FOR THE
IB DIPLOMA
PROGRAMME

Geography

GLOBAL CHANGE

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SL AND HL CORE

PREPARE FOR SUCCESS

Boost

HODDER EDUCATION

Contents

Unit 1 Changing population

1.1 Population and economic development patterns

Revised

The study of population patterns and dynamics is a foundation topic for Geography. The purpose of this first chapter is to provide you with a broad, factual and conceptual introduction to population studies. This chapter also introduces the key concept of **development** and explores how levels of development vary spatially at different geographical **scales**.

Development, like some other key ideas you encounter in your geography course, is a contested concept. This means that perspectives vary about its value. First, the term 'developed country' is problematic because the phrase suggests that processes of historical change and progress have now ended for countries like the USA – a claim that you can surely find reasons to disagree with. Second, some scholars think the notion of a 'developed' country is a biased one, because it is based on Western assumptions about how societies are expected to change politically, economically and culturally over time. Others argue that development is an entirely valid idea.

PPPPSS CONCEPTS

Theories and models of the development **process** are increasingly contested. Key development debates include questions such as: What does development really mean? How can development be measured? Should any country be described as being truly 'developed' yet?

Population distribution at the global scale

Revised

Population distribution and **population density** patterns can be investigated at varying spatial scales. Figure 1.1 shows the global distribution of population. Important features include the following:

- People are distributed unevenly among the world's continents. Over half of Earth's population is in Asia; 1.4 billion people live in Africa and a further billion are spread across North and South America. The figures for Europe and Oceania (Australia and New Zealand) are 750 million and 44 million respectively (2022 data).
- Many people live along coastlines; relatively fewer inhabit the continental interiors. This is one reason why the **Lorenz curve** for global population distribution looks the way it does (Figure 1.2).
- Just one-third of Earth's surface is land and more than two-thirds of this is inhabited by fewer than 20 persons per square kilometre, including (when looking at the national average) Russia, Canada, Australia, Greenland, most of South America, Antarctica and Saharan Africa.

Keyword definitions

Development Human development generally means the ways in which a country's people strive to grow economically and also to improve their quality of life. A country's level of development is most often shown by economic indicators of average national wealth and/or income, but can encompass social and political criteria, too.

Scale Places, areas or territories can be studied and identified at a variety of geographic scales, from a local level to the national or state level. The global distribution of population is a macroscale (planetary scale) data pattern. In contrast, very small-scale patterns are sometimes called microscale distributions.

Population distribution A description of the way in which people are spread out across the Earth's surface. For instance, around 4 billion people live in Asia.

Population density The number of people living within a specified area. For instance, the population density of large parts of New Mexico (USA) is less than one person per square kilometre.

Lorenz curve A diagrammatic expression of the extent to which a distribution is unequal. The dashed straight diagonal line on a Lorenz curve shows a perfectly even and equal distribution. The further away the solid curved line deviates from this dashed line, the greater the level of inequality that actually exists for the scenario shown.

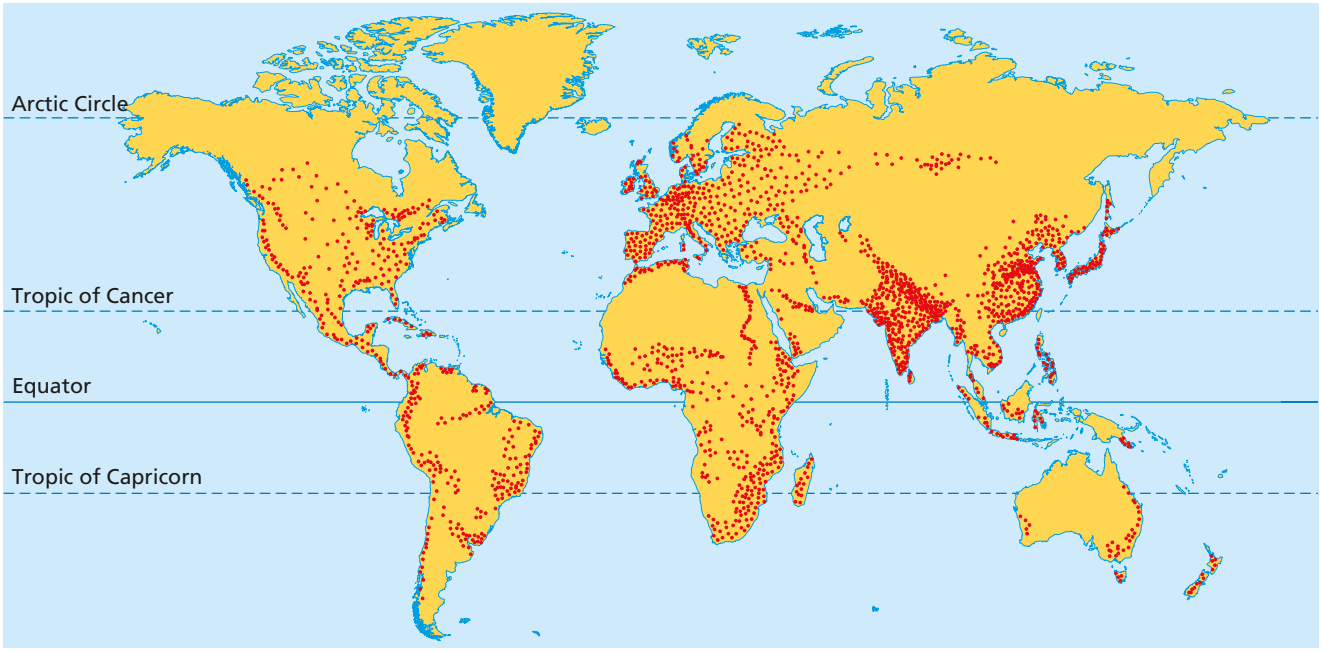


Figure 1.1 Dot map showing the global distribution of areas where there is a high density of population

