

Course Companion

AP Human Geography

Every topic handout in one volume

全部专题讲义合集

exercises.lol

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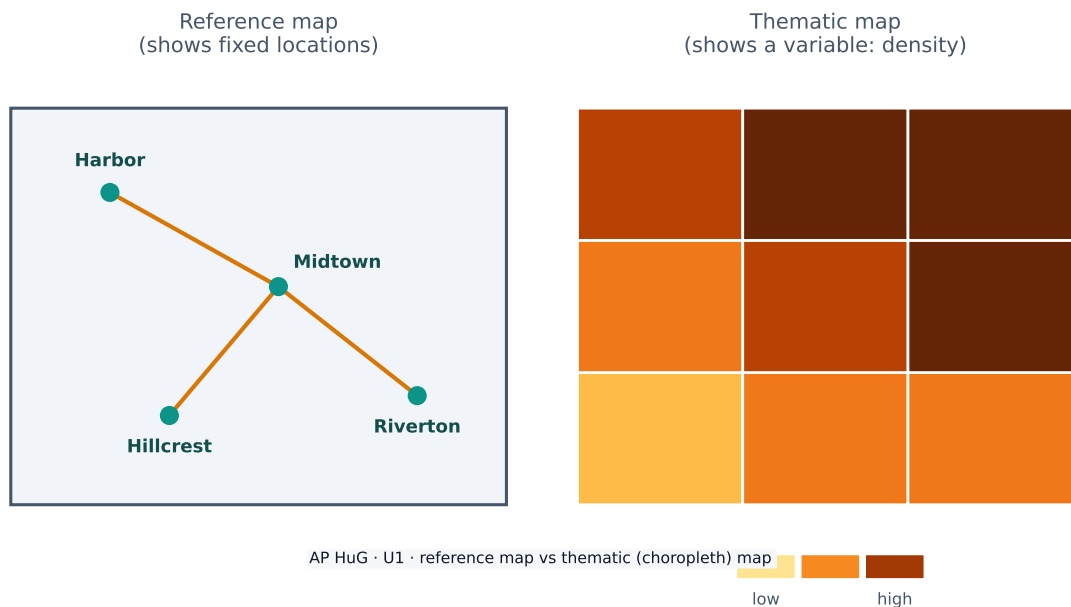
Thinking Geographically

AP Human Geography

Introduction to Maps

Geography is the study of **where** things are and **why** they are there. Its most basic tool is the **map** 地图—a flattened picture of some part of Earth’s surface.

Maps come in two big families. A **reference map** 参考地图 shows fixed locations — coastlines, borders, roads, cities (a road atlas or Google Maps). A **thematic map** 专题地图 shows how one variable changes across space —rainfall, income, or population density. AP Human Geography uses thematic maps constantly.



Reference maps show location; thematic maps show how a variable varies over space

Because Earth is a sphere and a map is flat, every map uses a **projection** 投影 that stretches the globe onto paper. Projections always **distort** 扭曲 something —shape, area, distance, or direction. The famous **Mercator** projection keeps direction correct (useful for sailing) but makes high-latitude places like Greenland look far too large. There is no perfect projection; a cartographer chooses one that fits the map’s purpose.

Geographic Data



A dense urban skyline from above: maps and spatial data show how people are distributed on Earth

Geographic data 地理数据 is any information tied to a location. Geographers collect it in the field (counting, surveying, interviewing) and remotely with technology.

Key **geospatial technologies** 地理空间技术 you must know:

- **GIS** 地理信息系统 (Geographic Information System) —software that layers many kinds of spatial data so patterns can be compared.
- **GPS** (satellite navigation) —pinpoints exact location on Earth.
- **Remote sensing** 遥感—gathers data from satellites or aircraft without touching the ground.

Data also comes from written sources: field observations, media reports, travel writing, policy documents, interviews, and photographs.

The Power of Geographic Data

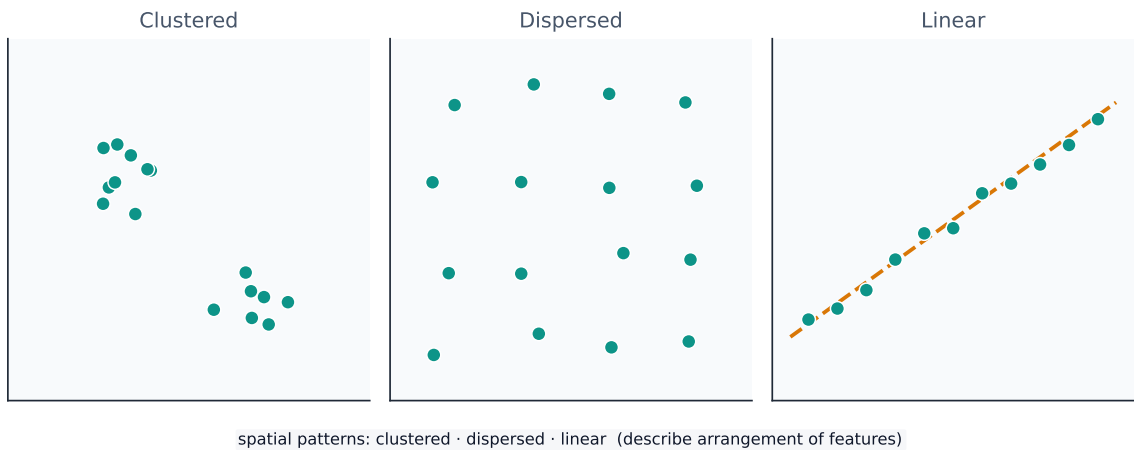
Data is powerful because it drives **decisions**. Businesses use it to choose store locations, governments use census data to plan schools and roads, and aid agencies use it to send help after a disaster.

But data is never neutral. Who collects it, which categories they use, and how a map is drawn can all **shape the message**. A map can inform—or it can mislead—so a good geographer always asks where the data came from and what it leaves out.

Spatial Concepts

Geographers describe location and pattern with a precise vocabulary.

- **Absolute location** 绝对位置 is an exact address —latitude and longitude. **Relative location** 相对位置 describes a place by what is near it ("north of the river").
- **Absolute distance** is measured in kilometres; **relative distance** is measured in time, cost, or effort.
- **Space–time compression** 时空压缩 is the shrinking of the *felt* distance between places as transport and communication improve.
- **Distance decay** 距离衰减 means that interaction between two places weakens as the distance between them grows.



Points can be clustered, dispersed, or arranged along a line —the spatial pattern is itself data

A **spatial pattern** 空间格局 is how things are arranged: **clustered** 聚集 (bunched together), **dispersed** 分散 (spread apart), or **linear** (along a line such as a road). Reading the pattern is the first step in explaining *why* it exists.

Human-Environmental Interaction



Urban sprawl at the city edge: human–environment interaction reshapes landscapes

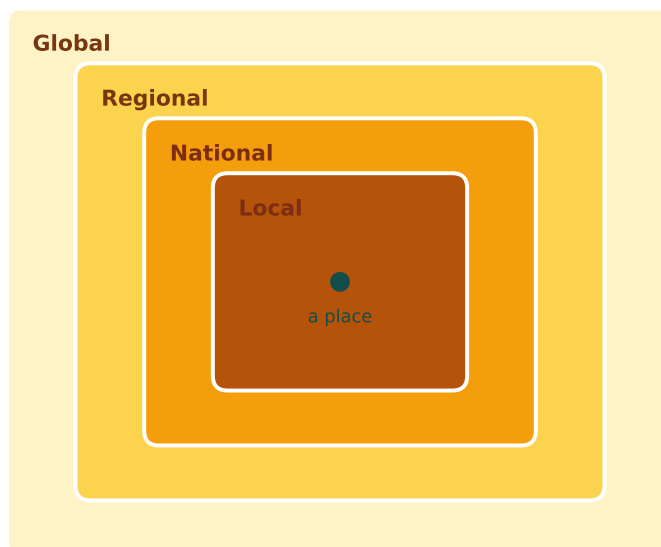
People and the environment shape each other. Three older ideas describe this:

- **Environmental determinism** 环境决定论—the (now rejected) claim that the physical environment *determines* how a culture develops.
- **Possibilism** 可能论—the accepted view that the environment sets limits, but people **choose** how to respond using technology and culture.

