

CHAPTER 16

Population and Urbanization



Your Sociological Imagination

Suppose you read the following story in your local newspaper.

On October 12, 1999, the United Nations officially declared that the world's population had reached six billion. United Nations Secretary-General Kofi Annan was visiting Sarajevo, Bosnia, when the historic milestone was reached. To symbolize the event, he chose a baby boy born in a local clinic at two minutes after midnight to be named "Baby Six Billion."

How big is six billion? If you counted a hundred numbers every minute for eight hours a day, five days a week, it would take you five hundred years to reach six billion!

According to Zero Population Growth (ZPG), the world's population is currently growing at a rate of 86 million people per year. If asked about the reason for this rapid world population growth, what would you say? Like most people, you would probably refer to the high birth rate in developing countries. You could point out that every year, 94 million infants are born—equal to the population of Mexico—or that every time you watch a half-hour TV program, 4,860 infants are born.

This explanation, however, is only half of the story. It leaves out the other side of the equation—the death rate. The population in these countries is growing rapidly because their birth rates remain high while their death rates have dropped sharply, thanks to modern medicine, improved sanitation, and better hygiene. In this chapter, we look at demography and discuss why this issue is important to sociologists.

Sections

1. The Dynamics of Demography
2. World Population
3. The Urban Transition
4. Urban Ecology

Learning Objectives

After reading this chapter, you will be able to

- ❖ identify the three population processes.
- ❖ relate the ideas of Thomas Malthus to population changes.
- ❖ predict world population trends.
- ❖ trace the development of preindustrial and modern cities.
- ❖ compare and contrast four theories of city growth.



Chapter Overview

Visit the *Sociology and You* Web site at soc.glencoe.com and click on **Chapter 16—Chapter Overviews** to preview chapter information.



Section 7

The Dynamics of Demography

Key Terms

- population
- demography
- fertility
- fecundity
- crude birth rate
- fertility rate
- total fertility rate
- mortality
- life span
- life expectancy
- crude death rate
- infant mortality rate
- migration
- gross migration rate
- net migration rate

Section Preview

Demography is the scientific study of population. The collection of population data is very important today, in part because of its use by government and industry. Demographers consider three population processes when looking at population change: fertility, mortality, and migration.

The Changing Population

Sociologists study population because it affects social structure, especially in crowded areas. They look for patterns that will help them understand and predict how groups of people will behave. For example, they might examine the relationship between population growth and politics. We know that historically the growth of minorities in the United States has benefited Democrats more than Republicans (Tilgrove, 1999). But the situation today is different with respect to Latinos. Now the largest minority in the United States, Latinos are not firmly aligned with either political party. Regardless of political affiliation, the growth of minority populations affects how congressional districts are drawn and is one reason why census taking can be a controversial topic. Or sociologists might study trends in population shifts, such as the aging baby boomers, to help plan for hospitals and long-term nursing facilities.



Social structures reflect the ability of the land to support people.

population

a group of people living in a particular place at a specified time

demography

the scientific study of population

How do sociologists define population? A **population** is a group of people living in a particular place at a specified time. The scientific study of population is called **demography** (*demo* is a Greek word that means “people”). To study population, demographers look at many factors, including the number of people (size); how and where they are located (distribution); what groups make up the population (composition); and the ages represented in the population (age structure). Demographers also analyze three processes: birth (*fertility*), death (*mortality*), and movement from one place to another (*migration*). Major changes in populations come from one or all of these three processes. In the following sections, we look at the factors and processes that affect populations.



How might fertility drugs affect the crude birth rate?

Fertility

Fertility measures the actual number of children born to a woman or to a population of women. **Fecundity** is the potential number of children that could be born if every woman reproduced as often as biology allowed. Obviously, fertility rates are much lower than fecundity rates. The highest realistic fecundity rate you could expect from a society would be about fifteen births per woman. The record fertility rate for a group probably is held by the Hutterites, who migrated a century ago from Switzerland to North and South Dakota and Canada. Hutterite women in the 1930s were giving birth to an average of more than twelve children each (Westoff and Westoff, 1971). The Hutterites give us a good estimate of fecundity, because they are the best example of *natural fertility*—the number of children born to women in the absence of conscious birth control (Weeks, 1999).

