

Basic Economic Concepts

AP Microeconomics

Scarcity



An outdoor market: markets allocate scarce resources among competing uses

Economics begins with one stubborn fact: people's wants are effectively unlimited, but the **resources** to satisfy them are limited. This gap is **scarcity**, and it is why economics exists – if everything were free and endless, there would be nothing to decide.

The resources (the **factors of production**) are **land** (natural resources), **labor** (human effort), **capital** (tools, machines, buildings), and **entrepreneurship** (organizing the other three and taking risks). Because these are scarce, every economy must answer three questions: **what** to produce, **how** to produce it, and **for whom** to produce.

Scarcity forces **choice**, and every choice has an **opportunity cost** – the value of the next-best alternative you give up. This single idea runs through the whole course: the true cost of anything is what you sacrifice to get it, not just the money you pay.

Example. At constant rates, one worker can pack 30 boxes or deliver 12 orders per hour. One delivery's opportunity cost is $30/12 = 2.5$ boxes.

Resource Allocation and Economic Systems

An **economic system** is a society's way of answering the three questions.



Economic systems form a spectrum from a free market to full government planning

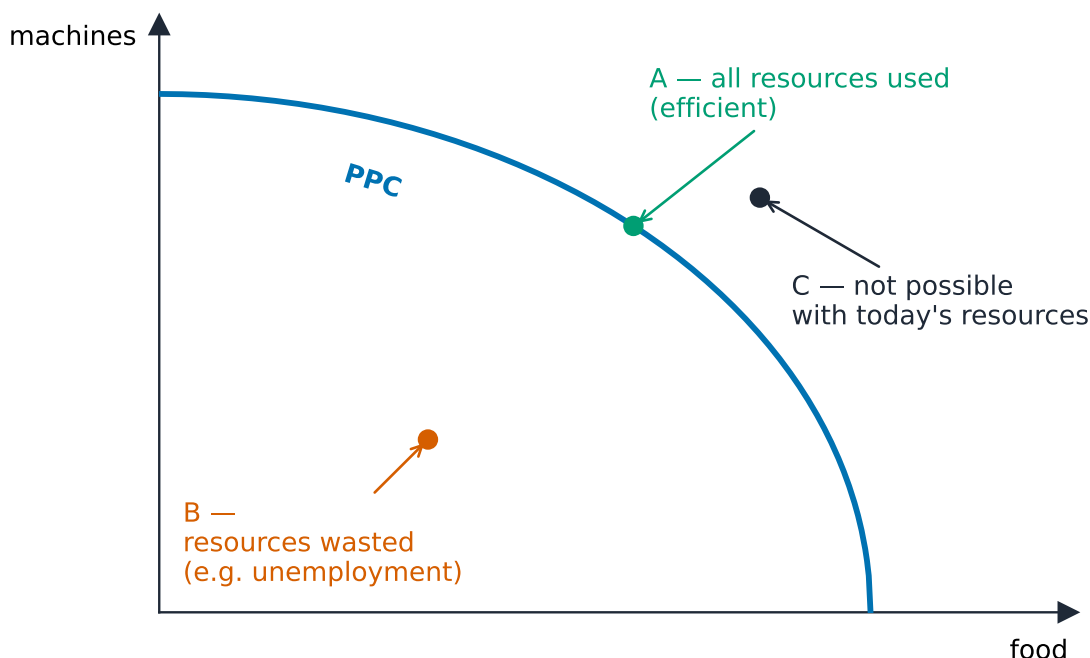
- In a **market economy**, private buyers and sellers decide through prices; self-interest and competition coordinate them (the “invisible hand”).
- In a **command economy**, the government owns resources and plans production.
- Real economies are **mixed** – mostly markets, with government providing some goods and correcting problems.

For example, private canteens choosing menus and families buying at stated prices use a market mechanism. A public agency assigning menus and meals uses a command mechanism. Private sales plus publicly funded meals combine both. These examples illustrate allocation mechanisms, not a whole country's classification.

