

Introduction to Microeconomics

Microeconomics is the branch of economics that studies the behaviour of **individual economic agents**, such as consumers and producers, in the markets for specific goods and services. It focuses on how these individuals make decisions and how their interactions determine the **prices and quantities** of goods in the market.

The primary decision-makers, or **economic agents**, include individuals who decide what and how much to consume, and producers who decide what and how much to produce.

In this context, even a large corporation is considered a "micro" agent because it acts in the interest of its specific shareholders rather than the economy as a whole.

Microeconomics assumes that these agents are **rational**, meaning they aim to achieve the best possible outcome for themselves—consumers maximize satisfaction, and producers maximize profits.

Central Problems of an Economy

Every society faces the fundamental challenge of **scarcity**, where resources are limited in comparison to the unlimited collective wants of the people. This scarcity necessitates **choice**, giving rise to three central problems:

1. What is produced and in what quantities?

A society must decide how to allocate its scarce resources between different goods, such as food versus luxury items, or basic education versus military services.

2. How are these goods produced?

This involves choosing between different production techniques and adopting specific combinations of resources, such as using more **labour** versus more **machinery**.

3. For whom are these goods produced?

This concerns the **distribution** of the final goods

and services among individuals—deciding who gets more and who gets less, and whether a minimum consumption level is ensured for all.

These problems are often illustrated using the **Production Possibility Frontier (PPF)**, which shows the maximum combinations of two goods an economy can produce given its resources and technology.

A point on the frontier represents full resource utilization, while a point below it indicates underemployment or wasteful use of resources.

Choosing more of one good always involves an **opportunity cost**, which is the amount of another good that must be sacrificed.

Theory of Consumer Behaviour: Utility Approach

The consumer's problem is to choose a combination of goods that provides the **maximum satisfaction**, given their preferences and budget. **Utility** is defined as the **want-satisfying capacity** of a commodity; it is subjective and varies across individuals, time, and place.

Cardinal Utility Analysis (One Commodity Case)

Cardinal utility assumes that satisfaction can be expressed in numbers (e.g., "50 units of utility").

- **Total Utility (TU):** The total satisfaction derived from consuming a specific amount of a good.
- **Marginal Utility (MU):** The change in total utility resulting from the consumption of one additional unit ($MU_n = TU_n - TU_{n-1}$).
- **Law of Diminishing Marginal Utility:** This law states that as a consumer consumes more units of a commodity, the additional satisfaction (MU) derived from each successive unit **declines**.
- **Attainment of Equilibrium:** A consumer reaches equilibrium when they continue

consuming a good up to the point where the marginal utility of the good matches its price, assuming the utility of money is constant. If the price drops, the individual is willing to buy more units because the MU of the additional units, though declining, will eventually match the lower price.

Ordinal Utility Analysis (Two Commodity Case)

Ordinal utility assumes that consumers do not measure satisfaction in numbers but instead **rank** their preferences.

- **Indifference Curve (IC):** This is a curve joining all bundles of two goods (e.g., bananas and mangoes) that provide the consumer with the **same level of satisfaction**.
- **Marginal Rate of Substitution (MRS):** The rate at which a consumer is willing to trade one good for another (e.g., mangoes for bananas) while keeping total utility constant.
- **Law of Diminishing MRS:** As the quantity of one good increases, the consumer is willing to sacrifice smaller and smaller amounts of the other good to obtain an additional unit of the first good. This gives the indifference curve its **convex shape**.
- **Properties of ICs:**
 1. Indifference curves are **downward sloping**, as more of one good requires less of the other to maintain satisfaction.
 2. **Higher indifference curves** represent higher levels of satisfaction due to **monotonic preferences**, where more of a good is always preferred.
 3. Two indifference curves **never intersect**, as intersection would lead to logically inconsistent satisfaction levels.

Consumer's Budget and Optimal Choice

A consumer's choices are limited by their **income (M)** and the **market prices** of goods (p_1 and p_2).