How is fertility measured? The **crude birth rate** is the annual number of live births per one thousand members of a population. The crude birth rate varies considerably from one country to another. The crude birth rate for the United States is fifteen per one thousand. Niger, in West Africa, experiences a very high crude birth rate of fifty-three per one thousand; and Germany, a very low rate of nine per one thousand.

To calculate the crude birth rate, divide the annual number of live births by the total population and multiply that number by 1,000.

$$\text{Crude Birth Rate} = \frac{\text{Number of Live Births}}{\text{Total Population}} \times 1,000$$

The term *crude* in this case means rough, or approximate. The crude birth rate is approximate because it is based on the entire population rather than just women of child-bearing age. It also ignores the age structure of the population. Both sex and age affect the number of live births in any given year. Consequently, in addition to the crude birth rate, demographers use the **fertility rate**—the annual number of live births per one thousand women

fertility

a measure of the number of children born to a woman or a population of women

fecundity

the maximum rate at which women can physically produce children

crude birth rate

the annual number of live births per one thousand members of a population

fertility rate

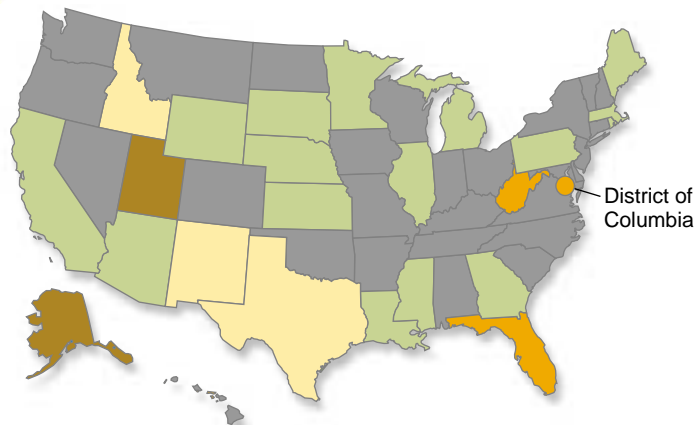
the annual number of live births per one thousand women aged fifteen to forty-four

Snapshot of America



Percentage of Population Under 18

Many high school students feel that as members of society they are not given enough respect by society. One reason could be that there are too few people in this age bracket to influence policy makers. This map shows the percentage of each state's population aged eighteen years of age.



Percentage of Population Under 18

Dark Brown	29% or more
Light Brown	28%–28.9%
Yellow	26%–27.9%
Light Green	24%–25.9%
Dark Green	23%–23.9%
Orange	< 23%

Interpreting the Map

1. Which states have the smallest concentrations of young people? Can you explain why?
2. From this map, can you make any generalization about the American population? What additional information would help you to further describe the age structure of the U.S. population? Get that information for your state.

Source: U.S. Bureau of the Census, 2001.

total fertility rate

average number of children born to a woman during her lifetime

aged fifteen to forty-four. The rate that is easiest to use is the **total fertility rate**, or the average number of children born to a woman during her lifetime. Currently, total fertility rates in the world range from 5.2 in Africa to 1.4 in Europe.

What other factors influence birth rate? The birth rate of a population is influenced by both health and social factors. For example, widespread disease (especially rubella, or German measles) causes the birth rate to decline because many pregnancies end in miscarriages. Social factors affecting the birth rate include the average age at marriage, the level of economic development, the availability and use of contraceptives and abortion, the number of women in the labor force, the educational status of women, and social attitudes toward reproduction.

The U.S. birth rate in recent years has shown a steady decline. More couples today consider two children—or even one child—a desirable number. Work patterns have affected the birth rate as well. More American women today are postponing having children until their late twenties and early thirties. As a result, women are having fewer children.

Mortality

Mortality refers to death. To analyze patterns of mortality within a population, sociologists look at *life span* and *life expectancy*. **Life span** is the most advanced age to which humans can survive. We know for sure of a Japanese man who lived nearly 121 years, but few people even approach this age. **Life expectancy** is the average number of years that persons in a given population born at a particular time can expect to live. World life expectancy is sixty-seven years (*World Population Data Sheet*, 2001).

How is mortality measured? The **crude death rate** is figured by dividing the annual number of deaths by the total population and multiplying by 1,000. Like the crude birth rate, the crude death rate varies widely throughout the world. The worldwide average crude death rate is nine per one thousand persons. Looking at specific regions of the world, the death rate varies from a low of six per thousand in Latin America to a high of fourteen per thousand in Africa and Hungary. The death rate in the United States is about nine per thousand (*World Population Data Sheet*, 2001).

