand or supply: $|P_e| = 1$
4. Perfectly inelastic demand or supply: $|P_e| = 0$
5. Perfectly elastic demand or supply: $|P_e| = \infty$

Income elasticity of demand

The degree of responsiveness of quantity demanded to changes in the income of consumers. Income elasticity is computed as:

$$\text{Income Elasticity} = \frac{\%\Delta Q_d}{\%\Delta I}$$

Where: Q_d = Quantity demanded, I = Income of the consumer When the income elasticity of demand is positive, the good is a **normal good**, and when it is negative the good is an **inferior good**. **Luxury goods** have a higher Income elasticity of demand than more basic goods

Cross price elasticity of demand

The degree of responsiveness of the quantity demanded of a commodity to changes in the price of a related commodity.

$$\text{Cross price elasticity for Good X} = \frac{\%\Delta Q_{dx}}{\%\Delta P_y}$$

When the cross-price elasticity between two goods is positive, the two goods are **substitutes** and when the cross-price elasticity is negative, the two goods are **complements**.

Minimum price control

This is also called a price floor. This is the lowest price set by the government below which it is illegal to sell a good. Price floors are set when the market price is considered too low. A price floor is set above the market price.

Maximum price control

This is also called a price ceiling. It is the highest price set by the government, above which it is illegal to sell a good. A maximum price is usually set when the market price is considered too high, hence it is placed below the equilibrium price.

Tax Incidence

Tax incidence is the measure of the distribution of the burden of a tax between buyers and sellers. The distribution of the tax burden depends on the elasticities of demand and supply. Generally, the relatively inelastic part of the market bears the bigger tax burden.

CONSUMER AND DEMAND BEHAVIOUR

Marginal utility

Marginal utility is the additional utility a consumer gains from consuming an extra unit of a commodity. Marginal utility can be computed as the change in total utility divided by the change in quantity:

$$MU = \frac{\Delta TU}{\Delta Q}$$

Paradox of value (Diamond-Water Paradox)

The paradox of value is a contradiction that things like diamonds are more valuable and priced higher than things like water, even though water is more useful to man and is consumed more than diamonds. This paradox was posed by Adam Smith. The emergence of the marginalist revolution resolved this paradox. This school argues that market value is determined by marginal utility, not total utility. Water, despite its high total utility, has a low marginal utility because of its abundant supply. Conversely, because of the scarcity of diamonds, they have a low total utility but a high marginal utility.

The principle of diminishing marginal utility

As more units of a good are consumed, additional units consumed yield less additional utility than the previous units consumed.

Consumer Surplus

Consumer surplus is the monetary value of the gain consumers obtain because they purchase a commodity at a price less than the highest price they would have been willing to pay for the commodity.

Equi-marginal principle

This is also called the consumer optimality decision rule. It states that consumers are said to be maximizing utility if the marginal utility per dollar is the same across all goods consumed. For goods $X_1, X_2, \ldots, X_n$ with corresponding prices $P_{x1}, P_{x2}, \ldots, P_{xn}$, the equi-marginal principle implies that for a consumer consuming this set of goods, optimal consumption occurs when $\frac{MU_{x1}}{P_{x1}} = \frac{MU_{x2}}{P_{x2}} = \cdots = \frac{MU_{xn}}{P_{xn}}$. Where $MU_{x1}, MU_{x2}, \ldots, MU_{xn}$ are the corresponding marginal utilities.

Indifference Curves

An indifference curve is a curve showing all combinations of two goods that yield the same level of satisfaction to the consumer to which the consumer is indifferent. The indifference curve is convex.

Marginal rate of substitution

The marginal rate of substitution measures the amount of a good that a consumer has to give up to consume one extra unit of another good. This is the slope of the indifference curve. Mathematically, the marginal rate of substitution between two goods X and Y can be stated as:

$$MRS_{XY} = \frac{MU_X}{MU_Y}$$

Diminishing marginal rate of substitution implies that as more of good X is consumed and less of good Y is consumed, the less additional good Y will a person be prepared to give up in order to obtain an extra a unit of X.

Budget line

The budget line is a line showing all the possible combinations of two goods that a consumer can afford, given the consumer's income and the price of the goods. A typical budget line of a consumer with income I, consuming two goods X and Y with corresponding prices P_X and P_Y can be written as:

$$I = P_X X + P_Y Y$$

The slope of the budget line is the ratio of the prices of the two goods $\left(\frac{P_X}{P_Y}\right)$.

Income effect of a price change

The income effect of a price change is the change in quantity demanded that results from a change in the real income (purchasing power) of the consumer necessitated by the change in price.

Substitution effect of a price change

The substitution effect of a price change refers to the change in quantity demanded that can be attributed to the change in the relative price of the good.

Optimal consumption decision

A consumer, facing a given budget line is said to be maximizing utility when the budget line is tangent to the furthest indifference curve. At this point, the slope of the indifference curve and the budget lines are equal. The utility maximization condition can be expressed as:

$$\frac{MU_X}{MU_Y} = \frac{P_X}{P_Y}$$

Giffen goods

A Giffen good is a good whose demand increases as the price increases. A Giffen good is a special case of inferior goods where the positive income effect of a price change exceeds the negative substitution effect. For example, bread can be considered a giffen good if it forms a large portion of the diet of poor people such that an increase in its price will force them to buy more bread since they cannot afford to buy as much of other substitutes such as meat and vegetables.

