

CHAPTER TWO

Key Issue Three: Why is population increasing at different rates in different countries?



WHY IS POPULATION INCREASING AT DIFFERENT RATES?

■ Demographic transition

* A process with several stages, and every country is in one of them; the process has a beginning, a middle, and an end.

■ Four stages

- Stage 1: Low growth

 - Agricultural revolution

- Stage 2: High growth

 - Industrial Revolution

- Stage 3: Moderate growth

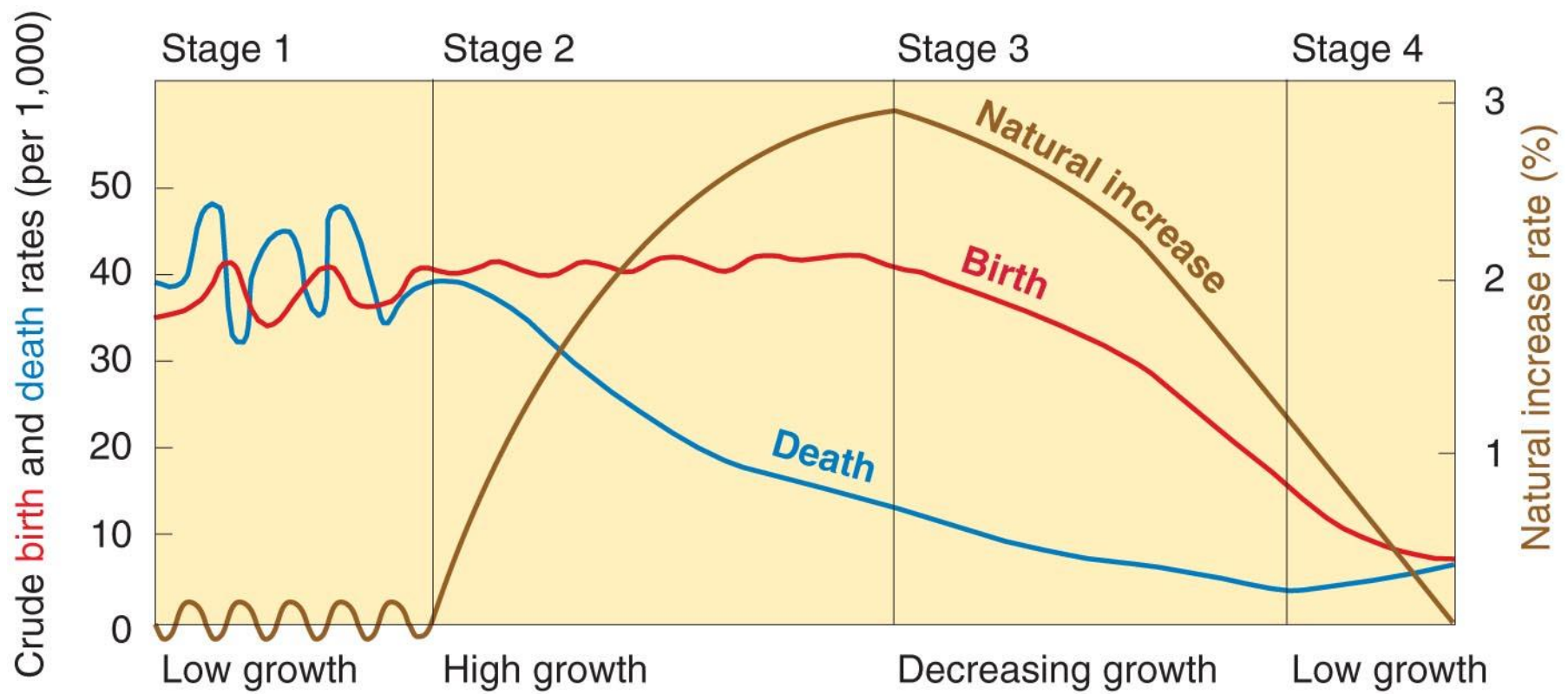
- Stage 4: Low growth

 - Zero population growth (ZPG)

- Once a country moves from one stage of the process to the next, it does not revert to an earlier stage.