The **cultural landscape** 文化景观—farms, cities, and roads built on the land—is the visible result of this interaction. Sustainability asks how people can use natural resources without using them up.

Scales of Analysis

Scale of analysis 分析尺度 is the level at which you look at data —**global, regional, national, or local**. The same pattern can look completely different at different scales.



AP HuG · U1 · scales of analysis nest inside one another

The same place nests inside larger and larger scales —the scale you choose changes the pattern you see

For example, a country may look wealthy at the **national** scale, yet contain very poor neighbourhoods at the **local** scale. Zooming in or out —**changing the scale** —reveals patterns that were hidden before. Exam questions often ask you to explain a process “at various scales.”

Worked example (a real AP exam question). *“The map focuses on a regional scale. Explain a possible limitation of drawing country-scale conclusions from a regional-scale map.”* (2025) A full-mark answer: *“The map shows only one region, so its pattern may not represent the whole country —other regions could look very different, so a conclusion drawn at the regional scale would be inaccurate at the country scale.”* The command word **Explain** asks for reasoning: state the limitation **and** say why changing the scale changes the pattern. Just writing “the scales are different” does not earn the mark.

Regional Analysis

A **region** 区域 is an area with one or more shared features that make it different from surrounding areas. Geographers use three types:

- **Formal (uniform) region** 均质区域—everyone shares a measurable trait (a country, a wheat-growing belt, a language area).
- **Functional (nodal) region** 功能区域—organised around a central **node**, like a city and its commuter zone or a pizza shop’s delivery area.
- **Perceptual (vernacular) region** 感知区域—defined by people’s feelings and beliefs, with fuzzy borders (the “American South”, the “Middle East”).

Regions are made by geographers, not found in nature —so their borders can be argued about, which is exactly why they are useful for analysis.

Exam tips

- Always name a **map projection’s** trade-off: what it preserves versus distorts (Mercator keeps direction but exaggerates area).
- State whether data is **quantitative** or **qualitative**, and match a source (**GIS**, **GPS**, **remote sensing**, census) to its use.
- Distinguish **absolute** from **relative location**, and use **distance decay** and **time-space compression** in any flow answer.
- Mind the **scale of analysis**: a national average hides local variation —say so explicitly.
- Classify every region as **formal**, **functional**, or **perceptual**, and justify it by the defining trait.

Population and Migration Patterns and Processes

AP Human Geography

Population Distribution and Density

People are spread very unevenly across Earth. **Population distribution** 人口分布 describes where people live; **population density** 人口密度 measures how crowded a place is. Most people cluster in a few favourable places: **mid-latitudes**, **low-lying land**, coasts, and river valleys with water and fertile soil.



A packed pedestrian crossing in Tokyo: cities pull people into a tiny area, giving an extremely high population density

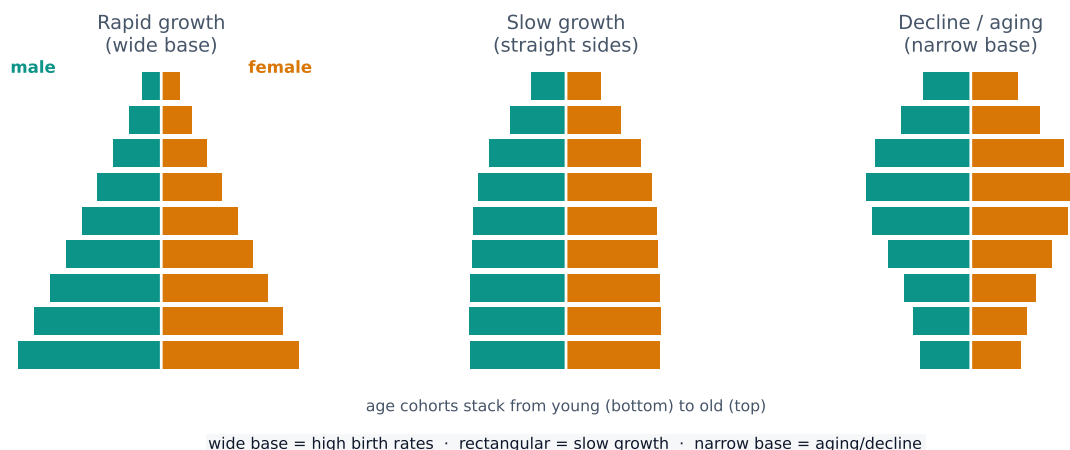
Geographers use three density measures:

- **Arithmetic density** 算术密度—total people $\div$ total land area.
- **Physiological density** 生理密度—people $\div$ area of **arable** (farmable) land; a better guide to pressure on food supply.
- **Agricultural density** 农业密度—farmers $\div$ arable land; a low value suggests more efficient, mechanised farming.

Uneven distribution creates **consequences**: crowded regions strain housing, water, and services, while empty regions may struggle to provide roads and schools.

Population Composition

Population composition 人口构成 is the make-up of a population by **age** and **sex**. It is shown on a **population pyramid** 人口金字塔—back-to-back bar charts of males and females in five-year **age cohorts** 年龄组.



A wide base means rapid growth; straight sides mean slow growth; a narrow base means decline

- A **wide base** means high birth rates and rapid growth (many young people).
- **Straight sides** mean slow, stable growth.
- A **narrow base** with a wide middle means an **aging**, shrinking population.

The **dependency ratio** 抚养比 compares dependents (under 15 and over 64) to the working-age population—a high ratio strains the workers who support them.

Population Dynamics

Populations change through births, deaths, and migration. Key rates (per 1,000 people per year):

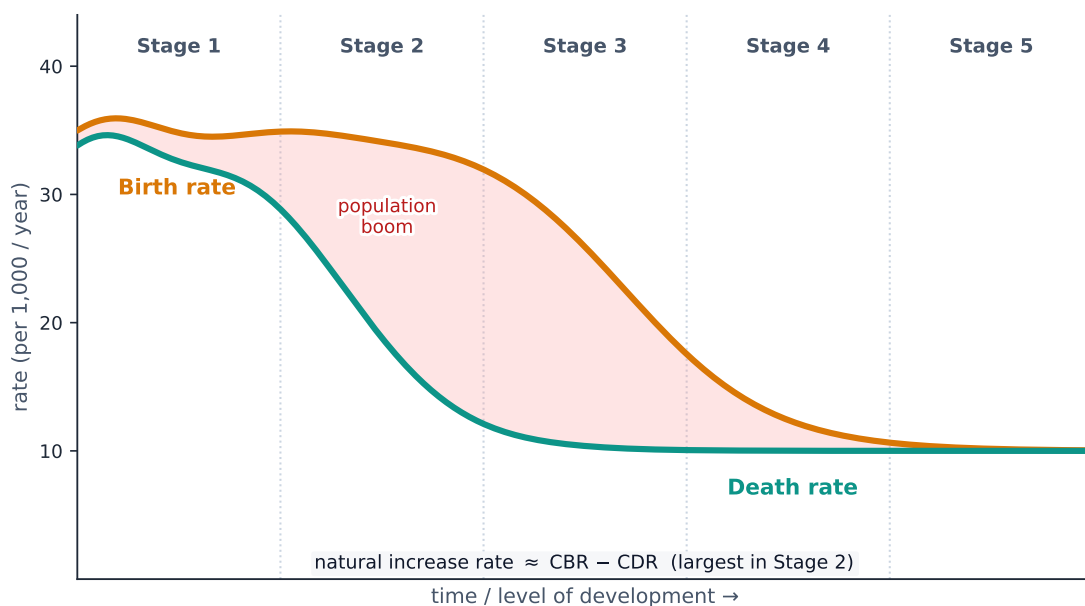
- **Crude birth rate (CBR)** 粗出生率 and **crude death rate (CDR)** 粗死亡率.
- **Rate of natural increase (RNI)** 自然增长率 = $(\text{CBR} - \text{CDR}) \div 10$, as a percentage—it ignores migration.
- **Total fertility rate (TFR)** 总和生育率—average children per woman; about **2.1** is **replacement level** 更替水平.