Demographers are also interested in the variations in death rates for specific groups. They have devised *age-specific death rates* to measure the number of deaths per thousand persons in a specific age group, such as fifteen- to nineteen-year-olds or sixty- to sixty-four-year-olds. This allows them to compare the risk of death to members of different groups. Although death eventually comes to everyone, the rate at which it occurs depends on many factors, including age, sex, race, occupation, social class, standard of living, and health care.

The **infant mortality rate**—the number of deaths among infants under one year of age per one thousand live births—is considered a good indicator of the health status of any group. This is because infants are the first to suffer

mortality
deaths within a population

life span
the most advanced age to which humans can survive

life expectancy
the average number of years that persons in a given population born at a particular time can expect to live

crude death rate
the annual number of deaths per thousand members of a population

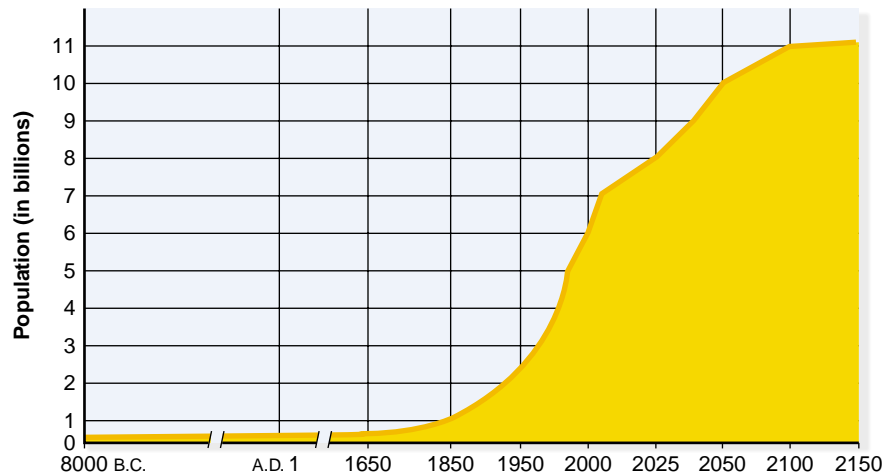
infant mortality rate
the annual number of deaths among infants under one year of age per one thousand live births



This Brazilian mother attends a local clinic to get health care for her infant.

Figure 16.1 World Population Growth. This figure shows estimated world population growth to 2150. What factors do you think led to the sharp rise in population around 1850?

Source: Washington, DC: Population Reference Bureau.



from a lack of good medical care and sanitation. Infants in developing countries are almost eight times more likely to die before their first birthday than infants in the developed nations. Working together, the birth rates, fertility rates, and mortality rates determine the world population growth. (See Figure 16.1.)

Migration

migration

the movement of people from one geographic area to another

gross migration rate

the number of persons per year per one thousand members of a population who enter or leave a geographic area

net migration rate

the annual increase or decrease per one thousand members of a population resulting from migration into and out of the population

Migration refers to the movement of people from one geographic area to another. Migration can occur within a country or between countries. An example of migration from country to country is the resettlement of Asian refugees from Vietnam and Cambodia in countries around the world. Many of the refugees who settle in the United States in one particular city or region later move to another region, thus becoming internal migrants. Anyone who moves from one part of the country to another—say, from New York to Arizona—is engaging in internal migration.

How is migration measured? The **gross migration rate** into or out of an area is the number of persons per one thousand members of a population who enter or leave a geographic area in a given year. *Net migration* is the difference between the number of people entering and leaving an area. Thus, the **net migration rate** is the annual increase or decrease per one thousand members of a population resulting from movement into and out of the population. In 1999, for example, the United States had a net migration rate of about 3.0 per one thousand population. That is, 3.0 more persons per one thousand population entered the country than left the country. It is also possible of course, to have a negative net migration rate showing more people overall left an area than entered it.

When the U.S. Census Bureau reports migration rates, it refers only to the number of legal immigrants. Many people violate immigration laws to enter the United States. In the 1970s, the issue of illegal immigration—primarily from Latin American and Caribbean countries—became a major concern and continues to be controversial today. There are no precise statistics on either the illegal immigration rate or the total number of illegal aliens living in the United States. Estimates of the current number of illegal aliens range from three million to six million persons.