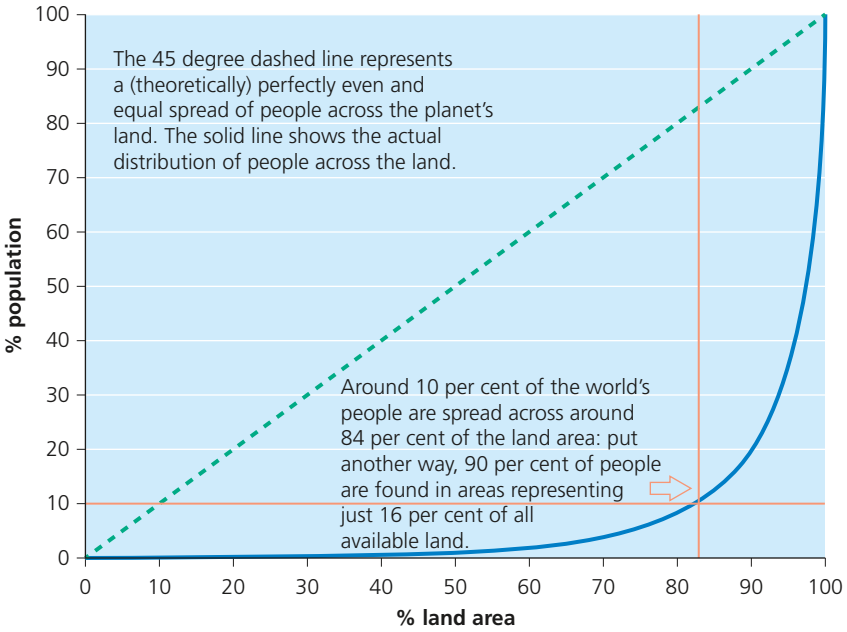


Figure 1.2 A Lorenz curve showing the unequal distribution of the world's population. Table 1.1 on page 3 explores possible reasons for this

PPPPSS CONCEPTS

Use the concept of **scale** to analyse population patterns in your own country. Begin by thinking about how people are distributed within your local neighbourhood; then analyse the pattern at a larger scale, for example in your country as a whole.

Physical and human factors affecting global population distribution

Both physical and human factors affect population distribution patterns at the global scale (Table 1.1). Historically, early settlers in any world region lived, either by choice or necessity, wherever the environment provided them with 'a foothold to livelihood'. Even today, around one-third of the world's economically active population obtains its food and/or income by actively farming the land. This means that physical influences on food production – including climate and soil fertility – remain hugely important factors in determining where more than 2 billion of the world's people live and work.

- This partly explains the low levels of density in continental interiors: inaccessibility and extremes of climate (including high daily or annual temperature ranges) mostly discourage large-scale settlement in central areas of Asia, Saharan Africa, Australia and South America.

- Historically, fewer people have settled permanently in regions where water availability is lacking for all or part of the year, such as the Sahara and Gobi deserts. In contrast, a linear distribution of population can be observed in Figure 1.1 following the course of major rivers including the Nile and Amazon.
- Population tends to be sparse in mountainous regions such as the Tibetan plateau and American Rockies.

In the absence of technology, physical factors help establish whether or not a region will become home to a significant human population. Over time, however, imbalances between regions may become amplified or lessened on account of human factors.

- For instance, hot and dry climates may attract large numbers of settlers once sufficient capital and technology are available to provide water supplies artificially. Between 2000 and 2010, several states in the USA's **arid** southwest experienced rapid population growth rates more than double the national average. These were Nevada (35 per cent), Arizona (25 per cent) and Utah (24 per cent). This rapid growth has been sustained by pipeline transfers of water from the Colorado River.
- The uneven distribution of mineral deposits and fossil fuels can help explain pockets of prosperity in areas where population is generally sparse as a result of climatic factors. The growth of large urban areas in the Middle East – including Riyadh in Saudi Arabia and Doha in Qatar – has been made possible by 'petrodollars' (oil wealth), which pays for air conditioning and the **desalinization** of seawater.
- In geography, explanations which over-emphasize physical influences but neglect human factors are generally criticized on account of their so-called **environmental determinism**.

Keyword definitions

Arid A climate whose precipitation is less than 250 mm annually.

Desalinization The removal of salt water and other minerals from seawater. The process is costly and requires desalinization plants to be built.

Environmental determinism The over-simplistic and discredited idea that what human societies can or cannot achieve is decided mainly by physical environmental factors – such as climate and local resource availability. This view ignores important technological, cultural and political factors, such as innovation, cooperation or conflict.

Table 1.1 How physical and human factors can influence large-scale variations in population distribution

		Sparse population	Dense population
Physical factors	Physical accessibility	Rugged mountains (Alps) High plateaux (Tibet)	Flat lowlands (Netherlands, Nile valley)
	Relief and soils	Frozen soils (Siberia) Eroded soils (Sahel)	Deep humus (Paris basin) River silt (Ganges delta)
	Climate	Low temperatures (Canada and Alaska)	Longer growing season (tropical Asia)
	Vegetation	Dense forest which restricts human activity (Amazonia)	Grassland ecosystems (eastern Europe)
	Water supply	Insufficient or unpredictable supply (Australian desert)	Mostly reliable all-year supply (Western Europe)
Human factors	Economic factors	Extensive agriculture (few workers needed per unit area)	Ports (Singapore) Intensive farming (China)
	Political factors	Low levels of state investment (interior of Brazil)	Forced movements (Soviet settlement of Siberia)
	Technological factors	Lack of technology needed to increase water availability	Irrigation and desalinization technologies available

Hazards, resources and human settlement

Another useful way of investigating population distribution is to think critically about the following hypothesis: 'People are most likely to live where resources are maximized and hazards are minimized.' Is this statement broadly true? In fact, the relationship is far more complex than it may appear initially.

- Firstly, it is important to recognize that hazards and resources are, essentially, two sides of the same coin. Both are best described as 'relationships' between humans and the natural world. The only difference is that resources are a 'positive' interaction and hazards are a 'negative' interaction (Figure 1.3).
- Secondly, many things found in the natural environment are both a hazard *and* a resource: rivers and coastlines function as sources of water, food or transport and yet can be incredibly dangerous to live next to. Many of the world's highest-density pockets of population are located in tectonically hazardous areas. This is because they have been drawn to coastlines that have formed along continental plate boundaries. The Californian coastline is a good example of this: the economic success of Los Angeles and San Francisco owes much to their position on the Pacific coastline. However, these are also dangerous places to live on account of the high earthquake risk.
- Relationships between people and the environment are constantly changing because of technology. We can build defences to protect ourselves from river flooding while continuing to make use of its water as a resource. Thanks to water transfer schemes, the city of Las Vegas currently prospers in a desert area that was once viewed as a life-threatening environment.