Expected Value

The expected value of an event is the probability-weighted average of the payoffs associated with all the possible outcomes of an event.

Risk premium

The expected value of a gamble minus a person's certainty equivalent.

Certainty Equivalent

This is a guaranteed amount of money or value that the individual considers equally desirable to a risky outcome.

Asymmetric information

Asymmetric information occurs when one party in an economic transaction has better information than another.

Moral hazard

Moral hazard occurs when an insured party changes his/her behavior in ways that make the insured event more likely to happen.

Bounded rationality

Bounded rationality is when one's ability to make rational decisions is limited by a lack of information or the time necessary to obtain such information or by a lack of understanding of a complex situation. Decisions are therefore made within the bounds of the information available.

PRODUCTION, COSTS, REVENUE, AND PROFIT

Short-run

Short-run is the time period over which at least one-factor input is fixed in supply.

Long-run

The long run is a time period long enough for all factor inputs to be variable

Total physical product

Total Physical Product (TPP) is the total output produced in a period of time given the available inputs.

Average physical product

The average product is the output per unit of the variable input employed.

$$APP = \frac{\text{Total Physical Product (TPP)}}{\text{Quantity of variable input } (Q_v)}$$

Marginal physical product

Marginal physical product is the extra output produced by employing an extra unit of the variable factor.

$$MPP = \frac{\Delta TPP}{\Delta Q_v}$$

Average-marginal relationship

When both average and marginal product curves are rising, the marginal product lies above the average product. When both curves are declining the marginal product lies below the average product. This implies that the marginal product attains maximum before the average product and when the average product is maximum it is equal to the marginal product. This relationship also applies to the cost curves.

Diminishing Marginal Returns

The law of diminishing marginal returns is a short-run principle. It states that when one or more factors are fixed, there will be a point beyond which the extra output from additional units of the variable input employed diminishes.

Fixed cost

Fixed costs are the costs that do not vary with output levels. These are the costs incurred on the fixed inputs. Fixed costs only exist in the short run where some factor inputs are fixed.

Variable cost

Total variable cost is the total cost incurred in using the variable inputs in the short run. Mathematically:

$$\text{TVC} = \text{TC} - \text{TFC}$$

OR

$$\text{TVC} = \text{AVC} \times \text{Q}$$

Average variable cost

This is the cost per unit of variable inputs employed in the production of goods and services.

$$\text{Average Variable Cost (AVC)} = \frac{\text{Total Variable Cost(TVC)}}{\text{Quantity(Q)}}$$

In the short run, the average variable cost can be computed as:

$$AVC = AC - AFC$$

Total cost

Total cost is the sum of all the costs incurred in the production process. In the short run, total cost is the sum of total fixed cost and total variable cost. That is:

$$\text{TC} = \text{TFC} + \text{TVC}$$

Another way to compute the total cost is by multiplying the Average cost by the quantity. That is:

$$\text{Total cost (TC)} = \text{Average cost (AC)} \times \text{Quantity (Q)}$$

Average cost

Average cost is the cost per unit of production. Mathematically:

$$\text{Average Cost (AC)} = \frac{\text{Total Cost (TC)}}{\text{Quantity (Q)}}$$

In the short run average cost can be computed as:

$$\text{AC} = \text{AFC} + \text{AVC}$$

Marginal cost

Marginal cost is the extra cost of producing one more unit of output. Mathematically:

$$\text{Marginal Cost (MC)} = \frac{\Delta TC}{\Delta Q}$$

Economies of scale

Economies of scale are the cost advantages a firm enjoys as it increases output in the long run. **External economies** exist when a firm's cost per unit decreases as the whole industry grows, while internal economies exist due to the expansion of the firm itself.

Diseconomies of scale

Diseconomies of scale are the cost disadvantages that a firm incurs as it increases output in the long run.

Economies of scope

Economies of scope occur when a firm experiences cost savings as it diversifies its production.

Least cost input combination

The optimal or least cost combination of factors occurs where the marginal product from the last pound spent on each factor is equal. Mathematically, for inputs a, b, c, $\ldots$, n, the least cost combination occurs where:

$$\frac{MP_a}{P_a} = \frac{MP_b}{P_b} = \frac{MP_c}{P_c} = \cdots = \frac{MP_n}{P_n}$$

Long-run average cost curve

It shows the lowest cost of producing each quantity in the long run where all costs are variable. It is usually an envelope of short-run average cost curves each representing a particular plant size.

Total revenue

Total revenue is the total earnings from sales of a product within a specified period of time.

$$\text{TR} = \text{P} \times \text{Q}$$

OR

$$\text{TR} = \text{AR} \times \text{Q}$$

Elasticity and firm revenue

1. When demand is **price inelastic**, an increase in the price causes a less than proportionate decrease in the quantity demanded. Hence, firms can increase revenue by increasing prices. Reducing prices will reduce revenue.
2. When demand is **price elastic**, an increase in the price causes a more than proportionate decrease in the quantity demanded. Hence, revenue reduces when the price is increased. Firms can increase their revenue by reducing prices.