The **doubling time** 倍增时间 (years for a population to double) $70 \div \text{RNI}\%$. Small changes in fertility have huge long-run effects.

Worked example (a real AP exam question). *"Explain ONE reason why the rate of natural increase (RNI) in urban areas may vary significantly from RNI in rural areas in the same country."* (2023) A full-mark answer: *"In cities the cost of living—housing, schooling, childcare—is higher, so urban families tend to have fewer children. Fewer births lower the crude birth rate, so the urban RNI falls below the rural RNI, where children still help with farm work."* Notice the shape: the command word **Explain** wants a cause-and-effect chain, so you must name the reason **and** follow it all the way to the RNI. A bare fact—"cities are expensive"—earns zero.

The Demographic Transition Model

The **Demographic Transition Model (DTM)** 人口转变模型 shows how birth and death rates change as a country develops, through **five stages**.



Death rate falls first, then birth rate; the gap between them is the population boom

1. **Stage 1** —high, fluctuating CBR and CDR; slow growth (pre-industrial).
2. **Stage 2** —CDR falls (better food, medicine, sanitation) while CBR stays high; population **booms**.
3. **Stage 3** —CBR falls (urbanisation, education, women in work); growth slows.
4. **Stage 4** —low CBR and CDR; population stable and large.
5. **Stage 5** —CBR falls **below** CDR; population declines and ages.

The linked **epidemiological transition** 流行病学转变 describes how the main causes of death shift from **infectious disease** to **chronic, degenerative disease** as a country moves through the DTM.

Malthusian Theory

In 1798 **Thomas Malthus** argued that population grows **exponentially** 指数式 while food supply grows only **linearly** 线性, so population would outrun food and be checked by famine, disease, and war.

Critics say Malthus underestimated **technology**: the Green Revolution and modern farming raised food output enormously. **Neo-Malthusians** 新马尔萨斯主义者 update the worry to include water, energy, and other finite resources. The debate is a favourite exam prompt.

Population Policies

Governments try to influence population growth with policies:

- **Pro-natalist** 鼓励生育 policies encourage births (cash bonuses, parental leave, childcare) where populations are aging or shrinking —e.g. France, Japan.
- **Anti-natalist** 限制生育 policies discourage births where growth is seen as too fast —e.g. India's family-planning campaigns.

Policies have **unintended consequences**: strong anti-natal policies can skew the sex ratio or speed up aging, which later needs a pro-natal response.

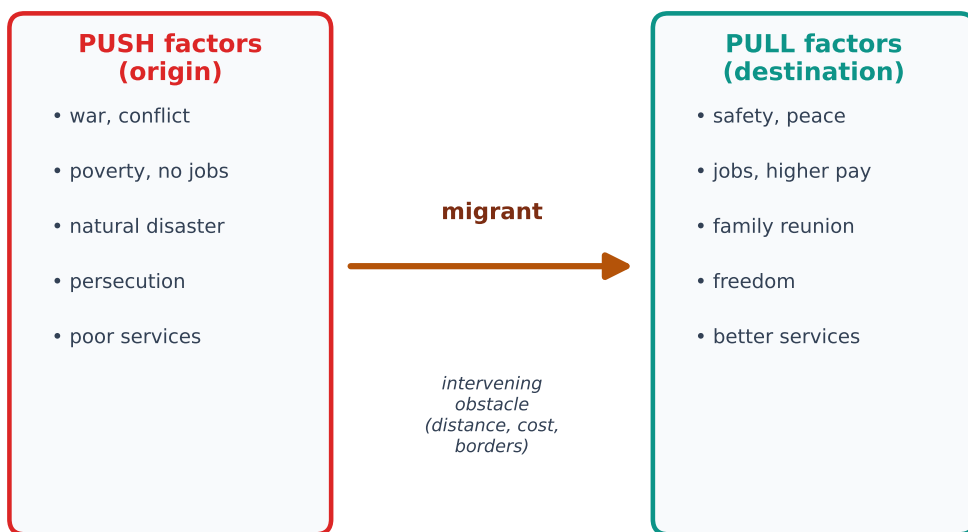
Women, Aging, and Demographic Change

The status of **women** is one of the strongest drivers of fertility. As female **education** and **employment** rise, women marry later and have fewer children, so fertility falls—a key reason countries move through the DTM.

At the other end, **aging populations** 人口老龄化 (a rising share of over-65s) bring their own challenges: higher pension and healthcare costs, a shrinking workforce, and a rising dependency ratio. Countries respond with later retirement, immigration, or pro-natal policies.

Causes and Types of Migration

Migration 迁移 is a permanent move to a new location. It is driven by **push factors** 推力 (reasons to leave: war, poverty, disaster) and **pull factors** 拉力 (reasons to arrive: jobs, safety, family).



AP HuG · U2 · migration push and pull factors

Migration decisions weigh push factors against pull factors, across an intervening obstacle

- **Voluntary migration** 自愿迁移 is by choice, usually for economic reasons.
- **Forced migration** 强迫迁移 is against a person's will —**refugees** 难民 fleeing danger, or people displaced by disaster.
- **Ravenstein's laws** describe patterns: most migrants move short distances, in steps, and are drawn mainly by economic pull.

Migration can be **international** (between countries) or **internal** (within a country, such as rural-to-urban).



Immigrants arriving in a new city: migration redistributes population and reshapes places

Effects of Migration

Migration reshapes both the **origin** and the **destination**.

- The **destination** gains workers and cultural diversity but may face pressure on housing and services and social tension.
- The **origin** may lose skilled workers (a **brain drain** 人才外流) but gain **remittances** 侨汇—money migrants send home, a major income source for many countries.
- Migration changes the age and sex structure of both places, because migrants are often young working-age adults.



New arrivals reshape cities: migration changes labour markets, culture and demographics in destination places

Exam tips

- Compute $\text{RNI} = (\text{CBR} - \text{CDR}) \div 10$ as a percent, and read doubling time as about $70 \div \text{RNI}$.
- Link a **population pyramid**'s shape to fertility and the **DTM** stage—a wide base means Stage 2.
- Remember the **death rate** falls before the **birth rate**; that is why Stage 2 grows fastest.
- Separate **push** from **pull** and **forced** from **voluntary**; a **refugee** crosses a border, an **IDP** does not.
- Weigh migration effects: **remittances** help the origin, but **brain drain** and aging hurt it.

Cultural Patterns and Processes

AP Human Geography

Introduction to Culture

Culture 文化 is the shared set of beliefs, values, practices, and objects of a group of people. Geographers split it into two parts:

- **Material culture** 物质文化—the things people make and use (clothing, tools, food, buildings, art).
- **Nonmaterial culture** 非物质文化—the ideas people hold (language, religion, values, rules).

A **cultural trait** 文化特征 is a single element of culture (using chopsticks); a group of linked traits is a **cultural complex**. **Cultural relativism** 文化相对论 is the practice of judging a culture by its own standards rather than your own.



Chinatown signs: culture is shared practices, values and symbols that people learn and pass on

Cultural Landscapes

The **cultural landscape** 文化景观 is the visible imprint of human activity on the land —buildings, farms, roads, signs, and monuments. It records the values of the people who made it.

- **Sequent occupance** 承继占用 is the idea that each group who lives in a place leaves a layer on the landscape, so the landscape shows its whole history.
- **Ethnic enclaves** 族裔聚居区, religious buildings, and language on signs are all readable clues to who lives there and what they value.