In summary, the relationship between physical factors and population distribution is complex, dynamic and mediated by technology. It is best to think carefully before making sweeping and deterministic generalizations that attempt to link the presence or absence of people with particular types of hazard or climate.

PPPPSS CONCEPTS

Think about how human and physical factors interact in ways which give rise to uneven population patterns at continental and global scales. Also, think about how differences in **power** may allow one group of people to unfairly exploit and profit from the natural resources that rightly belong to another group of people.

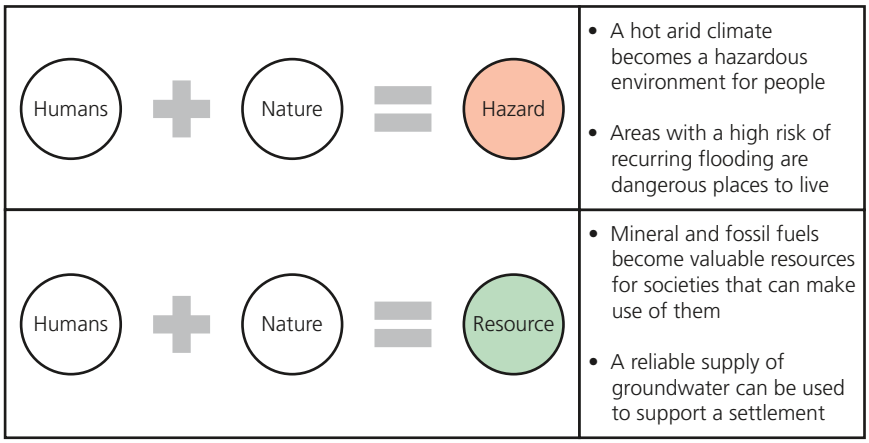


Figure 1.3 Hazards are harmful interactions between humans and the natural world; resources are beneficial interactions

Global patterns and classification of economic development

Revised

Becoming familiar with the world development map is still viewed as an important foundation step for studying Geography. The uneven pattern of global development is shown in Figure 1.4. This shows the world divided crudely into a core of high-income developed countries, a semi-periphery comprised of middle-income countries (or emerging economies) and a periphery of low-income developing countries. The characteristics of these three global groups are outlined further in Table 1.2.

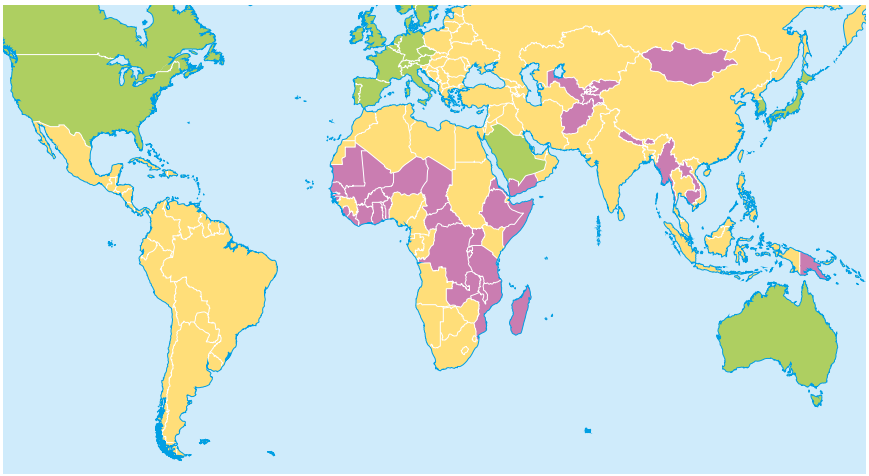
The distribution pattern for emerging economies (EEs) and low-income countries (LICs) is complicated and is changing constantly. Key features are that:

- most South American countries are EEs
- both Asia and Africa now have more EEs than LICs
- some Eastern European countries (including some European Union members) have been classified as EEs.

The global pattern of economic development has changed radically over time. In the 1980s, there was still a clear divide between the rich 'Global North' and the poor 'Global South'. This crude economic division now appears outdated when you consider that:

- China has become the world's largest economy
- several of the world's highest-income countries, including Qatar, Kuwait and Singapore, are part of what used to be called the 'Global South'
- large numbers of millionaires and billionaires can be found in every populated continent, including Africa.

However, the terms **Global North** and **Global South** remain useful – for example, in relation to studies of historic climate change responsibility and climate justice (see page 67) or the geography of global power.



Key	World Bank category	Average income (US$)
Low-income countries	Low income	1035 or below
Emerging economies	Middle income	1036–12,695
High-income countries	High income	12,696 or more

Figure 1.4 The world map of development (World Bank data 2020)

Table 1.2 The three main groups of countries (classified by per capita income and economic structure)

Low-income developing countries ***Global periphery***	This group of around 30 countries is classified by the World Bank as having low average incomes of US$1035 or below (2020 values) and a low per capita gross domestic product (GDP). Agriculture still plays an important role in their economies. Some of these states suffer from political instability and conflict; some, including Somalia and Eritrea, have been described disrespectfully as 'failed states' (the term 'fragile state' may be preferable to use).
Middle-income emerging economies (EEs) ***Global semi-periphery***	These are around 100 countries that have begun to experience higher rates of economic growth, usually due to rapid factory expansion and industrialization. The number of EEs has increased rapidly in recent decades: this is linked to the spread of **globalization** and investment by **transnational corporations (TNCs)** in EEs (leading to economic 'take-off' being achieved). Emerging economies are roughly synonymous with the World Bank's 'middle-income' category of countries and include China, India, Indonesia, Brazil, Mexico, Nigeria and South Africa. They are home to 75 per cent of the world's population and a rising number of the 'global middle class' (people with discretionary income they can spend on consumer goods). Definitions of this vary: some organizations define the global middle class as people with an annual income of over US$10,000; others use a benchmark of US$10 per day income.
High-income developed countries (HICs) ***Global core***	This group of nearly 80 countries is classified by the World Bank as having high average incomes of US$12,696 or above (2020 values). Around half are sometimes called 'developed' countries. Many are states where office work has overtaken factory employment, creating a 'post-industrial' economy. There are around 40 smaller high-income countries and territories (of roughly one million people or fewer), including Bahrain, Qatar, Liechtenstein and the Cayman Islands.