DEMOGRAPHIC TRANSITION



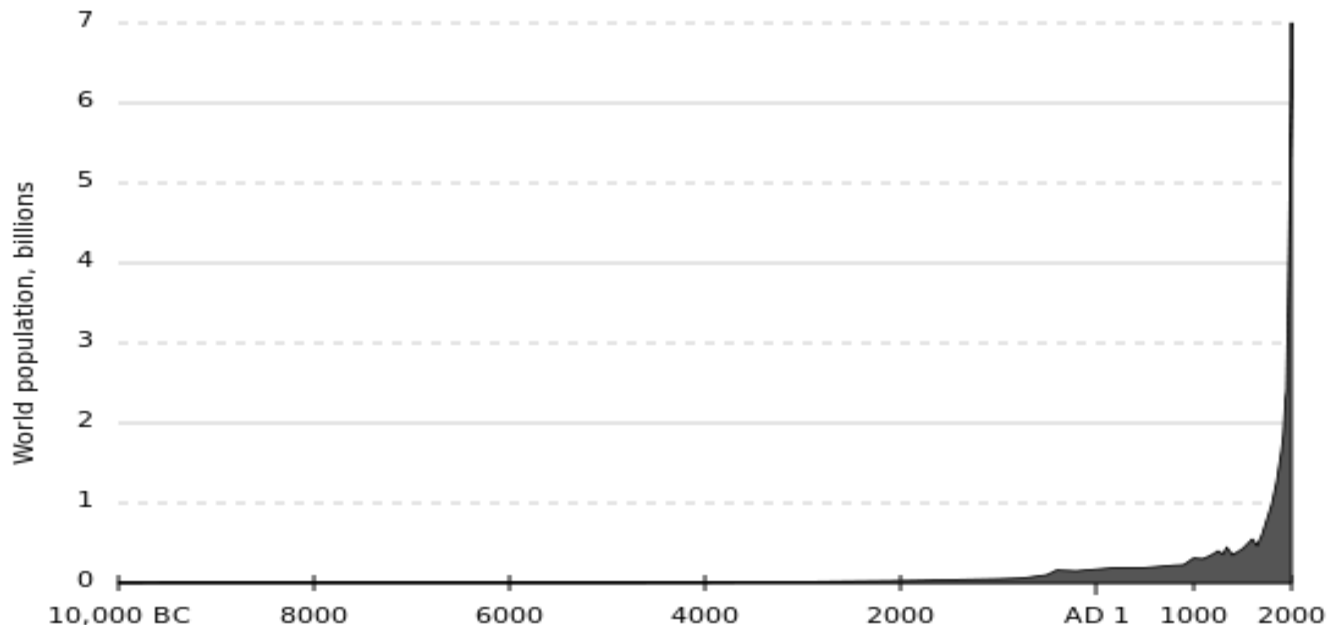
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What is happening in each of the four stages?



STAGE 1: LOW GROWTH

- Most of humanity's past occupancy on the earth was characterized by stage 1.
 - Crude birth and death rates varied considerably from one year to the next and from one region to another, but over the long term they were roughly comparable, at very high levels.
 - The NIR was essentially zero.
 - The earth's population was relatively unchanged.



STAGE 1: LOW GROWTH

- Between 8000 BC and AD 1750, there was a burst of population growth from roughly 5 million to 800 million people due to the **agricultural revolution**.
 - The time when human beings first domesticated plants and animals and no longer relied entirely on hunting and gathering; more people could survive.



- Every nation has moved on to at least stage 2 of the demographic transition, and, with that, has experienced profound changes in population.



STAGE 2: HIGH GROWTH

- For nearly 10,000 years after the agricultural revolution, world population grew at a modest pace.
- Around the late eighteenth and early nineteenth centuries, there was a sudden burst of population growth because several countries moved on to stage 2.
- In stage 2, the CDR suddenly plummets, while the CBR remains roughly the same as in stage 1.
- As a result, the difference between the CBR and CDR is suddenly very high, the NIR is also very high, and population grows rapidly.
- Some demographers divide stage 2 into two parts: 1) the period of accelerating population growth; 2) the growth rate begins to slow, although the gap between births and deaths remains high.