A Chinatown gate in Seattle: the architecture and bilingual signs mark an ethnic enclave, a clear imprint of one group on the cultural landscape



Chinatown street signs: cultural landscapes and diffusion leave lasting patterns in cities

Cultural Patterns

Cultures spread across space in patterns. Key ideas:

- **Centripetal forces** 向心力 pull a group together (a shared language or religion); **centrifugal forces** 离心力 push it apart.
- **Acculturation** 文化适应 (adopting some traits of another culture while keeping your own), **assimilation** 同化 (fully blending into another culture), and **syncretism** 融合 (two cultures blending into something new) describe how cultures change on contact.
- A **lingua franca** 通用语 is a common language used between groups who speak different first languages.



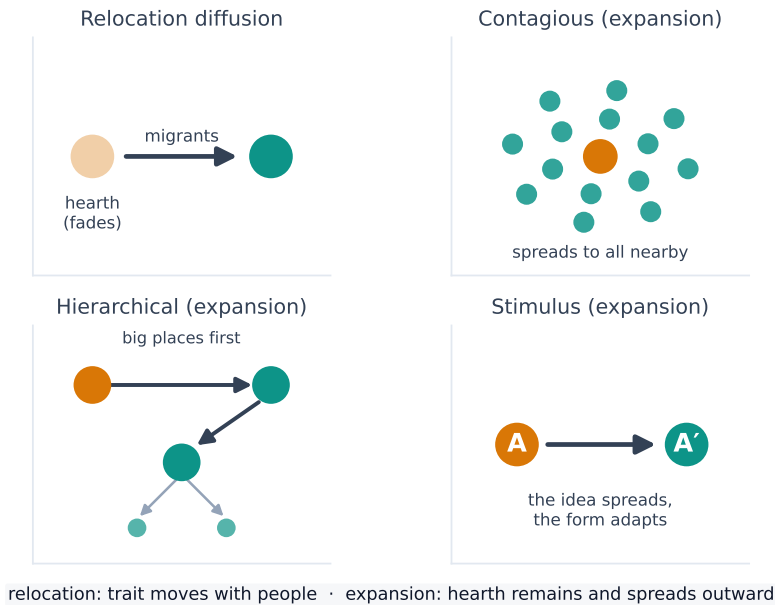
AP HuG · U3 · Three outcomes when two cultures meet

Acculturation keeps your own culture, assimilation replaces it, and syncretism blends both into something new

Worked example (a real AP exam question). *"Explain how food preferences can be a culture trait."* (2023) A full-mark answer: *"Many dishes use ingredients or ways of cooking that are unique to one culture group—for example a national dish—so choosing and eating that food expresses belonging to the group, which is what makes it a culture trait."* The command word **Explain** needs a link, not a definition: connect the food preference **to** the idea of a shared culture. Simply listing foods earns zero.

Types of Diffusion

Diffusion 扩散 is the spread of a cultural trait from its **hearth** 源地 (place of origin) to new areas. There are two big families.



Relocation diffusion moves with migrants; expansion diffusion spreads outward while staying at the source

- **Relocation diffusion** 迁移扩散—the trait moves as **people migrate**, so it appears in the new place but may fade at the source.
- **Expansion diffusion** 扩展扩散—the trait spreads outward while **staying strong at the source**. It has three types:
 - **Contagious** 传染扩散—spreads person-to-person to nearby people (like a viral video).
 - **Hierarchical** 等级扩散—jumps from big, important places to other big places first (a fashion from major cities).
 - **Stimulus** 刺激扩散—the underlying idea spreads even if the exact trait changes (a global brand adapting its menu locally).

Causes of Diffusion

Diffusion has both **historical** and **contemporary** causes.

- **Historical:** **colonialism** 殖民主义, **imperialism** 帝国主义, trade, and the spread of religion carried culture across the world for centuries.

- **Contemporary: globalisation** 全球化, the internet, transport, and **time-space compression** speed diffusion up enormously —a trend can now spread worldwide in hours.

These forces can spread culture but also threaten local traditions, raising debates about a global culture versus local identity.

Diffusion of Religion and Language

Religions and languages are the two clearest examples of cultural diffusion.

- **Universalising religions** 普世宗教 (Christianity, Islam, Buddhism) actively seek converts and spread widely by expansion and relocation diffusion. **Ethnic religions** 民族宗教 (Hinduism, Judaism) are tied to one group and spread mainly by relocation.
- Languages belong to **language families** 语系; they spread with migration and trade, and can split into **dialects** 方言 or die out as speakers switch to a dominant language.

Effects of Diffusion

When cultures spread and meet, several outcomes follow:

- **Cultural convergence** 文化趋同—cultures become more alike as they share traits (global brands, English online).
- **Cultural divergence** 文化分化—a culture becomes more distinct, often to resist outside influence.
- Diffusion can enrich a place with new food, music, and ideas, but can also erode local languages and traditions —a central tension of a globalising world.

Exam tips

- Distinguish **relocation diffusion** (people move) from **expansion diffusion** (the idea spreads and stays at its source).
- Name the expansion sub-type precisely: **contagious**, **hierarchical**, or **stimulus**.
- Separate **universalizing religions** (seek converts) from **ethnic religions** (spread mainly by birth).
- Use the **cultural landscape** —architecture, **toponyms**, **sequent occupance** — as evidence of past groups.
- For effects, keep **acculturation**, **assimilation**, and **syncretism** distinct; they are not the same.

Political Patterns and Processes

AP Human Geography

Introduction to Political Geography

Political geography 政治地理学 studies how humans divide and control space. Its key units:

- A **state** 国家 (country) is an area with defined **borders**, a permanent population, a government, and **sovereignty** 主权—full control over its own affairs.
- A **nation** 民族 is a group of people with a shared culture and identity; a **nation-state** 民族国家 is a state whose borders match one nation (Japan is close).
- A **multinational state** 多民族国家 contains several nations; a **stateless nation** 无国家民族 (like the Kurds) has no state of its own.

Worked example (a real AP exam question). *"Define the concept of an independent state."* (2025) A full-mark answer: *"A sovereign country that governs itself and its own territory, is not controlled by any outside power, and is recognised by other states."* The command word **Define** wants a short, precise meaning—one clear sentence is enough. You do **not** need examples or explanation here; save those for the "Describe" and "Explain" parts.



UN General Assembly: sovereignty and recognition among states

Political Power and Territoriality

Territoriality 领域性 is the attempt by a person or group to control people and things by controlling an area. Power is expressed geographically through control of land, people, and resources.

- **Colonialism** and **imperialism** built empires by taking control of distant territory; **neocolonialism** 新殖民主义 is continued economic control after formal independence.
- **Choke points** 咽喉要道 (narrow passages like the Suez Canal or the Strait of Malacca) and **shatterbelts** 破碎地带 (regions caught between competing powers) show how geography shapes political power.

Political Boundaries



A clear-cut landscape: political boundaries and land control shape resource use

A **boundary** 边界 is a line that marks the limit of a state's territory. Types by origin:



AP HuG · U4 · five shapes of states

States take different shapes; each shape affects how easily the state can be governed