Average revenue

This is the revenue per unit of output.

$$\text{Average Revenue (AR)} = \frac{\text{Total Revenue(TR)}}{\text{Quantity(Q)}}$$

Marginal revenue

Marginal revenue is the extra revenue from selling one more unit per period of time.

$$\text{Marginal Revenue (MR)} = \frac{\Delta TR}{\Delta Q}$$

Profit maximization

Profit maximization occurs at the output level where marginal revenue equals marginal cost. That is:

$$MR = MC$$

In the case of perfect competition where firms are price takers, the marginal revenue is the same as the price. Hence the profit maximization condition under perfect competition can be restated as:

$$MC = P$$

Normal profit

This is a situation where a firm's total revenue equals its total costs in a perfectly competitive market. Normal profit is also called zero economic profit.

Supernormal profit

Supernormal profit also called abnormal profit occurs when a firm's total sales exceed its total cost of production.

Shutdown point of the firm

In a perfectly competitive market, the short-run shutdown point of a firm in the short-run is the level of output at which the price charged is equal to the minimum of the average variable cost. The firm will stay in business only under the following condition:

$$P \geq AVC$$

PERFECT COMPETITION AND MONOPOLY

Perfect competition

This is a situation where there are many buyers and sellers in a market such that no single buyer or seller has control over the price. All firms are price-takers. Firms in perfectly competitive markets face a perfectly horizontal demand curve(perfectly elastic)

Monopoly

Monopoly is a market structure characterized by only one firm who is the sole producer and seller of a commodity. This makes the monopoly firm a price maker. Monopoly firms face downward-sloping inelastic demand curves

Monopolistic competition

Monopolistic competition is a market structure characterized by many firms each producing a slightly differentiated product. There is free entry and exit from the industry. Each firm has some level of market power because of product differentiation and hence is a price maker. However, because of the free entry and exit feature, monopolistically competitive firms earn zero economic profit in the long run. Monopolistic competitive firms face a downward-sloping demand curve. The demand curve is relatively more elastic compared to the case of monopoly

Oligopoly

Oligopoly is a market structure characterized by a few firms which control the market. Firms in an oligopoly engage in strategic interaction. They face downward-sloping demand curves that are relatively more inelastic compared to monopolistic competition depending on the strategic interactions between firms.

Short run supply curve of the firm

The short-run supply curve of the firm is the upward-sloping portion of the marginal cost curve above the average variable cost curve.

Increasing cost industry

An increasing-cost industry is an industry where the average cost increases as the size of the industry expands.

Constant cost industry

A constant-cost industry is an industry where the average cost stays constant as the size of the industry expands.

Decreasing cost industry

A decreasing-cost industry is an industry where the average cost decreases as the size of the industry expands.

Natural monopolies

Natural monopolies emerge in industries where the startup and other costs of production are so high that a monopoly becomes the most efficient way to produce.

IMPERFECT COMPETITION

Collusive Oligopoly

A collusive oligopoly occurs when oligopolists either formally or informally agree to limit competition. This could be through setting output quotas, fixing prices, etc.

Tacit collusion

A tacit collusion occurs when oligopoly firms act collusively without any formal agreement to do so. The price leadership model is an example of tacit collusion.

Cournot competition

Cournot competition is a duopoly model where each firm makes its price and output decisions by accounting for the output decisions of the other firm.

Kinked demand curve

Kinked demand curves occur when the demand curve is not a straight line but has different elasticities at low and high prices. These curves are more common in oligopolistic and monopolistic competitions. The kinked demand curve is elastic at higher prices and inelastic at lower prices.

Dominant Strategy

A dominant strategy is a strategy that yields the best outcome to a firm, regardless of what rivals are doing.

Nash Equilibrium

Nash equilibrium is the optimal solution that results when all players in a game are playing their most optimal strategies based on their assumptions of the possible actions of their opponents. At the Nash equilibrium, no firm has the incentive to deviate.

Maximin strategy

A maximin strategy is a strategy of choosing a policy whose worst possible outcome is the least bad. This is a low-risk strategy.

Maximax strategy

A maximax is a strategy that involves choosing the policy that has the maximum payoff possible. This is a high-risk strategy.

PRICING STRATEGIES

First-degree price discrimination

This is a kind of price discrimination where each buyer is charged the maximum price they are willing to pay for each unit. The pricing is done such that the consumer surplus is fully extracted by the firm.

Second-degree price discrimination

This is a case where the seller provides a wide range of pricing options or packages for the same or similar products. Consumers then freely self-select into any of these options.

Third-degree price discrimination

Third-degree price discrimination is where the seller divides consumers into different groups based on some characteristics that inform how much consumers are willing to pay. In other words, consumers are grouped based on their elasticities of demand. The firm then charges a different price to each group.

Predatory Pricing

Predatory pricing is an illegal practice where a dominant firm sets prices unrealistically low (below its average variable costs) with the sole aim of driving competitors out of business.

Average cost pricing

Average cost pricing occurs when a firm sets its price by adding a certain percentage for (average) profit on top of average cost. That is:

$$P = AC + \text{Profit mark-up}$$

Limit Pricing

Limit pricing is a situation where a monopolist or oligopolist charges a price below the short-run profit maximizing level to deter new entrants.

Peak-Load Pricing

Peak-load pricing is a form of price discrimination where higher charges are applied during times of peak demand, such as high-season holiday prices or weekday telephone call rates. This strategy is partly justified by the inelasticity of demand during peak times. The higher prices could also reflect higher marginal costs incurred during peak times.

Product Life cycle theory

The product life cycle theory is a theory that explains the phases a product goes through from the time it is introduced to consumers to the time it becomes obsolete.

