

Industrial and Economic Development Patterns and Processes

AP Human Geography

The Industrial Revolution

The **Industrial Revolution** expanded machine production and factory organisation, first in Britain from the eighteenth century and then unevenly elsewhere. Coal, iron, investment, technology, workers and transport helped industry cluster. New production and transport could support greater food supplies, population growth and urban employment, while changing class relations. Investors also sought resources and markets abroad, contributing to colonial and imperial expansion; technology was not the sole cause.

Break-of-bulk points are places where cargo changes transport mode, such as a port connecting ships and rail. Handling adds costs, while good connections can attract industry. A photograph of containers shows infrastructure, not the value of trade or local wages.



A port illustrates cargo handling; employment, income and trade volumes require other evidence

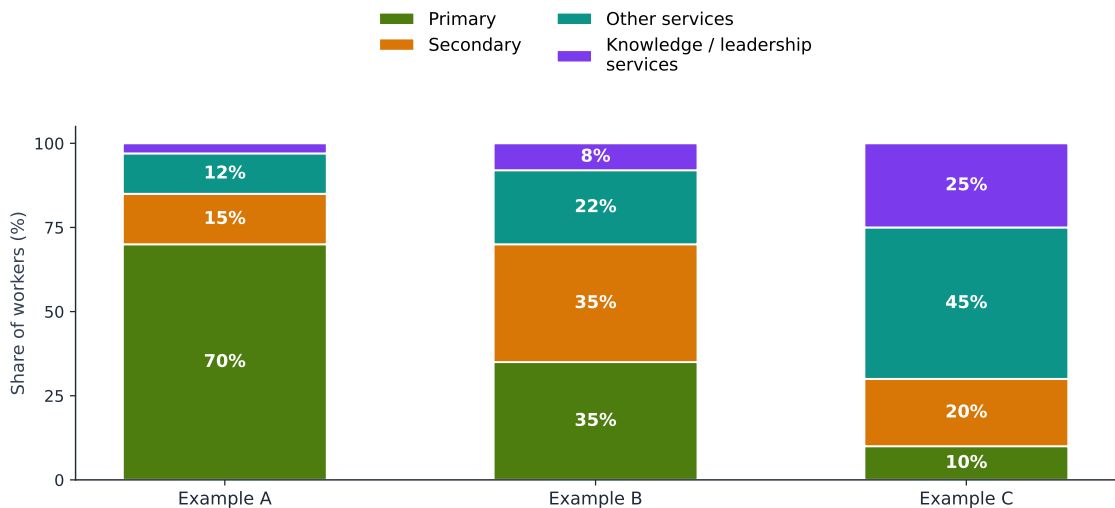
Economic Sectors and Patterns

The **Primary sector** obtains raw materials, including farming, fishing and mining. The **Secondary sector** manufactures goods. The **Tertiary sector** provides services. **Quaternary** activities involve information and research; **quinary** activities involve high-level decisions. The last two are

often treated as specialised services: do not count them twice when using a dataset’s categories. Classification follows the activity, not the employer’s name: a factory’s research scientist does different work from its assembly operator.



Welding robots show manufacturing equipment, not total employment or workers’ pay



Invented comparisons; exclusive groups total 100%.
Not a required development sequence.

Invented examples with shares summing to 100%; different sector mixes do not prove a compulsory development path

In many historical settings, agricultural productivity and industrialisation reduced agriculture’s employment share while manufacturing and services expanded. Service jobs also exist in lower-income economies; a large service share alone does not establish

high wages, good health or equality. A share can fall while the number of workers rises, if total employment grows faster.

Original sector task. Economy A has 1,000 workers: 700 primary, 150 secondary, 120 other services and 30 knowledge/leadership services. Economy B has 1,000 workers: 350, 350, 220 and 80 in the same four exclusive groups. The share formula is $s = (n/N) \times 100$. A's primary share is $s = (700/1000) \times 100 = 70\%$; B's is $s = (350/1000) \times 100 = 35\%$. B has a lower primary share, but these data do not establish which economy has higher life expectancy or whether A later becomes B.

Weber's least-cost theory explains industrial location through transport and labour costs and the savings from agglomeration. **Agglomeration** is clustering that can support shared suppliers, workers and infrastructure; congestion and higher land costs can offset savings. Bulk-reducing production can favour raw-material locations, whereas bulk-gaining production can favour markets. Weight alone does not settle every case: transport rates, labour, infrastructure and other costs matter.

Original location task. Two sites have the following invented daily costs, all in dollars. R has transport 90, labour 70 and clustering savings 10. M has transport 50, labour 110 and savings 20. Other costs are equal. Use $C = T + L - S$: $C_R = 90 + 70 - 10 = 150$ dollars/day and $C_M = 50 + 110 - 20 = 140$ dollars/day. M is cheaper in this comparison. If its labour cost rises to 130, $C_M = 50 + 130 - 20 = 160$ dollars/day, so R becomes cheaper. The cheapest transport location need not have the lowest total cost.