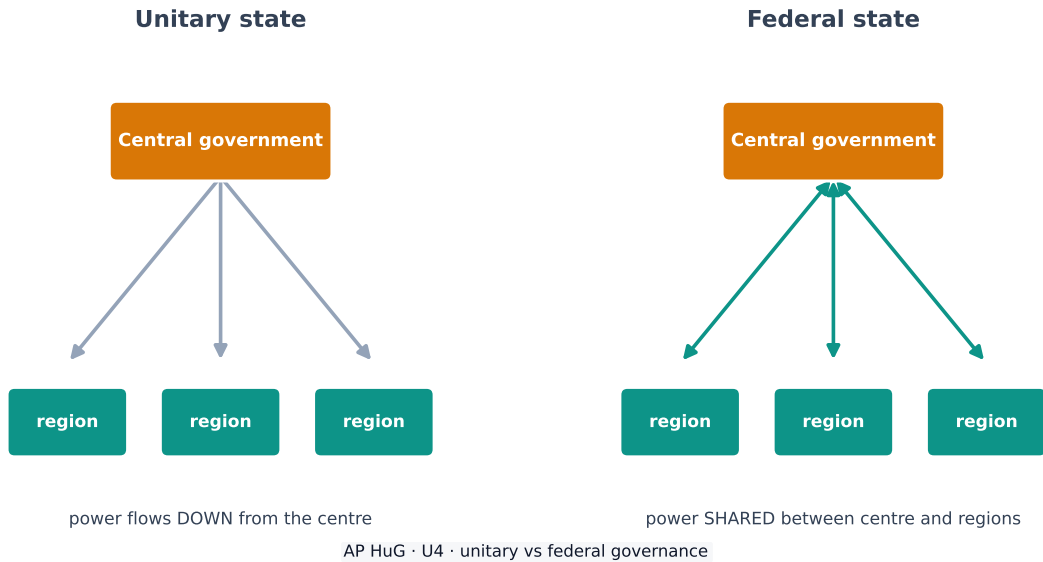
- **Antecedent** 先成边界 (drawn before dense settlement), **subsequent** 后成边界 (drawn as cultures develop), **superimposed** 叠加边界 (forced on by an outside power, ignoring local culture), and **relic** 残余边界 (no longer a border but still visible, like the Berlin Wall).
- **Definition, delimitation, and demarcation** are the steps of setting a boundary: agreeing wording, drawing it on a map, then marking it on the ground.
- At sea, the **UN Convention on the Law of the Sea (UNCLOS)** 联合国海洋法公约 sets each coastal state's **territorial sea** and an **exclusive economic zone (EEZ)** 专属经济区, defining rights to fishing and seabed resources.
- The **shape of a state** matters: **compact** states are easy to govern; **elongated**, **fragmented**, **perforated**, and **prorupted** shapes create governing challenges.

Forms of Governance



A parliament building: political geography studies how power is organised over territory

States organise power between the centre and the regions in two main ways:



A unitary state keeps power central; a federal state shares power with regional governments

- A **unitary state** 单一制国家 keeps most power in the **central** government (France). It works best in small or culturally uniform countries.
- A **federal state** 联邦制国家 shares power between the centre and **regional** governments (USA, India). It suits large or diverse countries.
- **Gerrymandering** 选区划分不公 is redrawing voting district boundaries to favour one group —a political use of geography.

Devolution and Challenges to Sovereignty

Devolution 权力下放 is the transfer of power from a central government down to regional governments. It is driven by **devolutionary factors**: ethnic or religious differences, physical geography (islands, mountains), and economic inequality.

- Strong differences can lead to **autonomy** 自治 for a region, or even a movement for full independence.
- Sovereignty is also challenged from outside by **supranational organisations** 超国家组织 (the EU, UN), by globalisation, and by the internet, which crosses borders freely.



Hard borders and contested control: sovereignty challenges on the ground

Centrifugal and Centripetal Forces

Two opposing forces act on every state:

- **Centrifugal forces** 离心力 pull a state **apart** —ethnic conflict, uneven development, and weak identity can lead to **failed states** 失败国家 and separatist movements.
- **Centripetal forces** 向心力 hold a state **together** —a shared language, national symbols, fair infrastructure, and a strong national identity (**ethnonationalism** 族裔民族主义 when tied to one ethnic group).

Governments strengthen centripetal forces (national holidays, a common language) to keep the state unified. Balancing these forces is the central task of political geography.



Cities concentrate political and economic power across territory

Exam tips

- Keep **state** (territory + sovereignty), **nation** (a people), and **nation-state** clearly separate.
- Classify a boundary by history (**antecedent** / **subsequent** / **superimposed** / **relict**) and by stage (defined to administered).
- Name the boundary-dispute type: **definitional**, **locational**, **operational**, or **allocational**.
- Compare **unitary** and **federal** governance, and link the choice to managing diversity.
- Explain instability through **centrifugal** and **centripetal** forces and **devolution**; use neutral examples.

Agriculture and Rural Land-Use Patterns and Processes

AP Human Geography

Introduction to Agriculture

Agriculture 农业 is the deliberate growing of crops and raising of animals for food and other products. A first big split:

- **Subsistence agriculture** 自给农业—farming to feed the farmer’s own family, common in less-developed regions.
- **Commercial agriculture** 商业农业—farming to sell for profit, common in developed regions and often large-scale and mechanised.

Farming also varies by **intensity**: **intensive** 集约 farming uses a lot of labour or money on a small area (rice paddies, market gardening); **extensive** 粗放 farming uses little input over a large area (ranching, shifting cultivation).

The two photos below are the two ends of the first split—one machine feeding a market versus one person feeding a family:



Commercial agriculture: one combine harvester cuts a huge wheat field with almost no labour, growing grain to sell



Subsistence agriculture: a farmer works a small plot by hand with a hoe, mainly to feed the family

Settlement Patterns and Survey Methods

How farmers settle the land leaves a lasting pattern.

- **Clustered (nucleated)** 集聚式 settlements group homes together; **dispersed** 分散 settlements spread them out; **linear** settlements follow a road or river.
- **Survey methods** divide the land: the **metes-and-bounds** system uses natural features; the **township-and-range** system uses a grid of squares; the **long-lot** system gives each farm a thin strip reaching a river or road.

Agricultural Origins and Revolutions

Farming began in a few **hearths** and spread by diffusion, then was transformed by three revolutions.

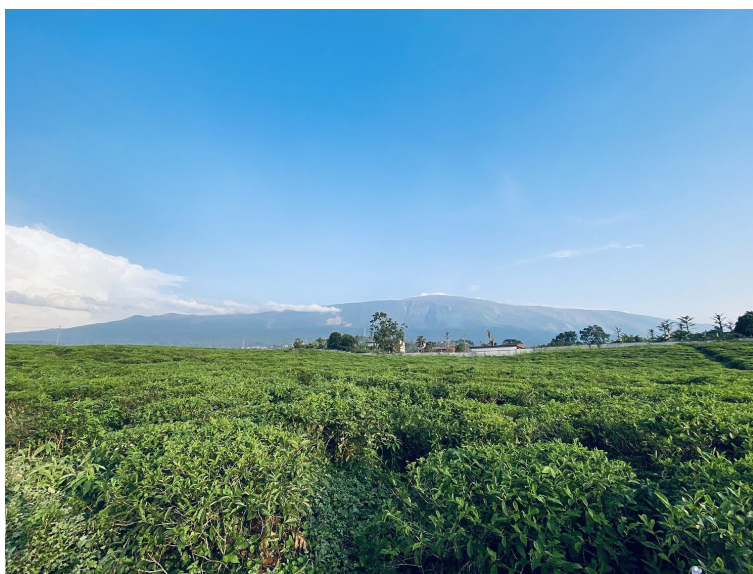
- The **First (Neolithic) Agricultural Revolution** 新石器农业革命 was the original domestication of plants and animals, letting people settle in one place.
- The **Second Agricultural Revolution** 第二次农业革命 used the tools of the Industrial Revolution (machines, better transport, crop rotation) to raise output and feed growing cities.
- The **Green Revolution** 绿色革命 (mid-1900s) introduced high-yield seeds, fertilisers, pesticides, and irrigation —hugely increasing food output, though at an environmental and social cost.

Worked example (a real AP exam question). *"Describe the concept of an early hearth of domestication."* (2023) A full-mark answer: *"A place where people first domesticated a wild plant or animal into a farmed variety, and from which that farming practice then spread to other regions."* The command word **Describe** wants more than a one-word definition —give the key features (where domestication began **and** that it spread) —but it does not require the cause-and-effect reasoning that "Explain" demands.