Keyword definitions

Global North and **Global South** A way of distinguishing between the privileged, powerful and wealthy countries of the Western world and Japan ('Global North') and the African, Asian and Latin American countries ('Global South') who were historically marginalized, oppressed or colonized by European countries in particular. Many geographers use the 'Global South' term in preference to 'developing countries' because the latter may be viewed as a disrespectful or patronizing label.

Globalization The variety of accelerating ways in which places and people have become connected with one another as part of a complicated global system.

Transnational corporations (TNCs) Businesses whose operations are spread across the world, operating in many nations as both makers and sellers of goods and services. Many of the largest are instantly recognizable 'global brands' that bring cultural change to the places where products are consumed.

Measuring economic development using gross domestic product (GDP)

Gross domestic product (GDP) is a widely used measurement of national economic wealth that can be used to map spatial variations in economic development. It is one of the best-known measures of national and global prosperity used by the World Bank, which recently estimated pre-pandemic global GDP in 2019 at about US$87 trillion. The World Bank's predicted post-pandemic value for 2025 is US$121 trillion.

Calculating GDP is not an easy task. Numerous earnings of citizens and businesses need to be accounted for, not all of which are easily recordable. Work in the **informal sector** of employment is notoriously hard to quantify. Table 1.3 shows the numerous steps that are taken to calculate GDP data.

Table 1.3 Quantifying a country's economic development in four steps using the GDP formula

Step	
1	Individual countries make a calculation of their GDP each year, using globally agreed guidelines (overseen by the United Nations). Data are generated using a country-specific formula which establishes the weighting given to different economic sectors, such as agriculture and industry. This same weighting – or set of sums – is re-applied every year until it is felt the formula should be changed (for instance, when a country is developing rapidly).
2	The figures are then verified by international organizations such as the International Monetary Fund, the World Bank or the African Development Bank.
3	The next step is to convert all of the national GDP estimates into a common currency, US dollars, in order for comparisons and ranking (however, the volatility of exchange rates means that some GDP data may quickly become an unreliable way of comparing countries).
4	Economists believe that, at the same time as they are converted into US dollars, each country's GDP data should additionally be manipulated so that an estimate of the real cost of living, known as **purchasing power parity** or PPP, is factored in. Simply put, in a low-cost economy, where goods and services are relatively affordable, the GDP should be increased and vice versa. This is why, if you consult Wikipedia, you will find two estimates given of every country's GDP. Brazil, for instance, had a 'nominal' GDP of US$1.64 trillion in 2021, and a 'PPP' GDP of US$3.32 trillion. This suggests that the price of, say, a chocolate bar, is relatively cheaper in Rio than it is in New York – can you see why this is the case?

While there is some obvious merit in using GDP to measure development, there are considerable grounds for criticism too. A good example is the way Nigeria's government doubled the size of its own GDP in 2014 to become Africa's largest economy, ahead of South Africa. Had Nigeria suddenly become richer?

- In fact, what had happened was a 're-basing' of the GDP formula.
- Up until then, Nigeria's national film industry, known as Nollywood, had been excluded from the country's GDP data. This was because the GDP formula has been written in 1990 when the structure of Nigeria's economy was very different and the film industry, banking and telecoms had barely taken off.
- The Nigerian government therefore decided to reduce agriculture's share of GDP from 35 per cent to 22 per cent; contrastingly, the weight of telecoms was increased from just 1 per cent of GDP to 9 per cent. Nollywood earnings were included in the calculation for the first time.
- As a result, Nigerian GDP for 2013 was US$509 billion, 89 per cent larger than the previous year. Like most countries, during the Covid-19 pandemic, Nigeria experienced economic decline and the figure fell to US$432 billion (2020 value).

Keyword definitions

Gross domestic product (GDP) A measure of the total value of the output of final goods and services inside a nation's borders. Each country's annual calculation includes the value added by any foreign-owned businesses that have located operations there.

Informal sector Unofficial forms of employment that are not easily made subject to government regulation or taxation. Sometimes called 'cash in hand' work, informal employment may be the only kind of work that low-skilled or marginalized people can get.

Purchasing power parity (PPP) A measure of average wealth that takes into account the cost of a typical 'basket of goods' in a country. In low-income countries, goods often cost less, meaning that wages go further than might be expected in a high-income country.

PPPPSS CONCEPTS

Think about the **processes** by which data are created. How reliable and valid are the data we use to study people and economies? Do the data perhaps tell us more about the process that created them than they do about any 'real' or measurable phenomenon?

Variations in population and development at the national scale

Revised

Within all countries, population density varies between local regions, resulting in an uneven population distribution. In some cases, the differences are extreme: 99 per cent of Egypt's people live in the Nile valley (just 4 per cent of the total land area). More than 30 per cent of the UK's population are in the southeast of England, living at a density level of more than 300 persons square kilometre. In contrast, just 4 million people inhabit Scotland, despite its much larger area. This population imbalance is both caused by, and further creates, a national economic balance.