Prices carry information and **incentives**. If demand for bread rises, a higher price can encourage a bakery to expand output, holding costs constant. This is not a guarantee of social efficiency: pollution or market power can weaken the outcome.

The Production Possibilities Curve

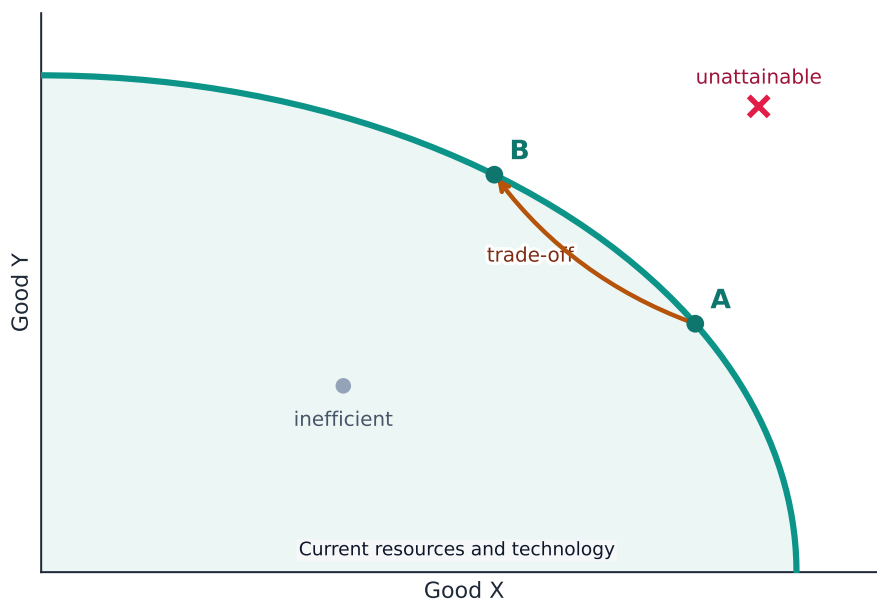
The **production possibilities curve (PPC)** shows the maximum combinations of two goods an economy can produce with its resources and technology fully and efficiently used.



Points on, inside, and outside the production possibilities curve

- Points **on** the curve are productively **efficient** ; points **inside** are inefficient (wasted or unemployed resources); points **outside** are currently **unattainable**
- The PPC's downward slope shows **opportunity cost**: making more of one good means making less of the other. The **magnitude of the slope** gives the opportunity cost of the horizontal-axis good in units of the vertical-axis good. A negative slope does not mean a negative opportunity cost.
- A **bowed-out** (concave) PPC shows **increasing opportunity cost** – resources are not equally suited to both goods, so making more of one costs ever more of the other. A **straight-line** PPC means constant opportunity cost; a curve bowed toward the origin represents decreasing opportunity cost.
- **Economic growth** (more resources, better technology) shifts the frontier **outward**. A productivity gain in only one industry can pivot the frontier rather than expand both intercepts. Moving from inside to the existing frontier uses idle resources; it does not itself increase capacity.