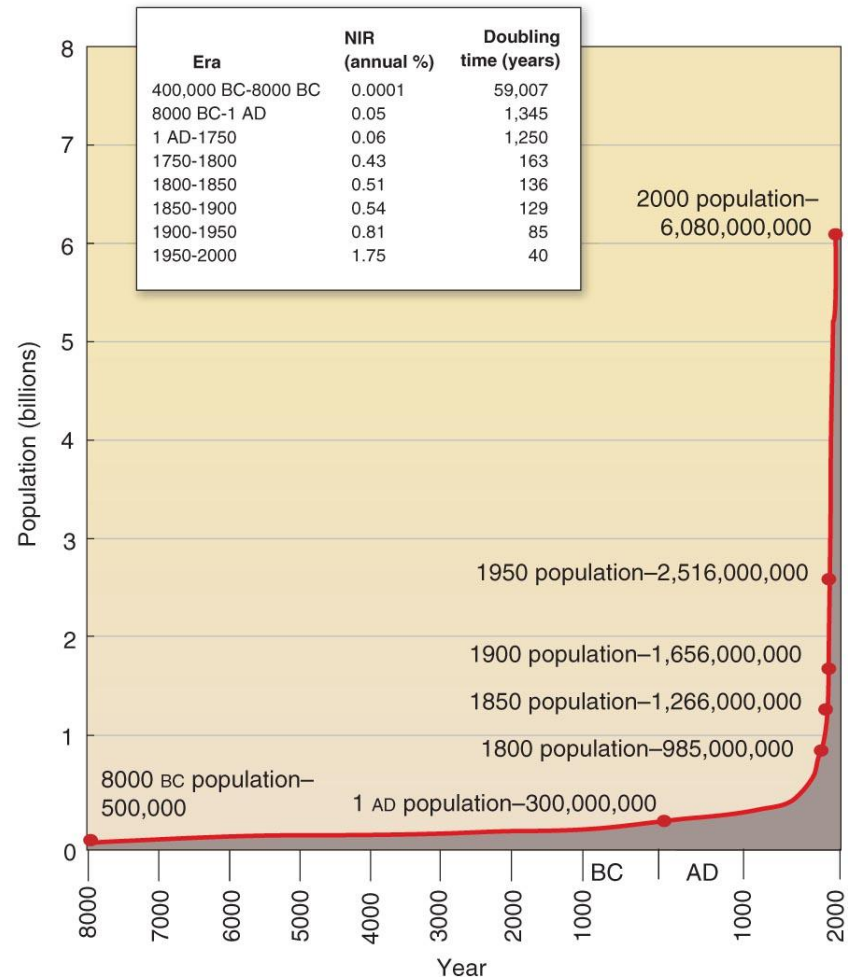
STAGE 2: HIGH GROWTH

- Countries entered stage 2 after 1750 as a result of the **Industrial Revolution**, which began in the late eighteenth century and spread to the European continent and then to North America during the nineteenth century.
 - During this time, the process of manufacturing goods and delivering them to market was transformed.
 - Results:
 - An unprecedented increase in the level of wealth; some of which was used to make communities healthier places to live by improving sanitation and personal hygiene.
 - New machines helped farmers increase agricultural production and feed the rapidly growing population.
 - More efficient agriculture freed people to work in factories, producing more goods and foods.



STAGE 2: HIGH GROWTH

- Countries in Europe and North America entered stage 2 about 1800, but stage 2 did not diffuse to most countries in Africa, Asia, and Latin America until around 1950.
- With the diffusion of stage 2, world population grew by 1.7 percent per year during the second half of the twentieth century, compared to 0.5 percent per year during the nineteenth century (this is a comparison of adding 80 million people in 2000, compared to 8 million in 1900).



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STAGE 2: HIGH GROWTH



- The late twentieth century push of countries (Africa, Asia, and Latin America) into stage 2 was caused by the **medical revolution**.
 - Medical technology invented in Europe and North America diffused to less developed countries in Africa, Asia, and Latin America.
 - Immunizations, penicillin, vaccines, and insecticides effectively and inexpensively controlled other infectious diseases.
- Improved medical practices suddenly eliminated many of the traditional causes of death in LDCs and enabled more people to experience longer and healthier lives.



STAGE 3: MODERATE GROWTH

- A country moves from stage 2 to stage 3 when the CBR begins to drop sharply.
- The CDR continues to fall in stage 3 but at a much slower rate than in stage 2.
- The population continues to grow because the CBR is still greater than the CDR.
- However, the rate of natural increase is more modest in countries in stage 3 than in those in stage 2 because the gap between the CBR and CDR narrows.