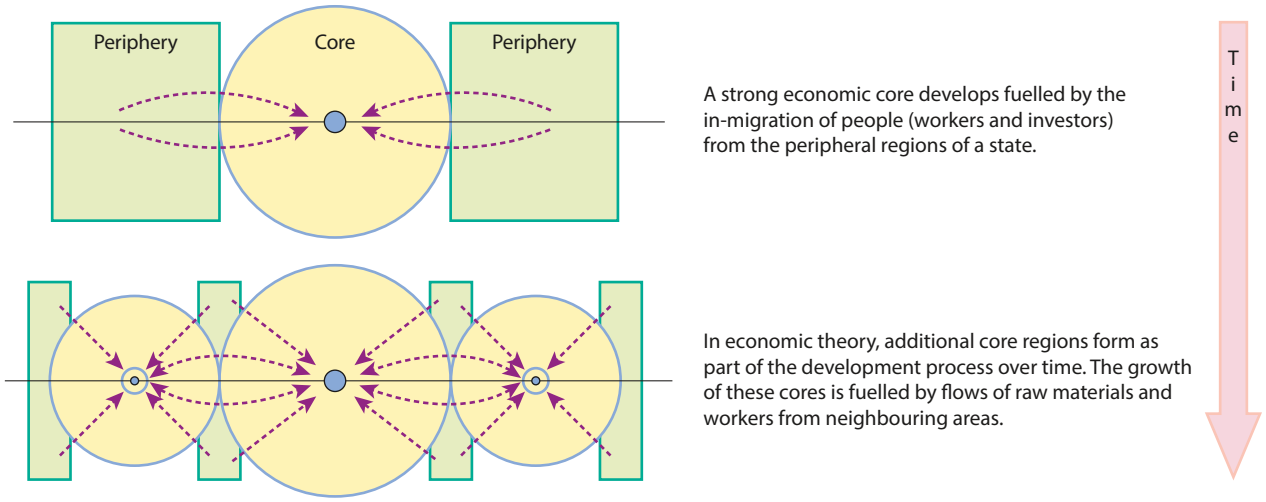


Figure 1.5 Backwash processes in the Friedmann core-periphery model

Regional imbalances arise initially within countries because of physical factors and the natural advantages of certain locations over others (such as raw material availability or the presence of a coastline). Subsequently, these favoured areas become national-scale 'core' regions. They build on their natural advantage through time: the centripetal (attracting) force they exert draws in ambitious migrants, investors and resources from other regions. This virtuous circle of spiralling growth was called 'cumulative causation' by the theorist Gunnar Myrdal. The inflows of migrants and resources to the core are called **backwash** effects (Figure 1.5).

The result of cumulative causation is the development of national **core-periphery systems** that keep strengthening over time on account of positive feedback effects.

Sometimes, this process of core-periphery polarization can be seen operating at larger spatial scales than the state level. Within the European Union (EU), free movement of labour has helped an international core-periphery pattern to develop. The EU core region encompasses northern France, Belgium and much of western Germany. It includes the world cities of Paris, Brussels and Frankfurt. Labour migration flows from eastern and southern Europe are directed overwhelmingly towards these places.

Keyword definitions

Backwash Flows of people, investment and resources directed from peripheral to core regions. This process is responsible for the polarization of regional prosperity between regions within the same country.

Core-periphery system The uneven spatial distribution of national population and wealth between two or more regions of a state or country, resulting from flows of migrants, trade and investment.

Voluntary internal migration

Much of the voluntary **internal migration** that takes place within core-periphery systems is directed from rural to urban areas. This rural–urban migration is the result of push and pull factors and is encouraged further by the availability of good transport links and communications.

- In terms of the numbers involved, rural–urban migration is the most significant population movement occurring globally. Within a few years, there will be one billion rural–urban migrants living in the world's towns and cities.
- Global **urbanization** passed the threshold of 50 per cent in 2008, meaning that the majority of people now live in urban areas. By 2040, it is expected that over 70 per cent of the world's population will live in towns and cities compared with less than 30 per cent in 1950. Table 1.4 and Figure 1.6 explain why rapid urbanization is still happening in many places.
- Not all internal migration is voluntary of course, as we shall see (see page 24). Factors such as conflict or **land grabs** have forcibly displaced many rural communities in lower-income countries. People may have no choice but to look for work in cities.

Table 1.4 Causes of rural–urban migration

Urban pull factors	The main factor almost everywhere is employment. Foreign direct investment (FDI) by TNCs in cities of emerging economies provides a range of work opportunities with the companies and their supply chains. We can distinguish between formal sector employment (working as a salaried employee of Starbucks in São Paulo, for instance) and the informal sector (people collecting material for recycling at landfill sites in Lagos). Urban areas offer the hope of promotion and advancement into professional roles that are non-existent in rural areas. Additionally, schooling and healthcare may be better in urban areas, making cities a good place for young migrants with aspirations for their children.
Rural push factors	The main factor is usually poverty, aggravated by population growth (not enough jobs for those who need them) and land reforms or land grabs (unable to prove they own their land, subsistence farmers must often relocate to make room for TNCs and cash crops). Agricultural modernization reduces the need for rural labour further (including the introduction of farm machinery by global agribusinesses like Cargill). Resource scarcity in rural areas with population growth, such as northeast Nigeria, may play a role in conflict and forced migration (in which case people may not be classified as economic migrants, however).
'Shrinking world' technology	Rural dwellers are gaining knowledge of the outside world and its opportunities. The 'shrinking world' technologies we associate with globalization all play important roles in fostering rural–urban migration. Satellites, television and radio 'switch on' people in remote and impoverished rural areas. As more people in rural Africa and Asia begin to use inexpensive mobile devices, knowledge is being shared. Successful migrants communicate useful information and advice to new potential migrants. Also, transport improvements, such as South America's famous Trans-Amazon Highway, have removed **intervening obstacles** to migration.

Keyword definitions

Internal migration The movement of people from place to place inside the borders of a country. Globally, most internal migrants move either from rural to urban areas ('rural–urban' migrants) or between urban areas ('urban–urban'). In high income countries, we sometimes find people relocating from urban to rural areas – a process called counterurbanization.

Urbanization An increase in the proportion of people living in urban areas.

Land grab This term typically describes the acquisition of large areas of land in low-income and middle-income countries (and historically in some high-income countries like the USA and Australia) by domestic or outside forces, including international businesses and governments. Indigenous people who have occupied land for centuries or millennia may be told they no longer have the right to remain where they have always lived.

Intervening obstacles Barriers to migrants such as a political border or physical feature (deserts, mountains and rivers).

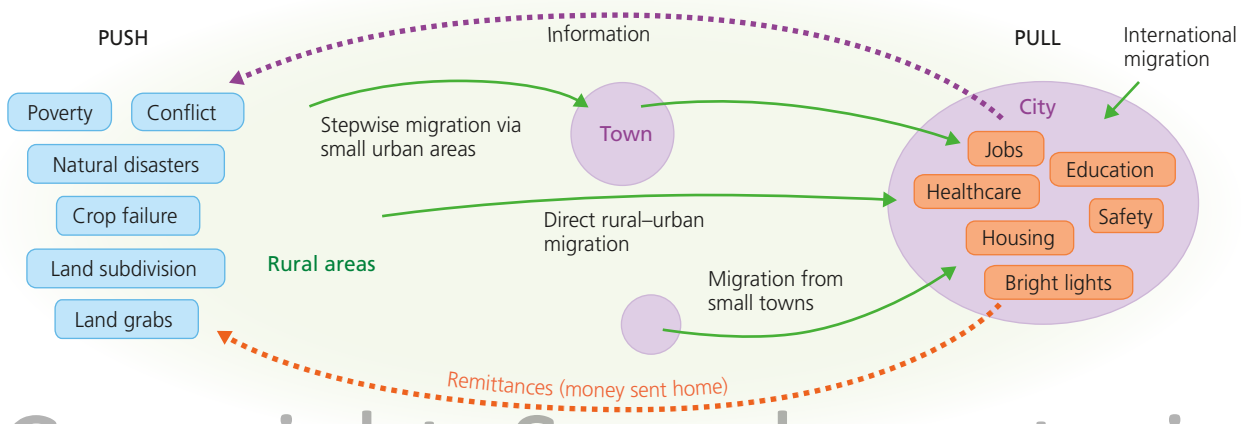


Figure 1.6 A model of rural–urban migration

Megacity growth and national disparities

A megacity is home to 10 million people or more. In 1970 there were just three; in 2020, there were 33 according to the UN. They grow through a combination of migration and natural population increase due to large numbers of children being born (on account of the fact that many migrants are young adults of child-rearing age). Megacities are home to half a billion people worldwide.