1. The first phase is the introduction phase, where the product is first introduced into the market.
2. The second phase is the growth phase where the demand for the product increases as it gains wider market acceptance.
3. The product then moves into the maturity phase where growth in sales slows down as the product reaches its peak market acceptance.
4. The final phase is the decline stage where demand begins to decline.

GOVERNMENT INTERVENTION

Pareto Optimality

This is a situation where resources are distributed such that no further improvements can be made to society's well-being through any further resource reallocations. That is, it is impossible to make anyone better off without making someone else worse off. It is also called the **socially efficient allocation**

Externalities

Externalities are costs or benefits of production or consumption that accrue to people other than the producers and consumers directly involved in the transaction. Externalities are either positive or negative.

Marginal consumer surplus

Marginal consumer surplus is the excess utility a consumer gains from the consumption of one more unit of a good (MU) over the price paid. Mathematically:

$$\text{Marginal Consumer Surplus (MCS)} = \text{Marginal Utility (MU)} - \text{Price (P)}$$

Marginal social cost

The marginal social cost is the sum of the marginal private cost and the marginal external cost.

$$\text{MSC} = \text{Marginal private cost(MPC)} + \text{Marginal external cost(MEC)}$$

Total social surplus

Total benefits to society from consuming a good minus total costs to society from producing it. In the absence of externalities, total social surplus is the same as total (private) surplus. Total surplus is maximized at the socially optimal output.

Socially optimal output

The socially optimal output occurs when the marginal social cost equals the marginal social benefit. That is:

$$MSC = MSB$$

Deadweight loss

Deadweight loss is a loss of economic efficiency when the socially optimum outcome is not achieved. This is basically the monetary value of the cost to society from market inefficiency.

Public goods

Public goods are goods or services that are non-excludable and non-rivalry. A good or service is **non-rivalry** if its consumption by one person does not prevent another person from consuming it. A good or service is **non-excludable** when it is not possible to provide it to one person without it being available for others to utilize. Because of these features, public goods will usually not be provided by the free market.

Pigouvian Tax/subsidy

Pigouvian tax (or subsidy) is a tax (or subsidy) designed to 'internalize' an externality. The marginal rate of a Pigouvian tax (or subsidy) should be equal to the marginal external cost (or benefit).

INTERNATIONAL TRADE

Absolute cost advantage

A country has an absolute advantage over another in the production of a good if it can produce it with fewer resources than the other country.

Comparative cost advantage

A country has a comparative advantage over another country in the production of a good if it can produce the good at a lower opportunity cost. Comparative advantage is the basis for specialization in international trade.

Terms of Trade

Terms of trade is the price index of exports divided by the price index of imports expressed as a percentage.

$$\text{Terms of Trade} = \frac{\text{Index of Export Prices}}{\text{Index of Import Prices}} \times 100$$

Methods of trade restrictions

The following methods can be used to restrict trade: Tariffs, import quotas, exchange controls, import licensing, embargoes, administrative barriers, and procurement policies.

Arguments in favor of trade restrictions

These arguments are made in favor of restricting trade:

1. Protecting infant industries
2. Spreading risks of fluctuating markets
3. Prevent dumping and other unfair trade policies
4. To prevent the establishment of a foreign-based monopoly

Optimum tariff

An optimum tariff is a tariff that reduces the level of imports to a point where the marginal costs of imports equal the marginal social benefit.

Rules of the WTO

The WTO requires all members to operate on the following rules:

1. Non-discrimination
2. Reciprocity
3. Prohibition of quotas
4. Fair competition
5. Binding tariffs

THE MACROECONOMIC ENVIRONMENT

Goals of macroeconomic policy

Governments typically pursue the following macroeconomic objectives:

1. High and stable economic growth.
2. Low unemployment.
3. Low inflation.
4. Avoidance of balance of payments deficits.
5. A stable financial system.

Flow variable

A flow variable is measured over an interval of time. Examples include wages, interest, rent, and interest.

Stock variable

A stock variable is a quantity that is measured at a given point in time. For example, a landowner's 200 hectares or £1000 in a savings account.

Labour force

Labour force is the sum of the employed and unemployed people in an economy at a given point in time.

$$\text{Labour Force} = \text{Employed (E)} + \text{Unemployed (U)}$$

Unemployment rate

The unemployment rate is the share of the labor force who currently do not have a job but are actively looking for one.

$$\text{Unemployment Rate} = \frac{\text{Unemployed}}{\text{Labor Force}} \times 100$$

Potential output

Potential output is the total output an economy is capable of producing when all the resources are fully utilized.

Output gap

The output gap is the difference between the actual output and the potential output. A positive output gap implies that the country's resources are over-stretched. Similarly, a negative output gap implies the under-utilization of the country's resources.

The business cycle

The business cycle represents the periodic fluctuations in business activity in an economy. Upswings in the business cycle are associated with periods of economic expansion and downswings are associated with periods of economic recessions.

Aggregate Demand

Aggregate demand is the total spending on goods and services in the economy. It is the sum of consumption expenditure (C), investment expenditure (I), government expenditure (G), and net exports (X-M).

$$\text{Aggregate Demand (AD)} = C + I + G + X - M$$

Aggregate Supply

Aggregate supply is the total amount of output firms are willing and able to supply at any given price level.