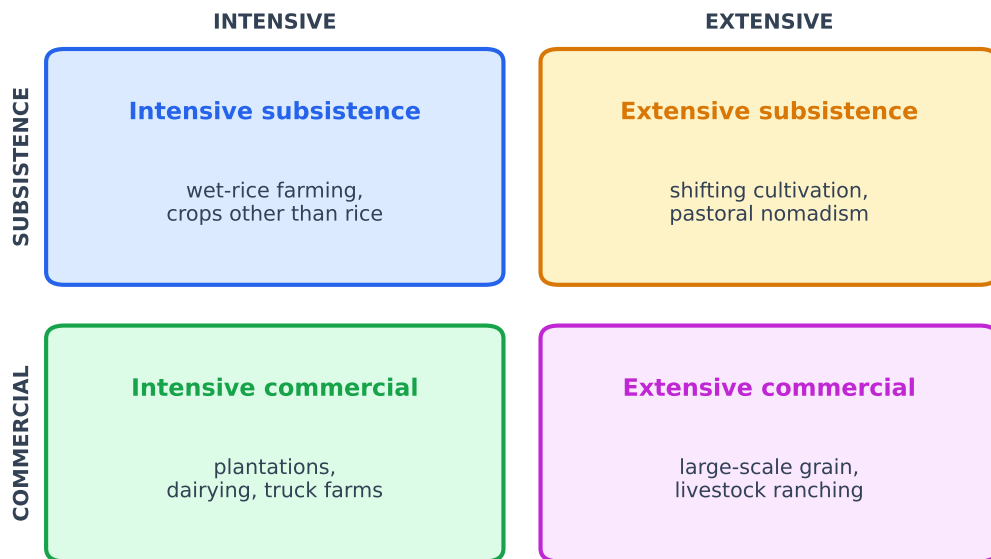
Agricultural Production Regions

The type of farming in a place depends on **climate** and **level of development**.

- Tropical regions favour **shifting cultivation** 迁移农业 (slash-and-burn) and plantation crops; dry regions favour **pastoral nomadism** 游牧 (herding).
- Developed regions have **mixed crop and livestock**, **dairying**, and large **commercial grain** farms.
- **Bid-rent theory** 竞租理论 explains why land close to a market is used more intensively: it is more expensive, so it must earn more per hectare.



A tea plantation 种植园: a single cash crop grown in neat rows over a large area, typical of tropical commercial farming

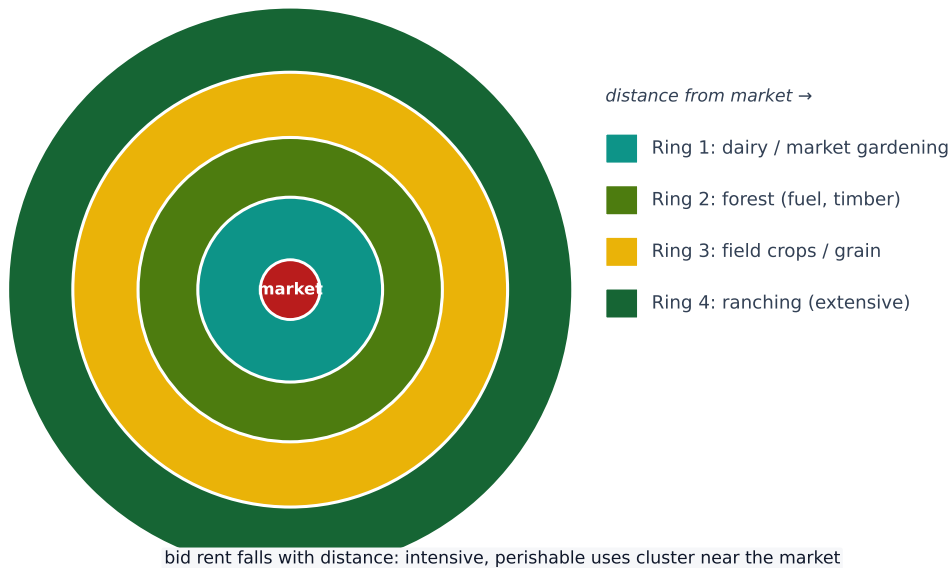


AP HuG · U5 · Agriculture classified by intensity and purpose (2x2)

Two axes —how much labour and capital go in per unit of land (intensive vs extensive), and who the food is for (subsistence vs commercial)

Spatial Organization and the Von Thünen Model

The **von Thünen model** 冯·杜能模型 (1826) explains what farmers grow **where**, based on **transport cost** and **distance to market**.



Perishable, heavy, or intensive products locate near the market; extensive uses locate farther out

- At the centre is the **market** (a city). Around it, land use forms **concentric rings**.
- **Ring 1** —market gardening and dairying (perishable, must be near market).
- **Ring 2** —forest (heavy firewood, costly to move, in his day).
- **Ring 3** —field crops and grain (less perishable).
- **Ring 4** —ranching (extensive, low value per hectare, can be far away).

The model assumes a flat, uniform plain with one market. Real regions bend the rings because of roads, rivers, terrain, and refrigeration—but the core idea, that **transport cost shapes land use**, still holds.

The Global System of Agriculture

Modern farming is a **global supply chain** 全球供应链.

- **Agribusiness** 农业综合企业 links farms to seed, machinery, processing, and retail companies.
- Many countries specialise in a few **export commodities** 出口商品 (coffee, cocoa, soy), which can make them dependent on world prices.

- **Fair trade** 公平贸易 and local-food movements are responses to the inequalities of this global system.

Consequences and Challenges of Agriculture

Modern agriculture feeds billions but creates problems:

- **Environmental:** soil erosion, water pollution from fertiliser, loss of biodiversity, **desertification** 荒漠化, and greenhouse-gas emissions.
- **Economic and social:** the loss of small family farms, rural depopulation, and questions about **food security** 粮食安全 and **GMOs** 转基因生物.
- **Land use change:** **suburbanisation** and urban growth eat into farmland at the edge of cities.



Intensive commercial farming: monocultures raise yields but can degrade soil and biodiversity

Women in Agriculture

In much of the developing world, **women** do the majority of farm labour, especially in subsistence agriculture, yet often own little of the land. Their role is central to family food supply. Improving women's access to land, credit, and education raises farm output and, by lowering fertility, links back to the demographic transition.

Exam tips

- Classify farming on two axes at once: **subsistence** or **commercial**, and **intensive** or **extensive**.
- Drive every **Von Thünen** answer with **transport cost** and the perishability of the product.
- Weigh the **Green Revolution**: higher yields against costly inputs, environmental harm, and uneven reach.
- Name the survey system (**long-lot**, **township-and-range**, **metes-and-bounds**) from the field shape.
- Connect farming to its consequences: **soil degradation**, water **pollution**, and **deforestation**.

Cities and Urban Land-Use Patterns and Processes

AP Human Geography

Origin and Growth of Cities

Urbanization 城市化 is the growth in the share of people living in cities. It began with the agricultural surplus that freed some people from farming, and accelerated with the Industrial Revolution.

- **Urbanization rate** rises fastest in developing countries today, driven by rural-to-urban migration.
- A **suburb** 郊区 is a residential area on the edge of a city; **suburbanization** 郊区化 and **sprawl** 城市蔓延 spread cities outward.
- **Site** 地点 (the physical features of a place) and **situation** 区位 (its location relative to other places) explain why a city grew where it did.

Cities and Globalization

Some cities have influence far beyond their own country.

- **World cities** 世界城市 (also called **global cities**) —such as New York, London, and Tokyo —are command centres of the global economy, finance, and culture.
- Globalization links cities into networks; a decision in one world city can affect jobs on the other side of the planet.