Another Place

The Graying of Japan

Birth rates and death rates have important social and cultural consequences. In Japan, elders have traditionally been held in high esteem. This tradition is threatened by a combination of two factors: People are generally living longer, and there are fewer young people to support the elders' existence. As they lose respect, many older Japanese now pray in their temples for a quick death.

The population of Japan is aging faster than any on earth, a result of declining birth and death rates. The situation of the elderly of Japan is like the proverbial glass of water that is either half full or half empty, depending on whether the positive or negative aspects of their lives are emphasized. In some ways, elderly Japanese are better off than the elderly of the other developed countries. They hold the position of “honorable elders,” a reflection of the Confucian precept of duty owed to parents. Japan even has a national holiday, “Respect for the Aged Day,” September 15th, when most offices and factories are closed. Furthermore, a relatively high proportion of elderly Japanese live with their adult children, which is often cited as evidence of the reverence this country pays to the aged.

However, it can also be argued that elderly Japanese are not really so well off and that the “ecstasy years” of old age are losing their rosy

glow—if they truly ever had one. Among the more sensational evidence cited are the supposedly high rate of suicide among elderly Japanese and the existence of temples where the elderly go to pray for a quick death. Also, in recent years, the number of activities for or honoring the elderly on their special day have been few and far between. For most Japanese, September 15th is just another holiday.

The particularly rapid pace of aging in Japan and the potential consequences have captured the attention of policymakers and officials. [A major government report] listed population aging along with internationalization and maturation of the economy as the three major challenges for twenty-first-century Japan. Japanese prime ministers have regularly referred to aging as they have set the policy agenda, recognizing that population aging affects many aspects of the society and the economy.

Source: Linda G. Martin, “The Graying of Japan,” *Population Bulletin* (Washington, DC).

Thinking It Over

Are the effects of the graying of Japan best explained by functionalism, conflict theory, or symbolic interactionism? Defend your choice.

Section 1 Assessment

1. What three major processes affect the way populations change?
2. How might data about age-specific death rates or population shifts be of use?
3. Why is the infant mortality rate a key statistic for health workers?

Critical Thinking

4. **Drawing Conclusions** Why is demography increasingly important? Think of a way in which the federal government could use some specific piece of demographic data. State how this information would help the government make a policy decision.

“

You have to enjoy getting older.

Clint Eastwood
actor and director

”

Section 2

World Population

Key Terms

- census
- doubling time
- exponential growth
- demographic transition theory
- zero population growth
- population momentum
- replacement level
- population control
- family planning
- population pyramid
- dependency ratio

Section Preview

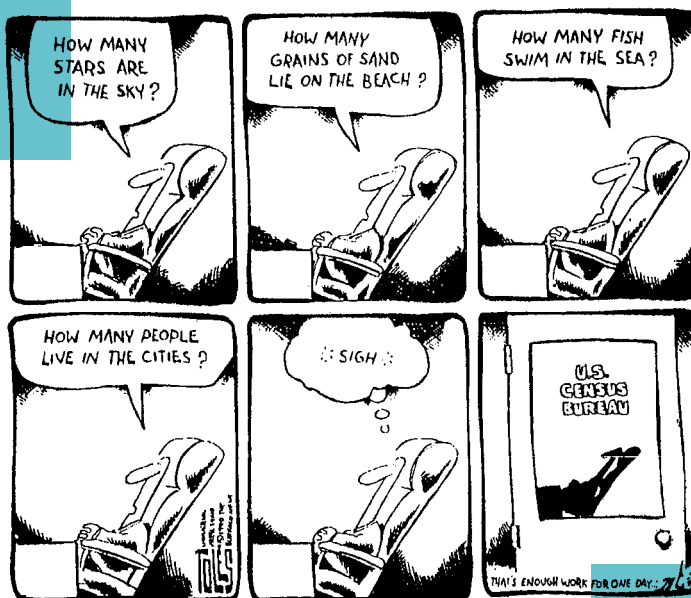
Thomas Malthus (1798) predicted that population size would ultimately outstrip the food supply, resulting in mass starvation and death. The demographic transition theory looks at economic development to predict population patterns. While the rate of world population growth is slowing, the world's population will continue to increase for many years. Population control has become a concern of many governments worried about providing for their future citizens.

census

regularly occurring count of a particular population

The Problem of Population Growth

No organization has actually ever counted all the people in the world. World population figures are a composite of best estimates and national **census** figures where available. While many countries count and categorize people living in those countries, the quality of census data varies a great deal and can be very unreliable. Nevertheless, world population growth patterns can be identified.