Injections

Injections are variables that add income to the circular flow. In the aggregate demand model, injections include Government purchases, export expenditures, and investment expenditures.

$$\text{Injections (J)} = I + G + X$$

Withdrawals

Withdrawals, also called leakages are variables that leak income out of the circular flow. In the aggregate demand model, withdrawals include net saving, taxation, and import expenditures.

$$\text{Withdrawals (W)} = S + T + M$$

Equilibrium national income

Equilibrium national income is the situation where the aggregate supply in an economy equals the aggregate demand. At equilibrium, total withdrawals equal total injections (W=J) or national income is equal to aggregate expenditure ($Y = C + I + G + X - M$).

Factors causing unemployment

Unemployment is generally caused by the following factors:

1. High real wages (Real-wage unemployment)
2. Downswings in the business cycle (cyclical unemployment)
3. Lack of information (Frictional unemployment)
4. Structural changes in the economy (Structural unemployment)
5. Seasonal factors (Seasonal unemployment)

Frictional unemployment

Frictional unemployment exists in an economy due to people changing jobs. This refers to the period of time that people are unemployed as they leave one job to another. Lack of information about job opportunities prolongs frictional unemployment.

Cyclical unemployment

Cyclical unemployment is the unemployment that is associated with business cycles. It is caused by economic downturns or recessions. Cyclical unemployment is zero when the economy is in equilibrium.

Seasonal unemployment

Seasonal unemployment occurs when the demand for certain labour fluctuates with the seasons of the year.

Structural unemployment

Structural unemployment arises due to changes in the patterns of demand and supply in the economy. This occurs due to a mismatch between the skills labour possess and the skills in demand implied by changes in demand and supply patterns.

The natural rate of unemployment

The natural rate of unemployment is the unemployment that exists when the economy is in equilibrium. This is the sum of frictional and structural unemployment at equilibrium.

Inflation

The inflation rate is the percentage increase in the price level over a period of time. It is measured as the percentage change in the index of prices in an economy. Typically the Consumer Price Index (CPI) is used in computing the inflation rate.

$$\text{Inflation Rate} = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}} \times 100$$

Demand-pull Inflation

Demand-pull inflation is the kind of inflation caused by a persistent rise in aggregate demand not matched by a sufficient increase in aggregate supply.

Cost-push Inflation

Cost-push inflation is caused by a persistent rise in the cost of production.

Gross domestic product (GDP)

Gross domestic product is the monetary value of all final goods and services produced within the borders of a country in a year. Using the expenditure approach, GDP for an open economy with government intervention can be computed as

$$\text{GDP} = C + I + G + (X - M)$$

GDP at market price

is GDP at actual prices. This includes taxes but excludes subsidies.

GDP at factor cost

is GDP measured at the cost of factors of production. To get GDP at factor cost, subsidies are added and indirect taxes are subtracted.

$$\text{GDP}_{\text{factor cost}} = \text{GDP}_{\text{market price}} + \text{Subsidies} - \text{Indirect taxes}$$

Nominal GDP

is GDP measured at current prices

Real GDP

is GDP adjusted for inflation. It is GDP measured in constant prices.

Gross national product

Gross national product (at market prices) is the value of all final goods and services produced by all the nation's factors of production, regardless of where they are located. It excludes output produced by foreign factors of production located in the domestic country and includes output produced by the nation's factors of production located outside the country. Mathematically:

$$\text{GNP} = \text{GDP} + \text{net factor income from abroad}$$

Net National Product

Net national product (at market prices) is Gross National Product adjusted for depreciation. Mathematically:

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

Disposable Income

Disposable personal income is the household income that remains after the deduction of taxes and addition of benefits.

Households' disposable income = GNY at market prices
− Taxes paid by firms
+ Subsidies received by firms
− Depreciation
− Undistributed profits
− Personal taxes
+ Benefits

Consumption function

The consumption function shows a positive relationship between household consumption and national income. The slope of the consumption function is the Marginal propensity to consume (MPC).

Marginal propensity to consume (MPC)

measures the proportion of a change in national income that is consumed. That is:

$$\text{MPC} = \frac{\Delta C}{\Delta Y}$$

Marginal propensity to save

The marginal propensity to save is the proportion of a change in national income that is saved. Mathematically:

$$\text{MPS} = \frac{\Delta S}{\Delta Y}$$

Marginal propensity to import

This is the proportion of an increase in national income spent on imports. Mathematically:

$$\text{MPM} = \frac{\Delta M}{\Delta Y}$$

Marginal propensity to tax

This is the proportion of a change in income that is paid in taxes.

$$\text{MPT} = \frac{\Delta T}{\Delta Y}$$

Marginal propensity to Withdraw

The proportion of an increase in national income that is withdrawn from the circular income flow.

$$\text{MPW} = \text{MPS} + \text{MPT} + \text{MPM}$$

Spending multiplier

The spending multiplier measures how much national income changes in response to exogenous changes in the components of injections. Mathematically:

$$\text{Spending Multiplier (K)} = \frac{1}{1 - MPC}$$

Accelerator theory

The accelerator theory states that investment is the most volatile component of aggregate expenditure. A relatively modest rise in national income causes a larger percentage increase in investment. The accelerator coefficient is the ratio of investment to the change in national income $\left(\frac{I}{\Delta Y}\right)$

BALANCE OF PAYMENTS AND EXCHANGE RATES

Balance of payments

Balance of payments is an account of a country's transactions with the rest of the world. Transactions are generally divided into the current account, the capital account, and the financial account. The **Current account** records the inflow and outflow of goods and services, the **capital account** records international capital transfers while the **financial account** records international flows relating to business investments, real estate, and investments in stocks and bonds.