The Manhattan skyline in New York, a world city: its banks and company headquarters help run the global economy

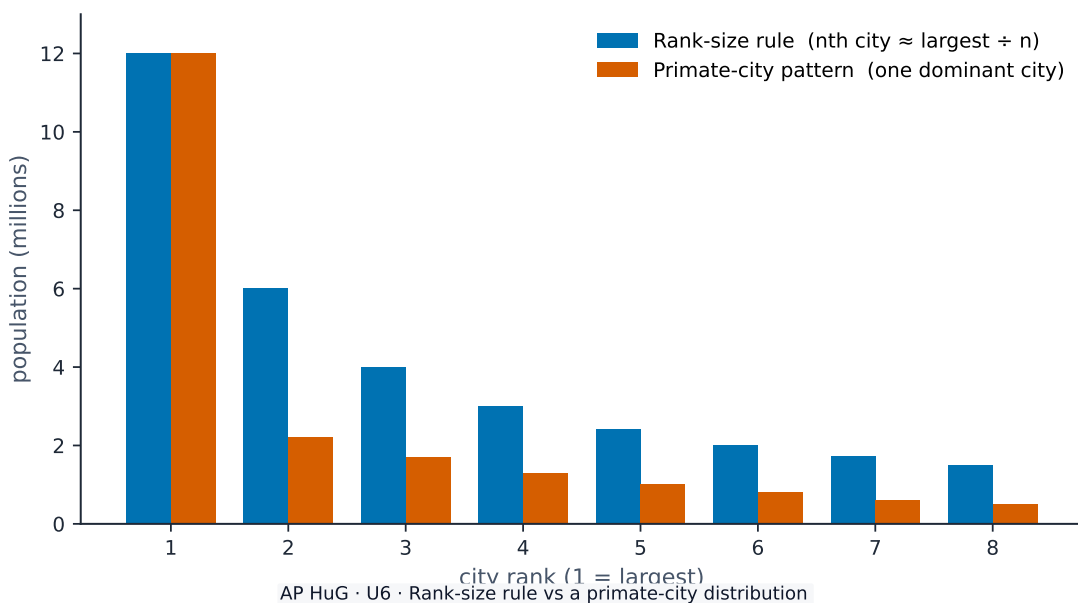


Shibuya Crossing: world cities concentrate people, infrastructure and global connections

The Distribution of Cities

Cities within a country follow patterns of size and spacing.

- The **rank-size rule** 位序规模法则 says the n th-largest city is $1/n$ the size of the largest (the 2nd city is half the largest, the 3rd a third, and so on).
- A **primate city** 首位城市 is far larger than all others (Paris, Bangkok), dominating its country.
- **Central place theory** 中心地理论 (Christaller) explains the spacing of settlements: larger centres are fewer and farther apart and offer higher-order goods; their **market area** is the surrounding region they serve.

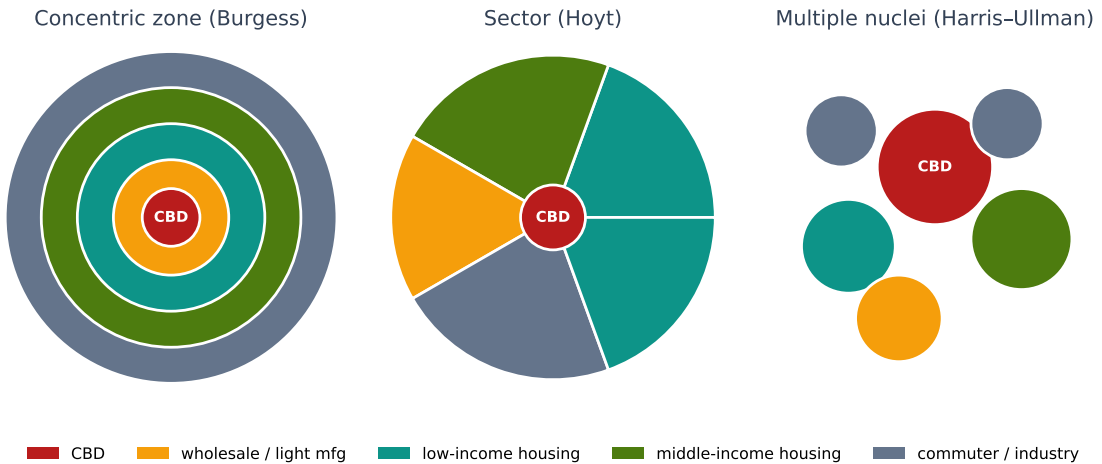


Under the rank-size rule the n th city is about $1/n$ the size of the largest; a primate pattern has one dominant city far bigger than the rest

Worked example (a real AP exam question). *"Compare the concept of a metacity with the concept of a world city."* (2024) A full-mark answer: *"A metacity is defined by size—a continuous urban area of more than 20 million people—while a world city is defined by influence, acting as a command centre for the global economy. A city such as Tokyo can be both, but a large metacity in a poorer country may not be a world city."* The command word **Compare** needs an explicit point of difference (size versus influence), not two separate definitions sitting side by side.

The Internal Structure of Cities

Three classic models describe how North American cities are arranged inside.



The concentric-zone, sector, and multiple-nuclei models each explain city land use differently

- **Concentric zone model** 同心圆模型 (Burgess) —rings around the **Central Business District (CBD)** 中央商务区, from inner-city to commuter suburbs.
- **Sector model** 扇形模型 (Hoyt) —land use grows outward in wedges along transport routes.
- **Multiple nuclei model** 多核心模型 (Harris-Ullman) —the city has several centres (nodes), not just one CBD, as it grows and specialises.

Developing-world cities have their own models (e.g. the Latin American, or Griffin-Ford, model with a spine of wealth from the centre).

Density, Land Use, and Infrastructure

Inside the city, land use and density change from centre to edge.

- **Density** is highest near the CBD (tall buildings, high land prices) and falls outward—the **bid-rent** curve again.
- **Zoning** 分区规划 laws separate land uses (residential, commercial, industrial).
- **Infrastructure** 基础设施—roads, water, power, transit—must grow with the city; where it lags, **informal settlements** 非正规住区 (slums) may form.



An informal settlement (favela) on a hillside in Rio de Janeiro, built where housing and services could not keep up with fast urban growth

Urban Sustainability and Data

Planners use **data** and design to make cities work better.

- **Smart-growth** 精明增长, **mixed-use** development, and **transit-oriented** design fight sprawl and car dependence.
- **Greenbelts** 绿带 limit outward growth; **urban renewal** 城市更新 rebuilds decayed areas, but can cause **gentrification** 中产阶级化 that displaces poorer residents.
- Census and geospatial **data** guide where to put schools, transit, and services.

Challenges of Urban Changes and Sustainability

Rapid urban growth brings problems:

- **Social:** housing shortages, segregation, and the displacement caused by gentrification.
- **Environmental:** air and water pollution, the **urban heat island** 城市热岛 effect, waste, and heavy resource use.
- **Economic:** strained budgets, congestion, and the cost of extending infrastructure to sprawling edges.

Sustainable cities try to grow **up** rather than **out**, invest in public transit, and mix homes with jobs and services.

Exam tips

- Separate a city's **site** (physical setting) from its **situation** (position relative to others).
- Apply the **rank-size rule** (the n th city is about $1/n$ of the largest) and spot a **primate city**.
- Match a city description to the right model: **concentric zone**, **sector**, or **multiple nuclei**.
- Link **land value** to density —costly central land is used by building upward.
- Discuss change with **suburbanization**, **sprawl**, and **gentrification**, and **smart-growth** responses.