If the counting of the population is a problem in developed societies, imagine the difficulty with obtaining accurate counts in developing societies.

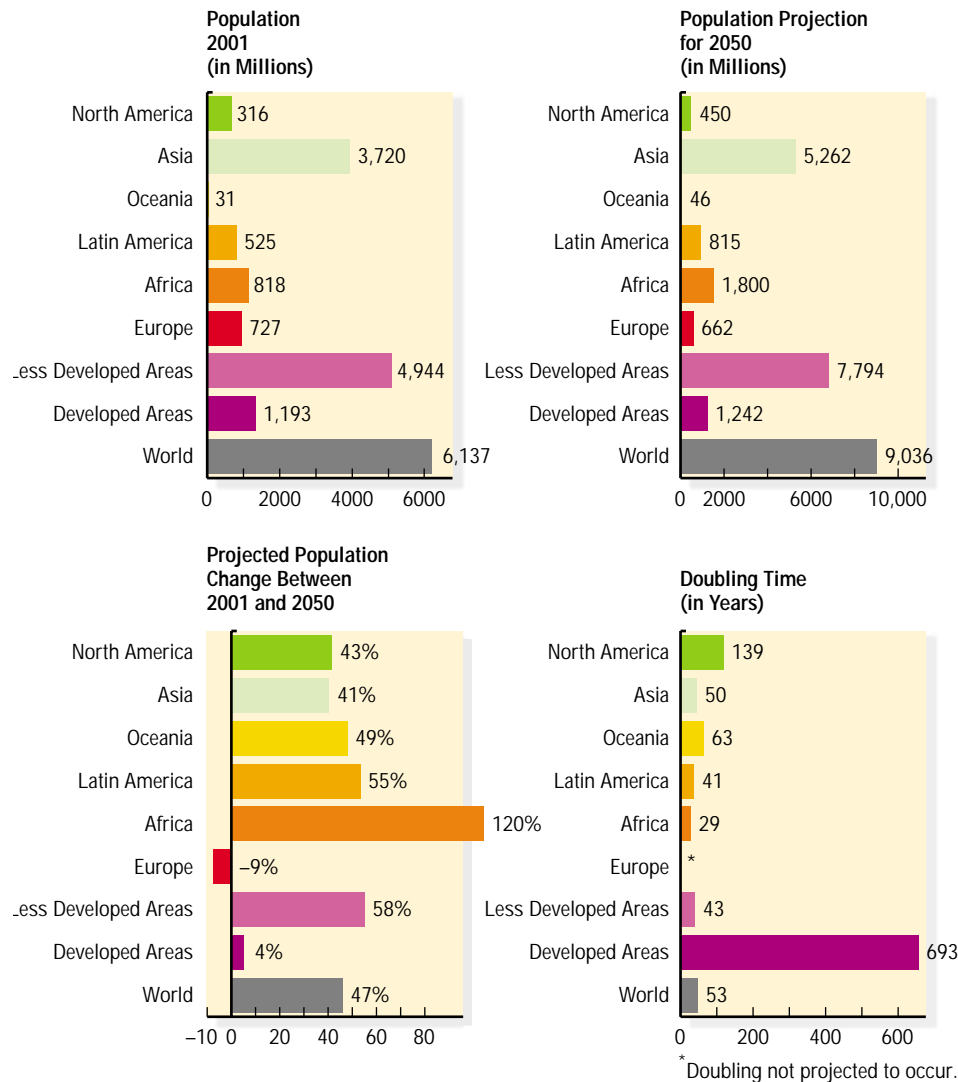
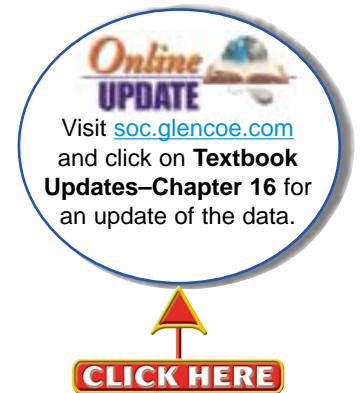


Figure 16.2 Population Projections by Regions of the World.