Trade balance

Trade balance or balance of trade is the difference between the value of a country's exports and the value of a country's imports of goods and services over a period of time. This is also called the balance of the current account.

Exchange rate

The exchange rate is the rate at which one country's currency exchanges for another country's currency.

Currency appreciation

A currency appreciates when the exchange value of the currency compared to a foreign currency increases. For example, if the exchange rate of the US dollar in terms of the British pound (£/$) moves from 1.15 to 1.20, the US dollar has appreciated against the British pound.

Currency depreciation

A currency depreciates when the exchange value of the currency compared to a foreign currency falls. For example, if the exchange rate of the US dollar in terms of the British pound (£/$) moves from 1.20 to 1.15, the US dollar has depreciated against the British pound.

Nominal exchange rate

The nominal exchange rate is the exchange rate expressed in terms of currency units.

Real exchange rate

The real exchange rate is the exchange rate adjusted for changes in the relative prices of goods between the two countries. Let e be the nominal exchange rate between a domestic and a foreign country. Let P and P^* be the domestic and foreign price levels respectively. The real exchange rate can be computed as:

$$\text{Real Exchange Rate} = e \times \frac{P}{P^*}$$

Fixed exchange rate regime

In this regime, the government ties the official exchange rate of the country to another country's currency. The exchange rate remains unchanged and the government undertakes steps to counteract any movements in the currency market that could potentially cause the exchange rate to change.

Floating exchange rate regime

In this regime, the exchange rate is freely determined by the demand and supply of currency in the foreign exchange market without any government intervention. Other intermediate exchange rate regimes include the **adjustable peg** and the **managed float regime**.

Devaluation

Currency devaluation is a deliberate action by the government to reduce the value of a country's currency.

Purchasing Power Parity Theory

The theory states that the exchange rate between two countries adjusts to offset differences in the inflation rate in these countries, ensuring that the same quantity of internationally traded goods can be bought at home as abroad with a given amount of domestic currency. The corresponding exchange rate that exists when this theory holds is called the **purchasing power parity exchange rate**.

MONEY AND INTEREST RATES

Functions of Money

There are 3 main functions of money:

1. Unit of account. Money is used as a measure of the value of goods and services.
2. Medium of exchange. Money acts as an intermediary between the buyer and seller.
3. Store of value. This means that wealth can be held in the form of money.

Liquidity

Liquidity of an asset is the ease with which it can be converted to cash without any loss in its value.

Liquidity ratio

The liquidity ratio is a measure of a bank's ability to meet its short-term debt obligations. It determines the minimum amount of liquid assets a bank must hold to meet the withdrawal demands of depositors.

Functions of the central bank

The central bank plays the following roles in the economy:

1. Acts as a banker to the government and other banks.
2. Conducts the government's monetary policy.
3. Provides liquidity to other banks.
4. It oversees the activities of banks and other financial institutions.
5. It operates the government's exchange rate policy

Money supply

Money supply is the total sum of currency and other liquid assets in circulation in an economy. The money supply is determined by the central bank and considered exogenous.

Monetary base

The monetary base is the total amount of currency in circulation plus the total reserves held by banks.

$$\text{MB} = \text{C} + \text{R}$$

Bank deposit multiplier

The bank deposit multiplier is the maximum amount of deposits that a bank creates for each unit of reserves it holds. It is measured as the inverse of the reserve ratio.

$$\text{Deposit Multiplier} = \frac{1}{\text{Reserve Requirement}}$$

Money multiplier

The money multiplier is a measure of how much the money supply changes for a unit change in the monetary base. Mathematically:

$$\text{Money Multiplier (m)} = \frac{1+\text{c}}{\text{r}+\text{c}}$$

Where:

$$c = \text{Currency (C) Deposit (D) ratio} = \frac{C}{D}$$

$$r = \text{Reserve (R) Deposit (D) ratio} = \frac{R}{D}$$

Money demand

Money demand is the total desired holding of financial assets in the form of money. Money demand is negatively related to the interest rate. The motives for holding money are generally categorized into **Transactions motive**, **Precautionary motive**, and **Speculative motive**.

Quantity theory of money

The quantity theory of money states that the general price level is directly proportional to the amount of money in circulation. The quantity theory stems from the Fisher equation:

$$M \times V = P \times T$$

The velocity (V) of money and the volume of transactions (T) are assumed to be constant. This then establishes a directly proportional relationship between the money supply (M) and the price level (P). An increase in the money supply translates into higher price levels.

Interest rate transmission mechanism of an increase in money supply

An increase in the money supply decreases the real interest rate. The lower interest rates cause investment to increase which then translates into an increase in aggregate demand and output.

Exchange rate transmission mechanism of an increase in money supply

An increase in the money supply causes the interest rates to decline. The decline in the interest rates causes an outflow of short-term finance from the country. This causes the exchange rate to depreciate. This then increases the demand for exports and reduces import demand. The result of this is an increase in aggregate demand.

THE FINANCIAL SYSTEM

Financial system

The financial system is a set of institutions and practices that facilitate the exchange of funds between lenders and borrowers. The functions of the financial system include:

1. Maturity transformation.
2. Reducing the transaction costs of matching lenders and borrowers.
3. Monitoring investments and corporate governance.
4. Risk reduction through diversification.
5. The transfer of consumption across time so households can save for the future.