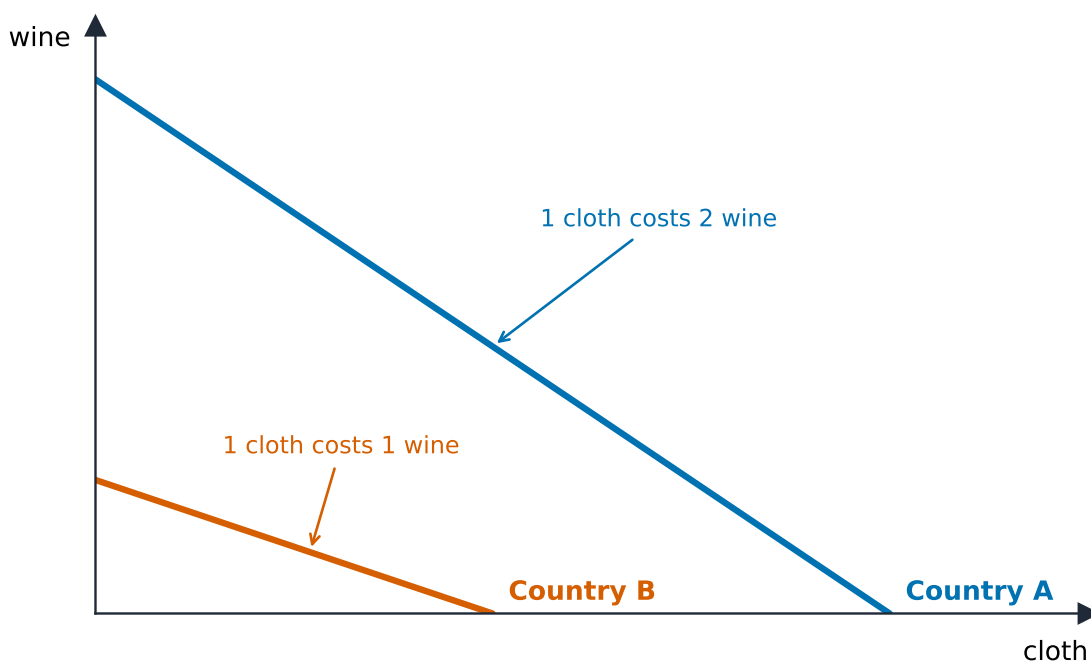
Worked example. Efficient combinations are A (100 wheat, 0 steel), B (80 wheat, 30 steel), and C (50 wheat, 50 steel). From A to B, steel's opportunity cost is wheat forgone divided by steel gained: $20/30 = 0.67$ wheat per steel. From B to C it rises to $30/20 = 1.5$. Resources differ in suitability. Being on the PPC shows productive efficiency, not which mix society prefers.



A production possibilities curve: efficient, inefficient, and unattainable points

Comparative Advantage and Gains from Trade

Two producers can both gain from trade by **specializing** .



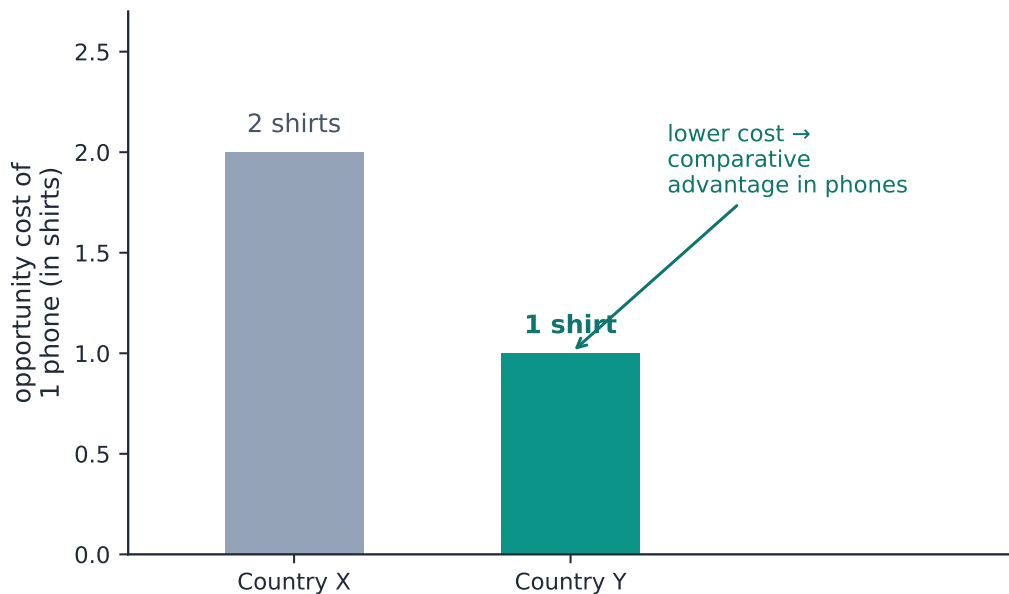
Comparative advantage comes from differently-sloped production possibilities curves