This graph displays population projections, by regions of the world, from 2001 to 2050. Note the dramatic difference in population doubling time between less developed areas and developed areas.

Source: Adapted from *World Population Data Sheet, 2001*.



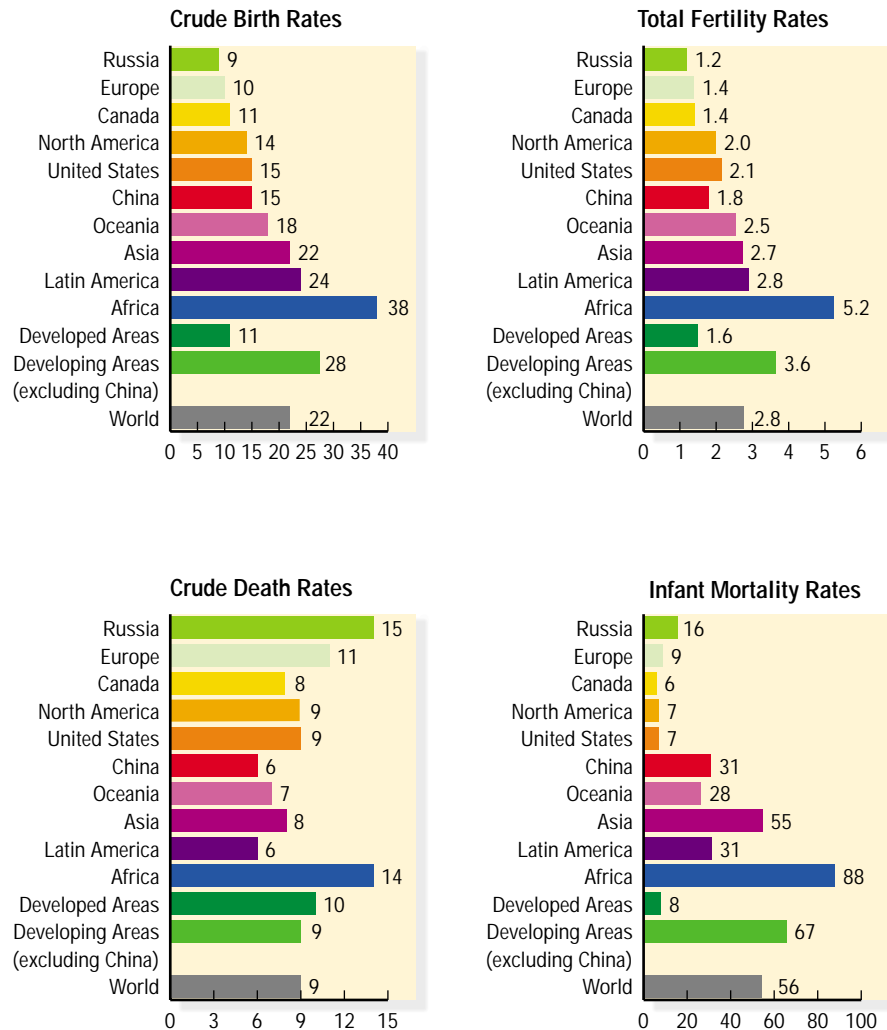
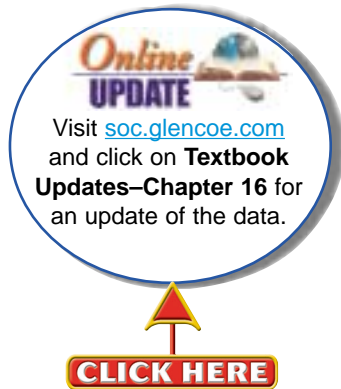
Rapid world population growth is a relatively recent phenomenon. In fact, your grandparents have seen more population growth during their lifetimes than occurred during the preceding four million years. An estimated 250 million people were on the earth in A.D. 1. (Refer back to Figure 16.1 on page 534.) It was not until 1650 that the world's population doubled, to half a billion. The second doubling occurred in 1850, bringing the world population to one billion. By 1930, only eighty years later, another doubling had taken place. Only forty-five years after that, in 1976, a fourth doubling raised the world's population to four billion. At the current growth rate, the world's population is expected to double again in about fifty years and will approach eight billion persons by the year 2025. As you can see, the number of years between each doubling of the population—called, for obvious reasons, the **doubling time**—is getting shorter and shorter (*World Population Data Sheet, 1999*). Figure 16.2 breaks down world population projections by region. Figure 16.3 on the next page looks at key demographic statistics by world regions.

doubling time
number of years needed to double the base population size

Figure 16.3 World Birth Rates, Death Rates, and Infant Mortality Rates.