Megacity growth can give rise to marked disparities in terms of how a nation's population is distributed:

- Around one third of Japan's 125 million people lived in Tokyo and its surrounding metropolitan area in 2020.
- One sixth of Mexico's 130 million people lived in or around Mexico City in 2020.

Megacities in low-income (developing) and middle-income (emerging) countries have grown especially rapidly (Figure 1.7). São Paulo gains half a million new residents annually from migration. New growth takes place on un-used land at the fringes of the city where **informal housing** is built by the incomers. Centripetal migration sometimes brings people to municipal dumps (Lagos), floodplains (São Paulo), cemeteries (Cairo) and steep, dangerous hill slopes (Rio). Over time, informal housing areas may consolidate as expensive and desirable districts. Rio's long-electrified informal neighbourhood of Rocinha has, for decades now, been served by everything from health clinics to hair salons and McDonald's. More recently, it has become a tourist visitor destination.

International migration continues to bring population growth, albeit far more slowly, to megacities in high-income countries (for example, eastern Europeans and North Africans moving to Paris, or Mexicans to Los Angeles). There is residual internal migration taking place in high-income countries too, for instance from the rural heartlands of the USA to New York.

Keyword definition

Informal housing Areas of housing built by the local population in places where government has struggled to provide sufficient fully-planned housing and infrastructure. While some informal housing may be of a poor standard, often it is not. The best examples are built in bricks, steel and cement by experienced professionals.

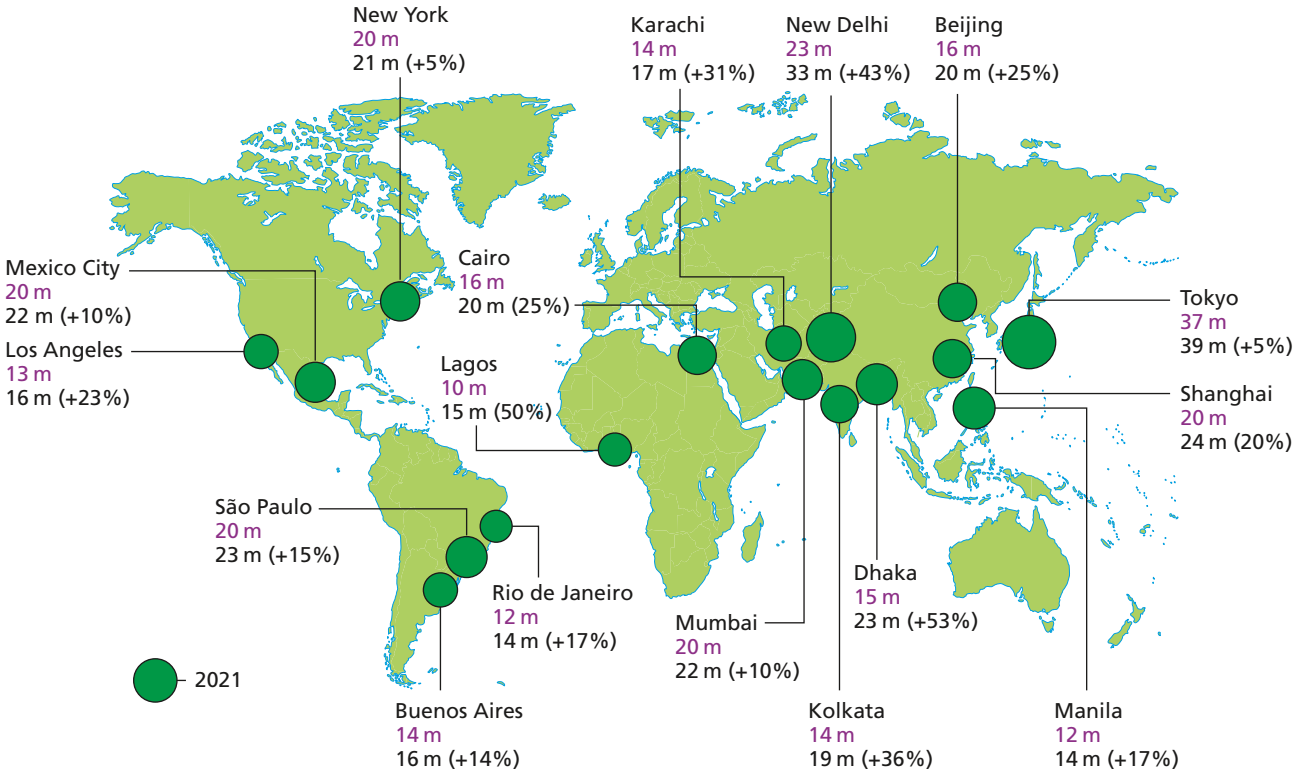


Figure 1.7 Selected megacity growth over time (millions of people, 2011 and 2021). Purple numbers are 2011 figures

CASE STUDY

UNEVEN POPULATION DISTRIBUTION IN THE USA

Overall, the USA has a low average population density of 33 persons per square kilometre. The figure varies greatly from place to place within the USA, however. High densities are found along the eastern coast, especially in the cities of New York, Philadelphia and Baltimore. This is, in part, a legacy of the way Europeans colonized the land and founded new settlements along the eastern seaboard in the 1600s and 1700s. Subsequently, economic activity has remained focused on the eastern coastline and the opportunities for trade it brings.