Systemic risk

Systemic risk is the risk of an entire system breaking down because of a failure of some individual parts. For example in the financial sector, a failure of a major bank may lead to the failure of several other banks which could cause the entire financial system to break down. Systemic risk can be reduced through the following:

1. The provision of lender-of-last-resort facilities by the central bank to banks to keep them going.
2. Supervision and control of the behaviour of systematically important banks.
3. Recapitalization of banks by the government.

Islamic finance

Islamic finance, also known as Sharia-compliant finance or Islamic banking, is a system of financial services and products that complies with the principles and rules of Islamic law, known as Sharia. The fundamental tenets of Islamic finance are rooted in Islamic ethics and prohibit certain practices that are considered unethical or exploitative. The key principles of Islamic finance include:

1. Prohibition from charging interest (Riba)
2. Profit and Loss Sharing (mudarabah): Mudarabah is a profit-and-loss sharing partnership agreement where one partner (financier or rab-ul mal) provides the capital to another partner (labor provider or mudarib) who is responsible for the management and investment of the capital. The profits are shared between the parties according to a pre-agreed ratio.
3. Prohibition of transactions with excessive risk (Gharar).
4. Prohibition of Gambling (Maisir).
5. Promotion of charitable giving (Zakat).

Financial Innovation

Financial innovation refers to the creation and implementation of new financial products, services, technologies, or business models with the goal of improving the efficiency, accessibility, and effectiveness of financial systems. These could include new financial products, payment systems, risk management tools, new lending and borrowing instruments, etc.

BUSINESS ACTIVITY, UNEMPLOYMENT AND INFLATION

Full Employment Level of National Income

The full employment level of national income is the level of national income at which there is no deficiency in aggregate demand. It is the maximum level of output produced when all the available labor resources are fully utilized.

Inflationary gap

This is the amount by which aggregate expenditure exceeds national income at the full-employment level of national income. It measures the decrease in aggregate spending required to bring an economy operating above full employment back to the full employment level of national income.

Recessionary gap

A recessionary gap occurs when a country's real GDP is lower than the full employment or potential GDP. It measures the increase in spending required to bring an economy operating below full employment to the full employment level of national income.

Phillips curve

The Phillips curve shows an inverse relationship between inflation and unemployment. There is always a trade-off between inflation and unemployment. The Expectations Augmented Philips Curve (EAPC) accounts for the importance of inflation expectations. The EAPC in a simple form can be specified as:

$$\pi = f\left(\frac{1}{U}\right) + \pi^e + k$$

Where:

π = The inflation rate

U = The unemployment rate

π^e = Expected inflation

k = Exogenous costs pressures on inflation

MACROECONOMIC POLICY

Fiscal policy

Fiscal policies are policies designed to affect aggregate demand by altering government expenditure and taxation.

Expansionary fiscal policies

are designed to increase aggregate demand. This could be through increasing government expenditure, reducing taxation, or a combination of both policies.

Contractionary fiscal policies

are designed to decrease aggregate demand. This could be through decreasing government expenditure, increasing taxation, or a combination of both.

Expansionary fiscal policy usually leads to a **budget deficit** while a contractionary fiscal policy leads to a **budget surplus**. Changing government expenditure usually has a greater effect on aggregate demand and output than changing tax rates.

General government debt

This is the accumulated deficits of the government at both the local and central levels. This is the total debt owed by the government.

Primary deficit (surplus)

This occurs when the sum of government expenditures excluding interest payments on government debt is greater than (less than) government receipts.

Automatic stabilizers

Automatic stabilizers are mechanisms that are built into government budgets that increase or decrease government spending and taxes in response to changes in aggregate demand.

Fiscal drag

Fiscal drag occurs when earnings growth and inflation push earners into higher tax brackets. Hence the government revenue increases without any explicit increase in tax rates. The effect of this is a decline in the spending rates of households. To prevent this from happening, the tax bands should be increased.

Monetary policy

Monetary policies are a set of macroeconomic policies undertaken by the central bank to control the money supply in an economy.

Contractionary monetary policy

is used to reduce the money supply during economic expansions and

Expansionary monetary policy

is used to increase the money supply during recessions.

Lags in policy effectiveness

Fiscal and monetary policy effectiveness is affected by the following time lags.

1. Recognition lag: The time it takes for authorities to recognize a recession.
2. Legislative lag: The time it takes to design and pass a bill that will address the recession.
3. Implementation lag: The time it takes from when a policy designed to address the recession is approved to when it is actually implemented.

These time lags affect the effectiveness of fiscal policy and monetary policies.

Techniques to control money supply

Some of the techniques used by the central bank in the conduct of monetary policy include:

1. Open market operations: The sale or purchase of government securities in the open market. Open market purchases will increase the money supply and open market sales will reduce the money supply.
2. Changing the reserve requirement. The reserve requirement is the percentage of deposits that must be held by banks as reserves. Changing this requirement will affect the deposit creation process of banks. A lower reserve requirement will increase the money supply and a higher requirement will reduce the money supply.
3. Changing the discount rate. The discount rate is the interest rate at which the central bank lends to other banks. A higher rate will reduce lending to banks and the money supply while lower rates will increase lending to the banks and the money supply.

Deficit bias

Deficit bias is the tendency for governments to accrue frequent fiscal deficits and rising debt-to-GDP ratios because of their reluctance to tighten fiscal policy.