Would you always expect to see a correlation between crude birth rates and total fertility rates for a country? Between crude death rates and infant mortality rates?

Source: Washington, DC: Population Reference Bureau, 2001.



exponential growth
growth in which the amount of increase is added to the base figure each time period

Why is the world's population growing so fast? The population has increased so dramatically in part because of the way population increases. We are accustomed to thinking in terms of *linear growth*, whereby amounts increase arithmetically (as in the progression 1, 2, 3, 4, 5 . . .). Population, however, does not grow linearly. It follows the principle of **exponential growth**, and increases geometrically (as in the progression 2, 4, 8, 16, 32). With exponential growth, the *amount* of increase is greater each time period even though the *rate* of increase remains the same. This is because each increase is added to the base amount and becomes part of the calculation for the next rise.

A classic example of exponential growth follows: The story tells of a clever minister who presented a beautiful chess set to his king. In return, he asked only that the king give one grain of rice for the first square on the chessboard; two grains, or double the amount, for the second square; four (doubling again) for the third; and so forth. The king, not being mathematically minded, agreed and ordered the rice brought forth. The eighth square required 128 grains, and the twelfth took more than a pound of rice. Long before reaching

the sixty-fourth square, the king's coffers were depleted. Even today, the world's richest king could not produce enough rice to fill the final square. It would require more than 200 billion tons, or the equivalent of the world's current total production of rice for the next 653 years.

If a population is growing at 1 percent per year, it takes seventy years to double. For example, suppose the population of a city was 50,000 in 1800. At a growth rate of 1 percent, that population would grow to 100,000 in 1870. By 1940 it would reach 200,000; by 2010, 400,000. Recalling the chess-board example, you can see that even a 1 percent growth rate can have serious consequences. The number of people added each year becomes part of the total population, which then increases by another 1 percent in the following year.

Malthus and Population Growth

Concern about population is not new. In 1798, Thomas Robert Malthus, an English minister and economist, published *An Essay on the Principle of Population*. In his essay, Malthus described relationships between population growth and economic development. Here are the key concepts in his theory.

- ❖ Population, if left unchecked, will exceed the food supply. This is because population increases exponentially, while the food supply does not.
- ❖ Checks on population can be *positive* or *preventive*. Positive factors are events or conditions that increase mortality. They include famine, disease, and war. Preventive factors decrease fertility and include sexual abstinence and marrying at a later age. (Remember that at the time Malthus wrote there was no reliable birth control. For this conservative minister, sexual abstinence was the only acceptable way to reduce the number of births.)
- ❖ For the poor, any improvement in income is eaten up in additional births. This leads to lower per-person food consumption, lower standards of living, and eventually death.
- ❖ The wealthy and well educated already exercise preventive checks.



English minister and economist Thomas Malthus wrote about the ability of the food supply to keep up with population growth.

How did Malthus apply his theory to population control? Malthus believed that positive checks on population growth could be avoided through education of the poor. With education, he wrote, the poor would raise their standard of living and choose to have smaller families. That part of Malthus's theory is not generally known, however, because he is most remembered for his dire predictions that overpopulation would result in famine and poverty.