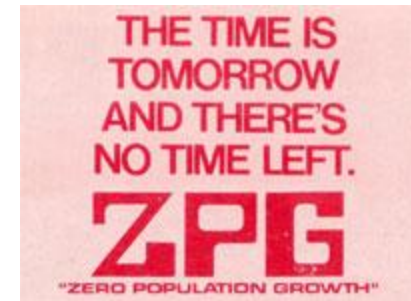


STAGE 3: MODERATE GROWTH

- European and North American countries generally moved from stage 2 to 3 during the first half of the twentieth century.
- Most countries in Asia and Latin America have moved to stage 3 in recent years, while most African countries remain in stage 2.
- The sudden drop in the CBR during stage 3 occurs because of changes in social customs.
- A society enters stage 2 when people choose to have fewer children.
 - Partly due to a decline in the IMR
 - Economic changes also induce people to have fewer children



STAGE 4: LOW GROWTH

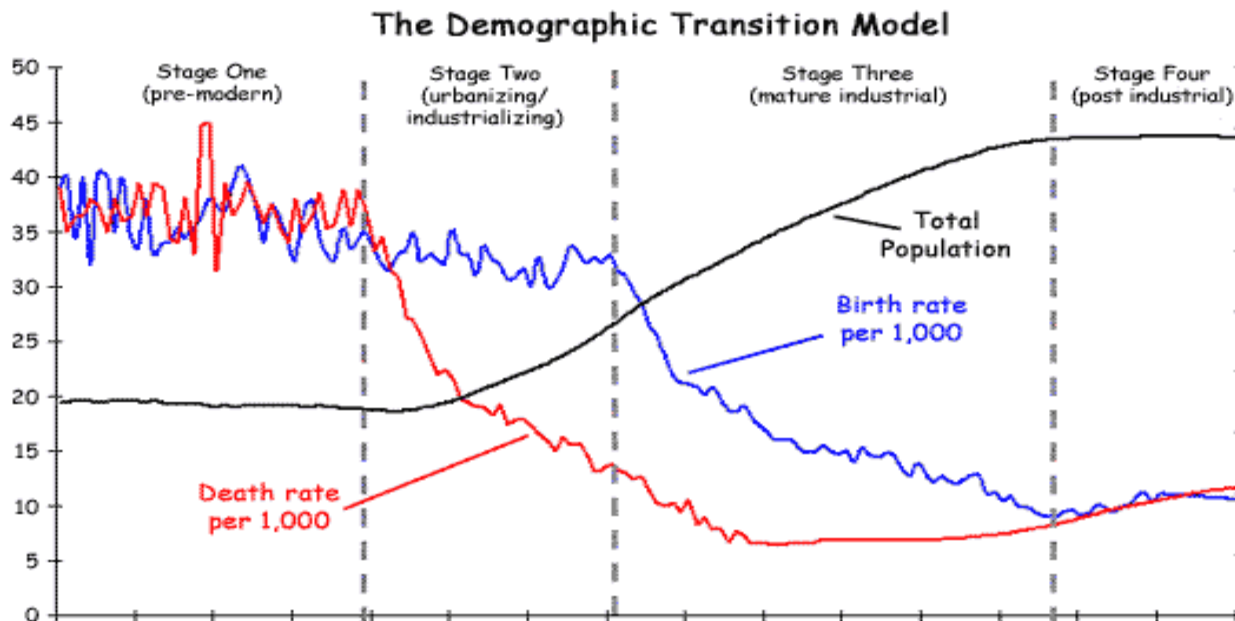


- A country reaches stage 4 when the CBR declines to the point where it equals the CDR, and the NIR approaches zero.
 - **Zero population growth**: demographers define ZPG as the TFT that results in a lack of change in the total population over a long term.
 - How does one factor in immigration?
- Countries in stage 4 can be indentified on the map of TFR.
- Social customs again explain the movement from one stage to the next.
 - Increasingly in stage 4, women work outside of the home; childcare needs often result in fewer children.
 - Family planning, increased income and leisure time, also account for few children.
- What about Eastern Europe and Russia?