- **Budget Set:** The collection of all bundles that the consumer can afford ($p_1 x_1 + p_2 x_2 \leq M$).
- **Budget Line:** The line representing all bundles that cost **exactly** equal to the consumer's income ($p_1 x_1 + p_2 x_2 = M$).
- **Slope of the Budget Line:** The slope is the **price ratio** (p_1/p_2), which measures the rate at which the market allows the consumer to substitute one good for another.



- **Changes in Budget Set:**
 - **Income Change:** An increase in income causes a **parallel outward shift** of the budget line, while a decrease causes an **inward shift**.
 - **Price Change:** If the price of one good changes while income and the other price remain constant, the budget line **pivots**. For example, a drop in the price of bananas makes

the budget line flatter and increases the horizontal intercept.

Optimal Choice of the Consumer

A rational consumer aims to reach the **highest possible indifference curve** given their budget set. The **optimal choice** is located at the point where the budget line is **tangent** to an indifference curve. At this point of equilibrium: **MRS = Price Ratio** (p_1/p_2). If MRS were greater than the price ratio, the consumer would be willing to give up more of one good than the market requires, meaning they could move to a preferred bundle by consuming more of the other good.

Demand Analysis

Demand is the quantity of a good a consumer is willing and able to buy at various prices, holding income and preferences constant.

- **Law of Demand:** This states that, other things being equal, there is a **negative relationship** between the price of a good and the quantity demanded. This is explained by the **substitution effect** (substituting cheaper goods for expensive ones) and the **income effect** (increased purchasing power when prices drop).
- **Determinants of Demand:**
 1. **Price of the Good:** Direct inverse relationship.
 2. **Income:** Demand for **normal goods** increases with income, whereas demand for **inferior goods** (e.g., low-quality cereals) decreases as income rises.
 3. **Prices of Related Goods:**
 - **Substitutes:** If the price of a substitute (e.g., coffee) increases, the demand for the good (e.g., tea) rises.
 - **Complements:** If the price of a complement (e.g., sugar) increases, the demand for the good (e.g., tea) falls.

4. **Tastes and Preferences:** Favourable changes shift the demand curve rightward; unfavourable changes shift it leftward.

- **Demand Schedule and Curve:** A schedule lists price-quantity pairs, while the **demand curve** is the graphical representation, typically downward sloping.
- **Market Demand:** The total demand of all consumers in the market, derived by the **horizontal summation** of individual demand curves.



Movements Along vs. Shifts in the Demand Curve

It is critical to distinguish between these two changes:

- **Movement Along the Demand Curve:** This occurs **only** due to a change in the **price of the good itself**. A fall in price leads to a "downward" movement (expansion of demand), and a rise in price leads to an "upward" movement (contraction).
- **Shift in the Demand Curve:** This occurs when **factors other than price** change, such as income, tastes, or the price of related goods. For example, a rise in income for a normal good shifts the entire curve **rightward**.

Price Elasticity of Demand

Price elasticity of demand (e_D) measures the **responsiveness** of quantity demanded to a change in price. It is calculated as: $e_D = \frac{\text{Percentage change in demand}}{\text{Percentage change in price}}$.

Measurement Methods

1. **Percentage Method:** Compares the exact percentage changes. If $|e_D| > 1$, demand is **elastic** (highly responsive, typical for luxuries); if $|e_D| < 1$, demand is **inelastic** (less responsive, typical for necessities); and if $|e_D| = 1$, it is **unitary elastic**.

Total Expenditure Method: Examines how total spending ($P \times Q$) changes when price changes.

If price and expenditure move in **opposite directions**, demand is **elastic** ($e_D < -1$). If price and expenditure move in the **same direction**, demand is **inelastic** ($e_D > -1$).

If expenditure remains **unchanged** despite a price change, demand is **unitary elastic** ($e_D = -1$).

Factors Determining Price Elasticity

- **Nature of the Good:** Necessities like food are price inelastic, while luxuries are price elastic.
- **Availability of Substitutes:** Goods with close substitutes (e.g., different brands of tea) have highly elastic demand, as consumers can easily switch if prices rise.

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