- A producer has an **absolute advantage** in a good if it can make more of it with the same resources.
- A producer has a **comparative advantage** if it has the **lower opportunity cost** for that good. Comparative advantage – not absolute – determines who should specialize.
- Compute opportunity cost from output data: for each producer, one unit of good X costs (units of Y) $\div$ (units of X). The producer who gives up less Y should make X.
- Both sides gain if they trade at a rate **between** their two opportunity costs – the **terms of trade**. With different opportunity costs and suitable terms of trade, specialization can expand consumption possibilities beyond each producer's own PPC. It does not shift that production frontier.

Output-table example. In one day X makes 10 phones **or** 20 shirts; Y makes 4 phones **or** 4 shirts. Assume constant opportunity costs. For a phone, X gives up $20/10 = 2$ shirts; Y gives up $4/4 = 1$ shirt. Y has comparative advantage in phones, X in shirts, even though X has absolute advantage in both. Trade one phone for 1.5 shirts: X saves 0.5 shirt compared with making the phone, and Y receives 0.5 shirt more than its cost. At an endpoint one producer is indifferent; equal costs leave no strictly beneficial interval in this model.

Input-table example. A needs 2 hours per phone and 1 hour per shirt; B needs 3 hours per phone and 6 hours per shirt. A phone's opportunity cost is hours per phone divided by hours per shirt: A gives up $2/1 = 2$ shirts, B only $3/6 = 0.5$. B has comparative advantage in phones although A needs fewer hours for both goods. Do not treat hours as output quantities.

Exam connection (AP 2023 Set 1, Q2a–c). Northland can make 100 bushels of wheat or 300 yards of cloth; Southland 100 or 50. One wheat costs 3 cloth in Northland and 0.5 in Southland. Trading 10 wheat for 20 cloth lies strictly between their costs of 5 and 30 cloth. If Southland's wheat maximum falls to 75 while cloth stays 50, its cloth cost becomes $75/50 = 1.5$ wheat. Northland's is still $100/300 = 1/3$, so Southland does not gain comparative advantage in cloth.



Comparative advantage goes to the producer with the lower opportunity cost



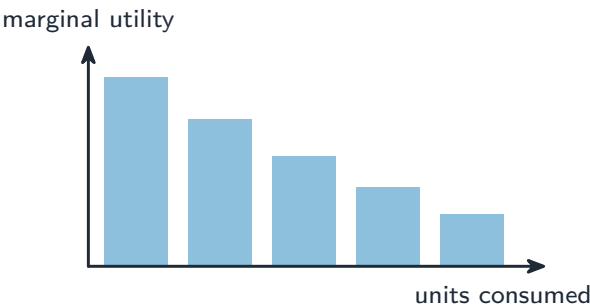
Container shipping: comparative advantage and trade let countries specialise and gain

Cost-Benefit Analysis

Rational decision-makers weigh **benefits against costs**. Compare feasible alternatives by net benefit (total benefit minus total cost), including opportunity cost. When a decision has increments, compare the extra benefit and cost of each increment. Money already spent and unrecoverable is a **sunk cost** and should be **ignored** in decisions: only future costs and benefits matter.

Marginal Analysis and Consumer Choice

Most real decisions are not “all or nothing” but “a little more or a little less.” **Marginal analysis** compares the **marginal benefit** (the benefit of one more unit) with the **marginal cost** (the cost of one more unit).