Exam connection – 2025 AP Human Geography, Set 1, Q1(D). This real question asks how deindustrialisation has affected core-country economies. One possible explanation is that factory closures reduce manufacturing employment and local spending, contributing to unemployment or economic decline. The official scheme also accepts sector shifts and other effects. Explain the requested connection; there is no compulsory universal two-clause formula or guarantee that displaced workers immediately enter better-paid service jobs.

Measures of Development

Development concerns improvements in economic and social well-being. Choose measures that answer the question rather than ranking one indicator as always best.

- **Gross Domestic Product (GDP) per capita** divides production within a territory by its population. It is an average, not each person's income. **Gross National Income (GNI)** concerns income accruing to residents, including net primary income from abroad; GNP is a related older national-product measure. Use consistent years, currency and price adjustments when comparing places.
- The **Human Development Index (HDI)** combines life expectancy, education and GNI per capita. Education includes mean schooling for

adults and expected schooling for children. HDI is not GDP plus two raw numbers, and the three dimensions are not simply added. It summarises average achievement and does not capture every inequality or environmental cost.

- The **Gender Inequality Index (GII)** covers reproductive health, empowerment and labour-market participation. Lower values indicate less inequality in the measured dimensions; it is not a wage-gap-only measure.
- The **Gini coefficient** measures distributional inequality, often reported on 0–1 or 0–100 scales. Check income versus wealth, definitions and scale before comparing. GDP, HDI and Gini answer different questions.

Literacy, infant mortality, fertility, healthcare access, energy use and employment composition provide further evidence. The **informal economy** includes activity outside or insufficiently covered by formal arrangements; it is not necessarily criminal or wholly absent from national estimates.

Original indicator task. Two fictional countries have GDP per capita of 20,000 dollars. X has life expectancy 79 years and mean adult schooling 12 years; Y has 61 and 6. They differ in these social outcomes despite equal GDP per capita. An exact HDI comparison needs GNI, expected schooling and the index method; equal GDP does not establish equal HDI income inputs. Regional and household data are also needed to examine distribution.

Original average task. Four households receive annual incomes of 10, 10, 10 and 70 thousand dollars; four others receive 25 each. Both groups average 25 thousand dollars per household. Equal averages do not establish equal distribution. These household averages are not GDP per capita.

Women and Economic Development

Education, paid work and entrepreneurship can expand women's income and choices. Barriers involving care responsibilities, transport, discrimination, land and credit can persist as economies grow. Employment participation does not itself establish equal pay, job security or power. Fertility patterns also involve healthcare, preferences and institutions; do not predict one outcome for every woman from paid work alone.

Microfinance provides small-scale financial services, including loans that can help establish businesses. Outcomes depend on demand, costs, interest, repayment and control over earnings; borrowing can also create debt pressure. The course recognises opportunities created by microloans without requiring a claim that every borrower benefits.

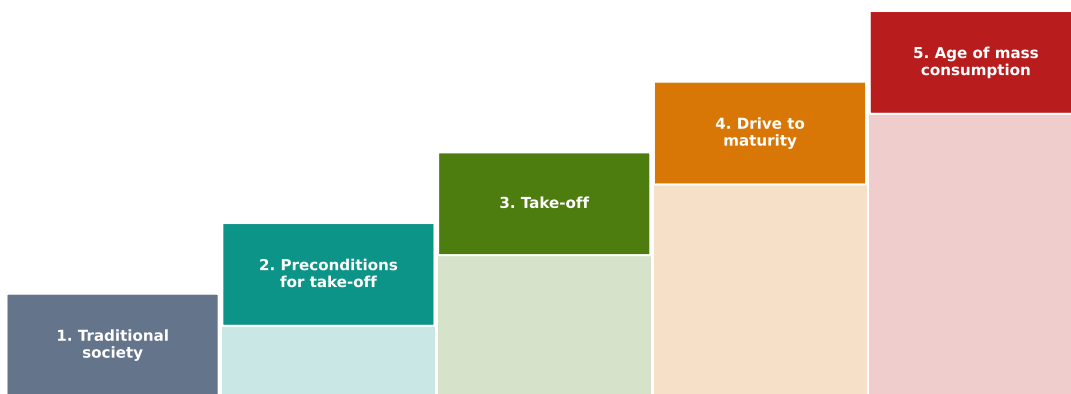
Original loan task. A small enterprise earns 180 dollars in weekly sales, pays 100 for inputs and other operating costs, and owes a 50-dollar weekly loan payment. Cash left after these stated outflows is $B = S - C - P = 180 - 100 - 50 = 30$ dollars. If sales fall to 140, $B = 140 - 100 - 50 = -10$ dollars. This is a simplified cash-flow comparison, not full profit accounting or proof of an effect on gender equality. Investigate who controls the cash and how shortfalls are met.