Over time, early European settlers moved westwards, killing or displacing and then marginalizing the **indigenous populations** of each territory they entered. Large clusters of population developed historically around the Great Lakes in cities such as Detroit and Chicago. However, much of the interior of the USA has a low density of fewer than 20 people per square kilometre. In many areas west of the Rocky Mountains the figure is less than one person per square kilometre. This reflects the aridity of the Western Desert, including large parts of Texas, New Mexico, Nevada and Arizona. In recent decades, some cities in this region, such as Phoenix, have gained population thanks to irrigation and water transfer schemes. Much of the area remains devoid of settlement and population though. Some low density rural areas are home to marginalized Native American populations, for example the Navaho Nation in northwestern New Mexico (located above El Paso on the map).

Finally, the west coast – from San Diego to as far north as Seattle – is more densely populated, especially the conurbations surrounding the major cities of Los Angeles and San Francisco. Many migrants were attracted here on account of its hot, dry climate and the opportunities provided by the Pacific coastline for trade with Asia. Los Angeles has become a global entertainment industry hub, which is home to Hollywood. The USA is sometimes said to display a 'binary' settlement pattern: the world cities of New York and Los Angeles are equally powerful magnets for migrants and investors alike.

Keyword definition

Indigenous population An ethnic group that has occupied the place where they live and call home for hundreds or thousands of years.

Figure 1.8 The uneven population distribution of the USA

PPPPSS CONCEPTS

Think about the strengths and weaknesses of Figures 1.8 and 1.9 as ways of showing how population is distributed between different **places** within a country. Can you suggest any improvements? Which map has the better key, and why?

CASE STUDY

UNEVEN POPULATION DISTRIBUTION IN CHINA

China is home to around 1.4 billion people. This is four times greater than the population of the USA. Yet, despite this contrast in the number of people, some similarities in their distributions, are obvious. The highest concentrations of people are found along China's east coast. Density reaches a maximum in the province of Jiangsu, a major economic hub with a rich history which is home to many of the world's leading exporters of electronic equipment and has been China's largest recipient of foreign investment over many years. Further south, an urban mega-region has grown around the Pearl River Delta. It includes the conjoined cities of Shenzhen, Dongguan and Guangzhou. Hong Kong and Macao also form part of this region. Although both territories have been returned to China, they were former British and Portuguese colonies respectively and have long been important trade hubs where many people have wanted to live.

Population density falls markedly towards the west in China. This reflects both human factors (the reduced potential for international trade with distance from the coastline) and physical factors. Parts of China's interior are extreme environments. The Tibetan plateau is a high-altitude region covering 2.5 million square kilometers, where temperatures fall as low as –40°C in the winter months. The Gobi desert is a vast, sparsely populated area that overlaps part of northern China.

Political influences

In the last 45 years, major population relocations have taken place, which have reduced the population density of some provinces while increasing the density of others markedly. China's total population has not grown very rapidly on account of (until recently) strict political controls limiting the number of births (see page 34). Therefore, population changes in most regions are largely attributable to migration.

- Since 1978, when political and economic reforms began in China, more than 400 million people have left rural areas in search of a better life in cities.
- Only a strict registration system called *hukou* has prevented rural villages from emptying altogether. During this time, the percentage of China's population living in cities has risen from 20 to nearly 65 per cent.
- Between 1990 and 2010, the population of Guangdong province in the Pearl River Delta grew from 62 million to 104 million: a phenomenal rise over a 20-year period.

China's population distribution is shown in Figure 1.9 using a choropleth map. This is a type of map which uses differences in shading or colouring to indicate the average value (in this case of population density) found in a particular area or territory. Figure 1.8 is also a choropleth map.