Each extra unit consumed gives less extra satisfaction (diminishing marginal utility)

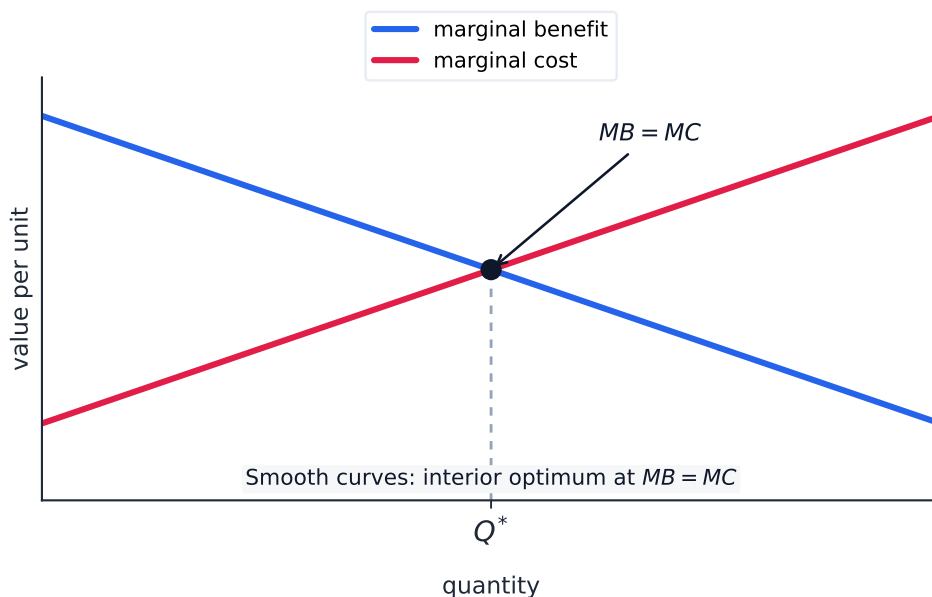
- **Decision rule:** add a unit when its marginal benefit exceeds its marginal cost. A feasible interior optimum on smooth curves has **MB = MC**. Whole-unit tables may have no exact equality: choose the quantity with the greatest net benefit. A unit with equal MB and MC leaves net benefit unchanged.
- Consumers get **utility** (satisfaction) from goods, but each extra unit usually gives less added satisfaction – the **law of diminishing marginal utility**
- A consumer maximizes total utility by the **utility-maximizing rule**: spend so that the **marginal utility per dollar** is equal across all goods, $\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$, subject to the budget. This equality describes a standard interior choice; with whole units, compare feasible combinations because exact equality may be impossible. With positive marginal utility and divisible goods, the budget is spent.

Whole-unit example. Four units give marginal benefits of 12, 9, 6 and 3 dollars; each costs 5 dollars. Their extra net benefits are 7, 4, 1 and -2 dollars. Cumulative net benefits are 7, 11, 12 and 10 dollars. Choose three units: the fourth reduces net benefit, although no row has MB = MC.

Unit	X	Y
1	20	28
2	16	24
3	12	16
4	8	8
5	4	-4
6	-2	-8

Consumer example (AP 2025 Set 2, Q3A–C). The table gives Lucy’s marginal utility in utils. If both goods are free, choose 5 X and 4 Y: the next units add negative utility. Total utility from 2 X and 2 Y is $(20 + 16) + (28 + 24) = 88$ utils.

If X costs \$2, Y \$4, and the budget is \$20, buying 2 X leaves \$16 for 4 Y. The optimal combination is instead 4 X and 3 Y. The last units give $8/2 = 4$ and $16/4 = 4$ utils per dollar, and spending is $2(4) + 4(3) = 20$ dollars. Total utility is $56 + 68 = 124$ utils. Replacing two X with one Y loses $12 + 8 = 20$ utils and gains only 8. Replacing one Y with two X loses 16 and gains only $4 - 2 = 2$. Compare both marginal ratios and the budget.



Smooth interior case: net benefit is greatest where marginal benefit equals marginal cost

Exam tips

State the opportunity-cost units and compare both producers. Give a specific trade rate strictly between their costs. For consumer choice, check the budget and the last units bought. For marginal decisions, compare feasible net benefits; exact equality need not occur in a table.