STAGE 4: LOW GROWTH

- A country that has passed through all four stages of the demographic transition has in some ways completed a cycle.
 - Distinct characteristics:
 - Little or no natural increase in stage 1
 - At the beginning, CBRs and CDRs are high
 - At the end, CBRs and CDRs are very low
 - Lastly, the total population of the country is much higher in stage 4 than in stage 1



DEMOGRAPHIC TRANSITION CASE STUDY: ENGLAND

- Stage 1: Low Growth Until 1750
 - In 1066, when the Normans invaded England, the country's population was approximately 1 million.
 - Seven hundred years later, the population had only reached 6 million, leaving the country in stage 1.
 - During that 700-year time period, the population rose in some years and fell in others.
 - Bubonic plague
 - Famines



DEMOGRAPHIC TRANSITION CASE STUDY: ENGLAND

- Stage 2: High Growth (1750-1880)
 - In 1750 the CBR and CDR in England were both 40 per 1,000.
 - In 1800 the CBR remained very high at 34, but the CDR had plummeted to 20.
 - This 50-year period marked the start of the Industrial Revolution in England.
 - New production techniques increased the nation's food supply and generated money that was spent on improving public health.
 - England remained in stage 2 for about 125 years.
 - During that period, the population rose from 6 million to 30 million, an average annual NIR of 1.4 percent.



DEMOGRAPHIC TRANSITION CASE STUDY: ENGLAND

- Stage 3: Moderate Growth (1880-Early 1970s)
 - In 1880 the CBR (crude birth rate) was 33 per 1,000 and the CDR (crude death rate) 19, both cases were 1 per 1,000 lower than in 1800
 - After 1880 England entered stage 3.
 - The CDR continued to fall somewhat over the next century, from 19 per 1,000 to 12 in 1970.
 - However the CBR declined sharply, from 33 per 1,000 in 1880 to 18 by 1930 and 15 by 1970
 - The population increased between 1880 and 1970 from 26 million to 49 million, about 0.7% per year



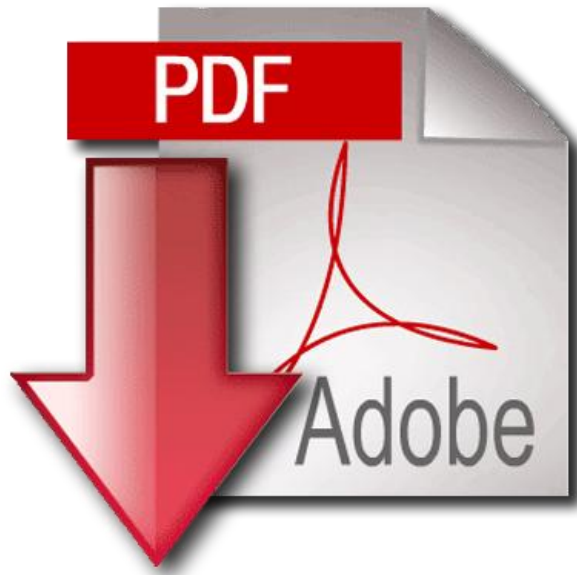
DEMOGRAPHIC TRANSITION CASE STUDY: ENGLAND

- Stage 4: Low Growth (Early 1970s – Present)
 - England has been in stage 4 since the early 1970s.
 - The CBR has varied between 12 and 14 per 1,000; the CDR has varied between 10 and 12.
 - The CBR increased because the number of women in their childbearing years is greater, not because the decisions by women to have more children
 - England's population has grown by 3 million since 1970, primarily because of immigration from former colonies
 - For the past three decades, England has been in another period of little population growth
 - The difference in crude birth and death rates are now around 11 rather than 40, and the country has 50 million inhabitants instead of 6 million



DEMOGRAPHIC TRANSITION MODELS

- Using the PDF on the weebly titled, “Demographic Transitions,” you will analyze the model using the information provided and answer each of the corresponding questions.
- Be ready to share your answers!