Industrial and Economic Development Patterns and Processes

AP Human Geography

The Industrial Revolution

The **Industrial Revolution** 工业革命 (from the 1700s) shifted production from hand tools in homes to machines in factories, first in Britain and then worldwide. It transformed geography:

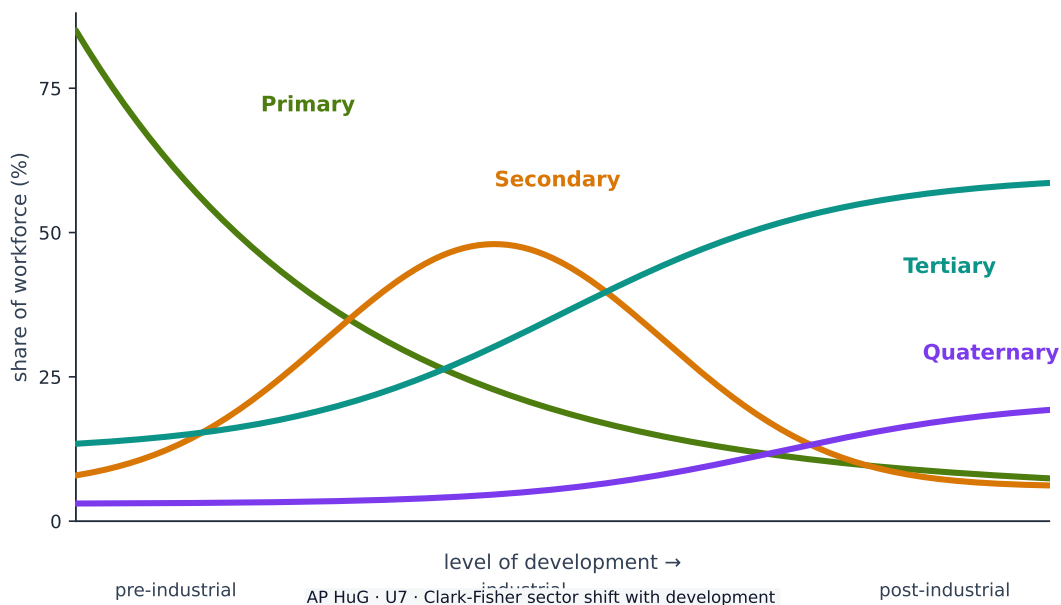
- Industry clustered where **resources** (coal, iron) and **transport** (rivers, ports, rail-ways) came together.
- It powered **urbanization** as workers moved to factory cities, and it began the huge, uneven spread of wealth between world regions.
- **Break-of-bulk points** 转运点 (ports, rail hubs where cargo changes transport) became key industrial locations.



A container port: ships, cranes, and rail meet here, so goods change transport. Such break-of-bulk points became major industrial locations

Economic Sectors and Patterns

An economy's jobs fall into sectors, and the mix shifts as a country develops.



As development rises, workers move from primary (farming) to secondary (industry) to tertiary and quaternary (services)

- **Primary sector** 第一产业—extracting raw materials (farming, mining, fishing).
- **Secondary sector** 第二产业—manufacturing raw materials into goods.



Robots welding on a factory line: the secondary sector turns raw materials into finished goods, increasingly with automation

- **Tertiary sector** 第三产业—services (retail, transport, healthcare).
- **Quaternary** 第四产业 and **quinary** sectors —information, research, and top decision-making.

Poorer economies lean on the primary sector; richer ones on the tertiary and quaternary. **Weber's least-cost theory** 韦伯最小成本理论 explains where factories locate, balancing the cost of transport, labour, and agglomeration.

Worked example (a real AP exam question). *"Explain how deindustrialization has affected the economy of core countries."* (2025) A full-mark answer: *"As factories closed or moved abroad, core-country economies shifted away from manufacturing toward services and high-technology work, so many manufacturing workers lost their jobs while new tertiary and quaternary jobs grew."* The command word **Explain** wants the mechanism: name the change (loss of manufacturing) **and** carry it through to its economic effect. A one-word answer like "unemployment" is not enough.

Measures of Development

Development 发展 is the process of improving people's economic and social well-being. It is measured in several ways:

- **Gross Domestic Product (GDP) per capita** 人均国内生产总值—economic output per person; a common but incomplete measure.
- The **Human Development Index (HDI)** 人类发展指数 combines income, education (years of schooling), and health (life expectancy) into one score from 0 to

1—a fuller picture than money alone.

- The **Gender Inequality Index (GII)** 性别不平等指数 and the **Gini coefficient** 基尼系数 (income inequality) add social detail.

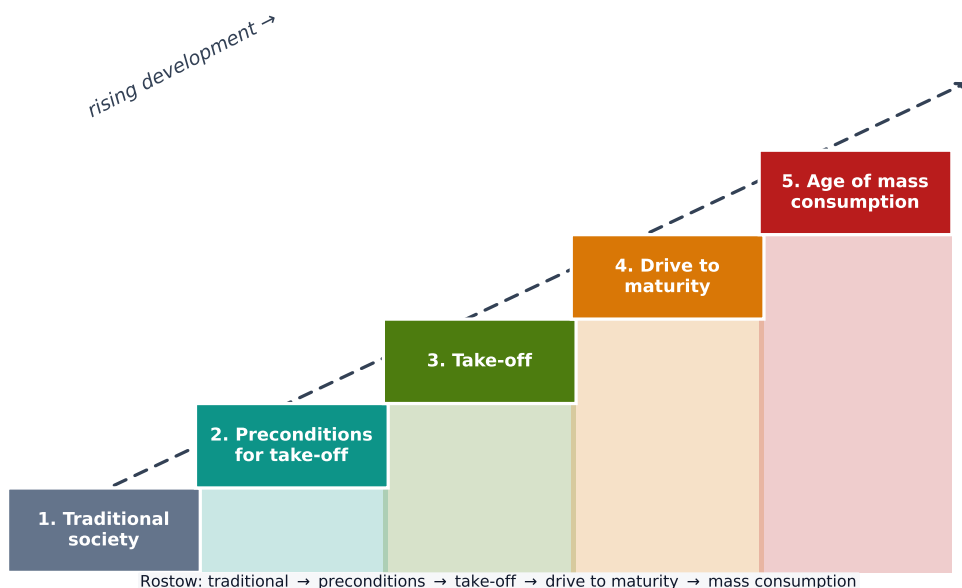
Women and Economic Development

The role of **women** is both a cause and a measure of development.

- As economies develop, more women enter paid work and education, which raises household income and lowers fertility (linking back to the demographic transition).
- **Microfinance** 小额信贷—small loans, often to women—helps start businesses in poorer regions.
- Gender gaps in pay, land ownership, and schooling hold development back; closing them is one of the UN's key goals.

Theories of Development

Two famous theories explain **why** some regions are rich and others poor.



Rostow sees development as a climb through five stages; critics say it ignores global inequalities

- **Rostow's stages of growth** 罗斯托发展阶段—every country climbs through **five stages**: traditional society, preconditions for take-off, take-off, drive to maturity,

and age of mass consumption. It is optimistic but assumes all countries can follow the same path.

- **Wallerstein's world-systems theory** 沃勒斯坦世界体系理论 divides the world into a wealthy **core** 核心, a poorer **periphery** 边缘, and a middle **semi-periphery** 半边缘. The core stays rich partly by using the periphery's cheap labour and resources —a **dependency** 依附 view that challenges Rostow.

Trade and the World Economy

Countries are linked by trade, which reshapes development.

- **Comparative advantage** 比较优势 means each country gains by specialising in what it makes most efficiently and trading for the rest.
- **Complementarity** and **neoliberal** free-trade policies, plus organisations like the WTO and trade blocs (EU, USMCA), have deepened **globalization**.
- **Outsourcing** 外包 and global supply chains move manufacturing to lower-cost countries, changing where —and by whom —the world's goods are made. **Special economic zones** 经济特区 attract this investment with tax breaks.



Container ports link global trade: goods, capital and ideas move through the world economy

Sustainable Development

Sustainable development 可持续发展 meets present needs without harming the ability of future generations to meet theirs.

- It tries to balance **economic growth**, **social fairness**, and **environmental protection** —the “three pillars”.
- **Ecotourism** 生态旅游 and small-scale, renewable projects can develop an economy while protecting the environment.
- The UN’s **Sustainable Development Goals (SDGs)** 可持续发展目标 set shared targets for poverty, health, education, and climate —a common way to measure progress today.



A solar farm: sustainable development balances growth with long-term environmental capacity

Exam tips

- Classify jobs by **sector** (primary through quinary) and tie the mix to the development level.
- Prefer the **HDI** over GDP per capita —it adds education and life expectancy.
- Contrast **Rostow’s stages** with **world-systems** (core and periphery) and **dependency** theory.
- Use **comparative advantage** and the effect of **tariffs** in any trade answer.
- Bring in **sustainable development** and the **ecological footprint** for evaluation marks.