Theories of Development

Rostow's stages of growth

propose traditional society, preconditions for take-off, take-off, drive to maturity and mass consumption. The model emphasises investment, industrialisation and internal change. It does not prove that every country follows one sequence or that mass consumption is environmentally sustainable. Its historical and external-dependence limitations matter when applying it.

A proposed growth model



Not a universal timetable; historical and external conditions matter.

Stages in a model, not an inevitable route for every country

Wallerstein's world-systems theory

examines an inter-dependent economy through **core**, **periphery** and **semi-periphery** roles. Core activities commonly have greater capital, high-value production and influence; peripheral activities are often more dependent on lower-value production. Semiperipheral places combine features. These are relational categories, not permanent labels establishing identical conditions for all residents.

A **dependency** perspective emphasises how unequal external relationships can constrain development. Commodity dependence exposes exporters to concentrated demand and price changes. Trade alone does not prove exploitation or that improvement is impossible.

Original theory task. A fictional economy invests in transport and factories but relies heavily on one foreign commodity buyer. Rostow directs attention to investment and industrial change; dependency/world-systems approaches examine external bargaining and value flows. Compare what each explains and what evidence is missing, rather than declaring one model universally true.

Trade and the World Economy

Comparative advantage means lower **opportunity cost** : producing a good requires giving up less of another good than a trading partner does. It differs from absolute advantage, which concerns greater output from the same resources. **Complementarity** links one place's supply with another's demand; costs, infrastructure and policies also affect trade.

Original opportunity-cost task. In one day, A can make either 10 grain units or 5 cloth units; B can make either 6 grain or 4 cloth. Assume constant trade-offs. A has absolute advantage in both outputs. For one grain, A gives up $5/10 = 0.5$ cloth while B gives up $4/6 \approx 0.67$ cloth, so A has comparative advantage in grain. For one cloth, A gives up $10/5 = 2$ grain and B gives up $6/4 = 1.5$ grain, so B has comparative advantage in cloth. A trade rate between 1.5 and 2 grain per cloth can offer gains before transport and adjustment costs. Gains need not be shared equally among people.

Tariffs tax imports and can alter prices and firm locations. Free-trade agreements reduce specified barriers; they do not remove every rule or give every bloc identical external tariffs. The WTO, EU, Mercosur and OPEC have different memberships and functions: a trade-rule organisation, integration arrangements and a petroleum-producer organisation are not the same institution. Neoliberal policies favour market liberalisation, privatisation and reduced barriers; their effects depend on context. Debt crises and international lending, including IMF programmes, show financial interdependence and can affect public spending and policy choices.

Outsourcing contracts tasks to another organisation; offshoring moves activities abroad. Either can occur without the other. **Special economic zones** offer distinctive rules or incentives to attract activity; free-trade and export-processing zones have related but varying arrangements. New manufacturing can create jobs while pay, skills, labour conditions and local linkages determine who benefits.

Post-Fordist production uses more flexible organisation; just-in-time delivery reduces inventories but can increase disruption exposure. Economies of scale spread some fixed costs over output. Agglomeration and growth poles concentrate linked activity, while multiplier effects arise as spending supports other local businesses; imports and saving can reduce local circulation. **Deindustrialisation** can reflect relocation, productivity changes or restructuring, not a complete end to manufacturing.



The repeated port photograph shows goods-handling infrastructure, not direct evidence of capital or information flows

Sustainable Development

Sustainable development meets present needs without compromising future generations' ability to meet theirs. Economic, social and environmental effects must be assessed together; rising output alone is insufficient. Resource depletion, mass consumption, pollution and climate change can impose costs across places and generations.

Ecotourism can fund conservation and local jobs in natural environments, but visitor pressure, resource use and profit leakage can limit benefits. Small-scale renewable energy and public transport can support development, depending on access, costs, maintenance and environmental effects. The UN's **Sustainable Development Goals (SDGs)** provide shared goals and indicators; a project label does not establish progress on every goal.



Solar equipment shows an energy technology; affordability, reliability and lifecycle effects need evidence

An **ecological footprint** estimates demand on biologically productive area under a defined method. It is not a measure of every environmental harm. Evaluate the measure's scope and data.

Original project task. A reserve receives more tourists and creates guide jobs, but water use and waste rise and outside firms retain most hotel income. Explain one benefit and two limits. Investigate local earnings, conservation spending, water supply and waste management before concluding that the project is sustainable.

Exam tips

Identify the activity or measure precisely. Read denominators and distinguish averages from distribution. Compare opportunity costs rather than absolute output. Apply models with assumptions and limits. Connect economic changes to specific people and places; do not infer all outcomes from a photograph, sector share or project label.