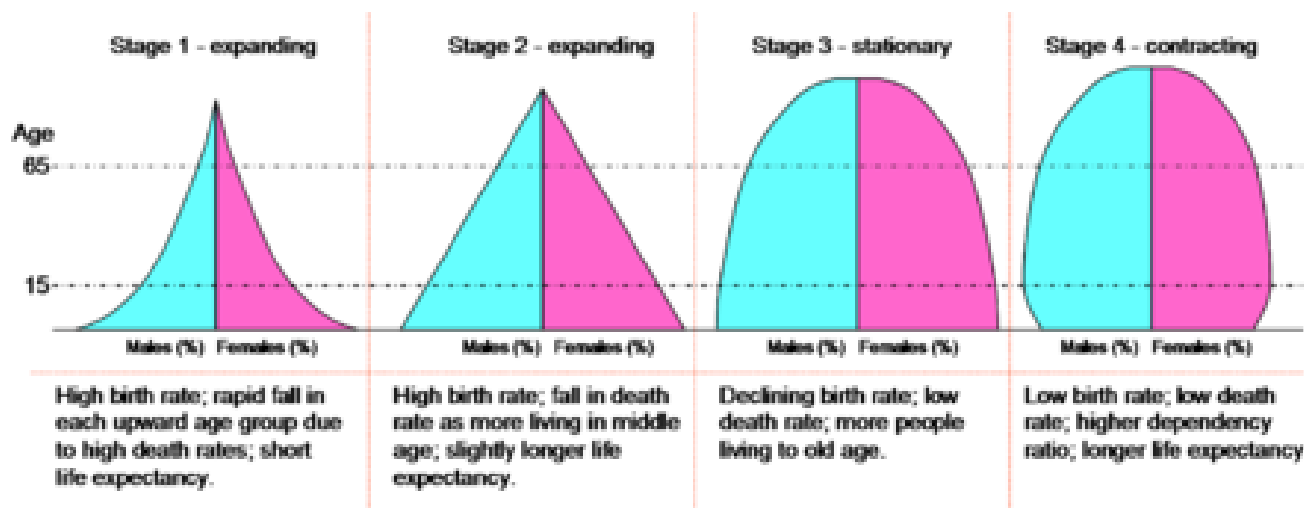
WHY IS POPULATION INCREASING AT DIFFERENT RATES?

- **Population pyramids**
 - A bar graph showing a place's age and sex composition
 - Shape of the pyramid is determined mainly by the CBR
 - Age distribution
 - Dependency ratio
 - Sex distribution
 - Sex ratio



POPULATION PYRAMIDS

- Population in a country is influenced by the demographic transition in two ways:
 - The percentage of the population in each age group
 - The distribution of males and females
- A country's population can be displayed by age and gender groups on a bar graph called a **population pyramid**.



C
B
R

- Check out the Census Bureau's "Population Pyramid Generator:"