The crowding-out effect of government spending

The crowding-out effect of government spending is the situation where the rise in government spending crowds out private investment spending. This is because government borrowing diverts funds away from the private sector, making it difficult for private investors to mobilize funds for investments.

SUPPLY SIDE POLICY

Supply side policy

Supply-side policies are government policies that are designed to influence aggregate supply directly. Supply-side policies shift the aggregate supply curve to the right.

Market Oriented Supply-side Policies

Policies designed to increase aggregate supply by freeing up the market. These can include policies that encourage private enterprise by creating incentives or rewards for private initiatives. This includes policies such as reducing tax rates, providing business tax credits, reducing government regulations, privatization, and reducing the power of trade unions .

Interventionist Supply-side Policies

Policies designed to increase aggregate supply through government intervention to remedy the deficiencies of the market. Examples include direct provision of transport, education, and communication services, funding of R&D, and collaborating with the private sector.

RELEVANT CASE STUDIES

Effect of Advertising on Demand

Advertising can shift the demand curve to the right by increasing product awareness or enhancing consumer desire, leading to a larger market and a higher willingness to pay. Additionally, advertising can make the demand curve less elastic by fostering brand loyalty, convincing consumers that competitors' products are inferior, or emphasizing the unique qualities of the advertised product. This reduced elasticity allows the firm to raise prices without a significant loss in sales, as consumers perceive fewer close substitutes.

Measuring Competition

Market competitiveness isn't solely determined by the number of firms; concentration matters too. A market may appear competitive with many firms, but if a few dominate total output, it resembles an oligopoly. Concentration ratios, like the '3-firm' or '5-firm' ratio, reveal market concentration by summing the market share of top firms. The degree of concentration hinges on entry barriers, economies of scale, and industry-specific factors. Low economies of scale exhaustion at a low output level allow multiple firms to benefit. Barriers to entry, transport costs, historical factors, and product diversity also influence market concentration.

Should Healthcare be Provided Free of Charge?

The issue of equity in healthcare arises from income disparities, leading to unequal access to treatment. Advocates argue for free healthcare for low-income individuals, prioritizing medical needs over financial capacity. Health care generates external benefits, such as disease prevention and economic productivity, benefiting society beyond the patient. When patients bear treatment costs, especially the poor, they may forgo treatment, neglecting externalities. Market-driven healthcare may lead to over-prescription and exploitation by doctors and pharmaceutical companies, especially in insurance-based systems. Free healthcare promotes early diagnosis and treatment, preventing acute conditions and reducing long-term costs.

Costs of Unemployment

Unemployment entails direct financial losses and personal hardships for individuals, impacting self-esteem and potentially leading to stress-related illnesses. It also strains family and social relationships, contributing to domestic issues. From an economic perspective, unemployment results in a loss of output, affecting government revenues due to reduced taxes, leading to increased administrative costs and potential additional spending on social services. Firms face profit losses, while other workers miss out on potential additional wages. In essence, the costs of unemployment extend beyond individuals to encompass societal and economic dimensions.

Costs of Inflation

Purchasing Power Erosion: Inflation, especially if wages don't keep pace, erodes the purchasing power of individuals. Even with wage increases, there are costs associated with changing price labels, known as menu costs, for firms.

Redistribution of Income and Wealth: Inflation redistributes income from those on fixed incomes or in weaker bargaining positions to those with economic power, leading to disparities. Wealth is skewed towards assets that appreciate during inflation, impacting individuals with savings in low-interest assets.

Uncertainty and Reduced Investment: Inflation induces uncertainty in the business community, discouraging investment due to unpredictable costs and revenues. This uncertainty can hamper economic growth as businesses hesitate to invest.

Balance of Payments Issues: Inflation negatively affects a country's balance of trade, making exports less competitive and imports relatively cheaper. This can lead to a deterioration in the balance of trade and a potential fall in the exchange rate, causing economic challenges.

Resource Allocation: Coping with inflation requires additional resources, as companies may need to hire accountants and financial experts to navigate uncertainties caused by inflation. These resources could otherwise be used for productive economic activities.

The Crowding Out Effect

Critics of government expenditure as a stimulus cite the crowding-out problem, arguing that increased public spending might only displace private expenditure, resulting in no net impact on total spending. This crowding-out manifests in two forms:

- **Resource Crowding Out**: In a fully utilized economy, government use of resources like labour and raw materials may deprive the private sector of these resources. However, if there is economic slack, mobilizing idle resources may not hinder private-sector output, potentially stimulating additional production.
- **Financial Crowding Out**: Additional government spending, necessitating higher borrowing, can lead to increased interest rates. This financial crowding-out effect occurs as higher government interest rates compel private firms to offer higher rates, discouraging borrowing and investment. This dynamic may hinder economic growth by limiting access to funds for private enterprises.

Pricing Issues in the market for tickets

In the ticketing industry, organizers often set prices below market clearing levels in the primary market due to uncertainties in demand and the desire to avoid half-empty venues. This practice creates opportunities for significant profits in the secondary market, where tickets are resold. The secondary market's potential for profit arises from a perfectly inelastic short-run supply curve, with limited venue capacity. Ticket touts, using automated bots, can purchase a portion of tickets in the primary market and resell them at marked-up prices, exploiting the shortage. This phenomenon, valued at around $8 billion globally, has led to calls for legislative measures to ban or limit resale prices in the secondary ticket market.