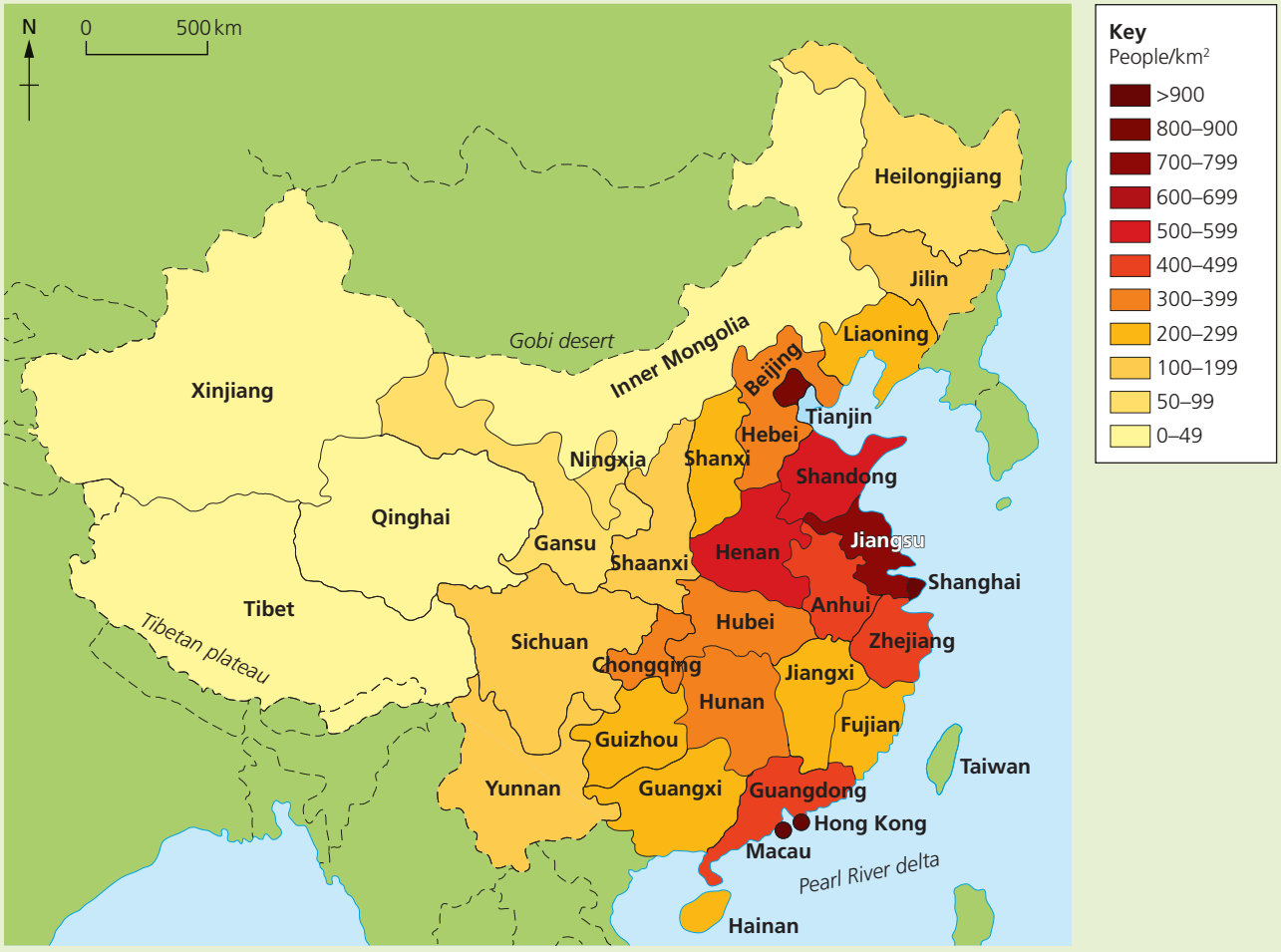


Figure 1.9 The uneven population distribution of China shown as a choropleth map

CHAPTER SUMMARY

KNOWLEDGE CHECKLIST:

- The global pattern of population distribution
- The influence of physical and human factors on global population distribution, including hazards and resources
- The concept of economic development
- The global pattern of economic development
- The classification of economic development using GDP per capita
- Core-periphery patterns of population and economic development at the national scale
- The process of voluntary internal migration (rural–urban migration)
- Megacity growth and its impacts on national disparities
- Two contrasting examples of uneven population distribution (USA, China)

EVALUATION, SYNTHESIS AND SKILLS (ESK) SUMMARY:

- How physical and human influences on population patterns vary in their relative importance
- How population and development patterns can be studied at varying scales
- How interactions between rural and urban places help explain uneven patterns of population and development

EXAM FOCUS

DESCRIBING PATTERNS AND TRENDS

Once you have acquired knowledge and understanding of a topic, your course may require you to apply what you have learned to stimulus material, such as a map or chart. Each structured question in Section A of your examination begins in this way.

It is essential that you have mastered the skills needed to describe patterns and trends competently. This is because structured questions usually begin with a skills-based task.

Below are sample answers to two part (a) exam-style short-answer questions that use the command word 'describe'. Read them and the accompanying comments.

Study Figure 1.1 (page 2). Describe the pattern shown. [3 marks]

The pattern is extremely uneven overall. Very large areas of the Earth's land surfaces are underpopulated, including large parts of Central Asia and Northern Russia, Canada and Greenland. The highest densities of population are found north of the Tropic of Cancer in Eastern Asia and Europe. India is another highly populated country shown on the map. In Africa, South America and North America population is distributed along the coastlines, with far fewer people in the continental interiors. One exception to this is the line of population which follows the Nile Valley from north into Central Africa.

Examiner's comment

This is a well-articulated answer which includes the *most important features* of the distribution. The description does more than simply naming or listing countries. It also makes good use of the points of the compass and lines of latitude to convey an *overview* of where most people live. The description is supported with the use of *terminology* (such as 'continental interior') which provides clarity and an 'expert voice'. Overall, this would score full marks.

Study Figure 1.10 (below). Describe the trends for (i) developed countries (HICs) and (ii) developing countries (LICs and EEs). [2 + 2 marks]

The most important trend shown is an overall increase in world population from just under 3 billion to nearly 8 billion between 1945 and 2020. Growth was most rapid

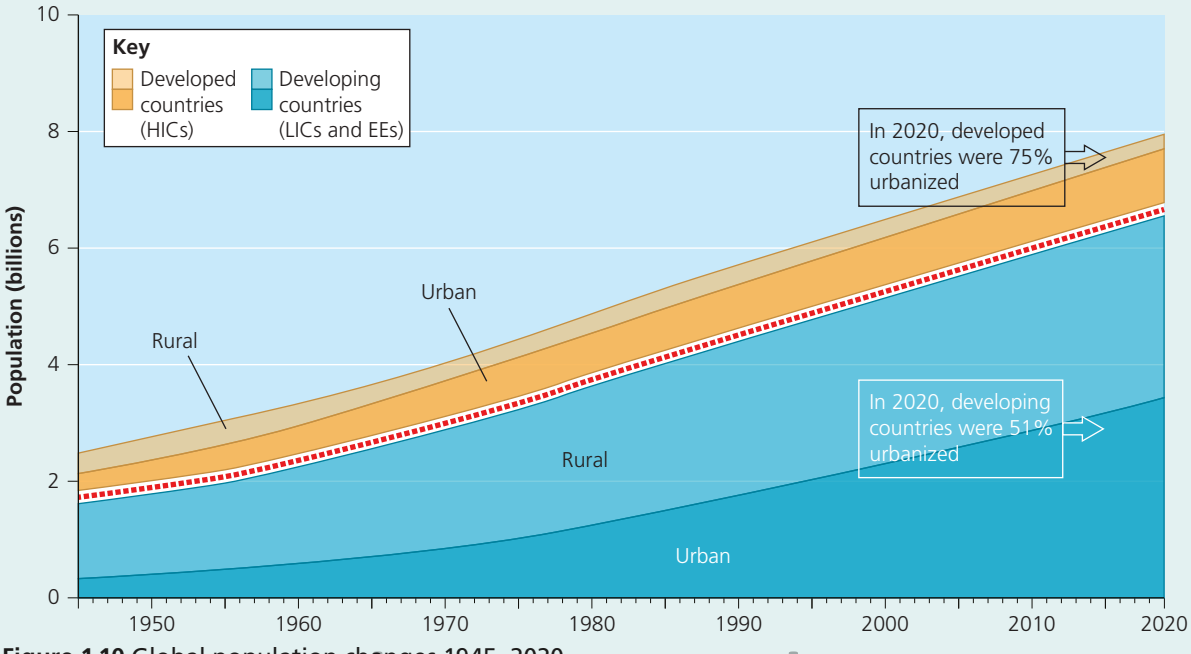


Figure 1.10 Global population changes 1945–2020

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About the author
Dr Simon Oakes has worked as a chief examiner across a range of geography and humanities qualifications, including IGCSE level and the IB Diploma. A highly experienced school teacher and undergraduate lecturer, he is a recipient of the UK Royal Geographical Society's Ordnance Survey Award for excellence in geography education. Simon has authored many course textbooks and is an Associate Editor of *Geography Review* magazine.

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