<http://www.census.gov/population/international/data/idb/informationGateway.php>

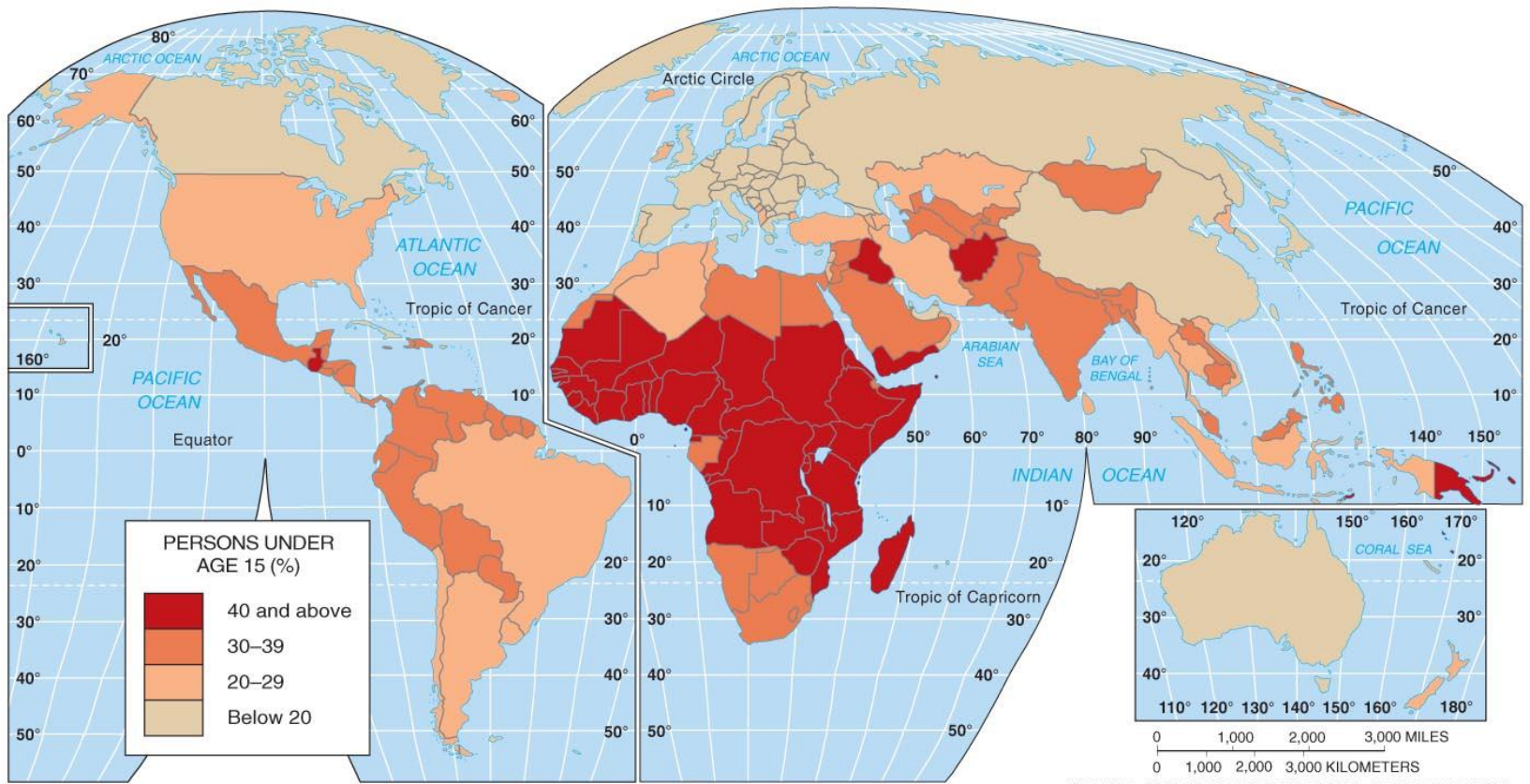


AGE DISTRIBUTION

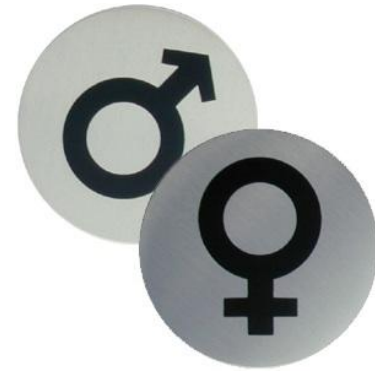
- The age distribution is extremely important in understanding similarities and differences among countries.
- The most important factor is the **dependency ratio**, which is the number of people who are too young or too old to work, compared with the number of people in their productive years.
- To compare the dependency ratios of different countries, we divide the population into three age groups– 0-14, 15-64- and 65 and older.
 - People who are 0-14 years and 65 and older are normally classified as dependents.
 - Nearly $\frac{1}{2}$ of all people living in countries in stage 2 are classified as dependents, compared to $\frac{1}{3}$ in stage 4 countries.
 - The largest groups of 0-14 populations can be found in LDCs (also strains available resources).
 - As countries pass through the stages, the percentage of the elderly increases (medical care and income)



AGE DISTRIBUTION



SEX RATIO



- The number of males per hundred females in the population is the **sex ratio**.
- In general, there are slightly more males than females born, but males have higher death rates.
- In Europe and North America, the ration of men to women is 95:100; in the rest of the world, the ratio is 102:100.
- In the U.S., males under 15 exceed females 105:100 and then women start outnumbering men around age 40 until they comprise 58% of the population over age 65.
- In poorer countries, there are more men than women because of the high mortality rate during childbirth.
- The shape of a community's population pyramid tells a lot about its distinctive characteristics, especially when you compare it to other places.



WHY IS POPULATION INCREASING AT DIFFERENT RATES?

- Countries are in different stages of the demographic transition
 - Three examples:
 - Cape Verde = High growth
 - Stage 2 since the 1950s
 - Chile = Moderate growth
 - Stage 3 since the 1960s
 - Denmark = Low growth
 - Stage 4 since the 1970s



WHY IS POPULATION INCREASING AT DIFFERENT RATES?

- **Demographic transition & world population growth**
 - **Most countries = stage 2 or stage 3 of the Demographic Transition**
 - Stages 2 and 3 are characterized by significant population growth
 - **No country is in stage 1 of the demographic transition**
 - **It is easier to cause a drop in the CDR than in the CBR**



POPULATION PYRAMIDS

- Using the PDF on the weebly titled, “Population Pyramids,” you will analyze the models using the information provided and answer each of the corresponding questions.
- Be ready to share your answers!