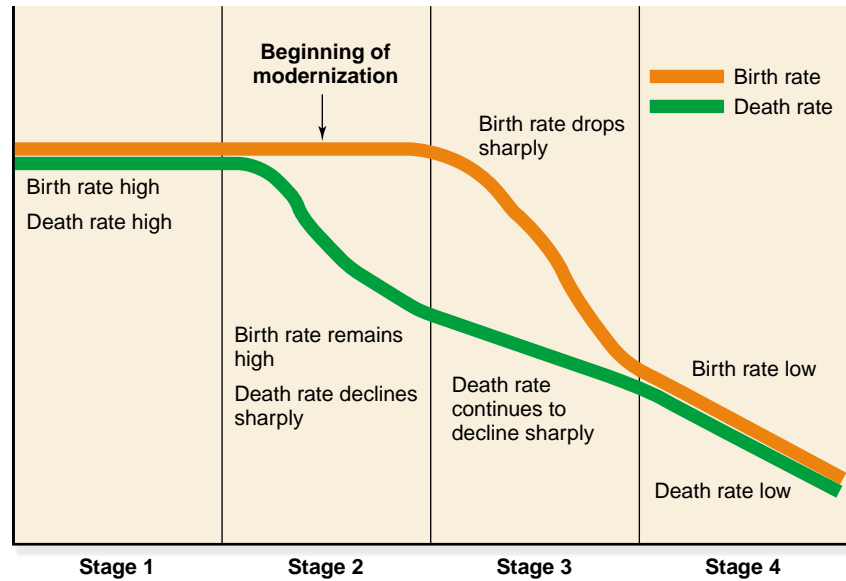
The Demographic Transition

Although wrong in some of his key assumptions, Malthus had a lasting impact on population study. His is not the only theory, however. Developed



Figure 16.4 Stages of the Demographic Transition.

This figure illustrates the demographic transition. Stage 1 begins with small population growth due to a balance between birth rates and death rates (both at high levels). In Stage 2, population grows dramatically because the death rate decreases so much faster than the birth rate. Population growth begins to slow in Stage 3, when the birth rate belatedly drops sharply. Stage 4 is again a condition of smaller population growth because birth rates and death rates come into balance (both at low levels).



demographic transition theory theory that population growth is a function of the level of economic development in a country

nations have followed a pattern of population growth different from that predicted by Malthus's theory. The **demographic transition theory** looks at the stages of economic development in a country to make predictions about population growth. This theory takes into consideration two things Malthus did not predict—agricultural productivity and reliable methods of birth control. Demographic transition theory describes four stages of population growth. (See Figure 16.4 shown above.)

- ❖ Stage 1. Both the birth rate and the death rate are high. Population growth is slow. No countries are at this stage today.
- ❖ Stage 2. The birth rate remains high, but the death rate drops sharply because of modernizing factors such as sanitation, increased food production, and medical advances. The rate of population growth is very high. Most sub-Saharan African countries are presently at this stage.
- ❖ Stage 3. The birth rate declines sharply, but because the death rate continues to go down, population growth is still rapid. Many Latin American countries are currently at this stage.
- ❖ Stage 4. Both the birth rate and the death rate are low, and the population grows slowly if at all. Anglo America, Europe, and Japan are at this stage today.

Future World Population Growth

World population growth has reached a turning point. After more than two hundred years of increase, the annual population growth rate is declining. The current growth rate is 1.3 percent, compared with the peak of 2.04 percent in the late 1960s. Moreover, the rate is projected to drop to zero by the year 2100.

But as we have seen, despite the reduction in the annual growth rate and birth rate, the world's population will continue to increase. Nearly seven billion people are expected to inhabit the globe by 2010. Throughout the first

half of the twenty-first century, the annual growth rate is expected to decline until world population stabilizes at about eleven billion people. (See Figure 16.5.) At this point, the world will have reached **zero population growth**—when deaths are balanced by births so that the population does not increase (*World Population Data Sheet*, 2001).

Contrary to popular belief, limiting the average family size to two children does not immediately produce zero population growth. There is a time lag of sixty to seventy years because of the high proportion of young women of childbearing age in the world's population. Even if each of these women had only two children, the world population would grow.

The time lag is what demographers call **population momentum**. The growth of the world's population, like a huge boulder rolling down a mountain, cannot be stopped immediately. But the sooner the momentum of current population growth is halted, the better. The sooner the world fertility rate reaches the **replacement level** (the rate at which people replace themselves without adding to the population) the sooner zero population growth will be reached. The ultimate size of the world's population, when it does stop growing, depends greatly on the timing of reaching replacement level. To state it another way, for each decade it takes to reach replacement level, the world's population will increase by 15 percent.

Population Control

As discussed earlier, death rates in both developing and developed nations have already dropped dramatically. Any significant progress in curbing world population growth must concentrate on lowering birth rates. **Population control** refers to the conscious attempt to regulate population size through national birth control programs.

Is government-sponsored population control new? Historically, most societies were more concerned with increasing the population than with overpopulation. Many births were needed to offset the high death rates from disease and poor hygiene. With surplus populations, aggressive nations were able to maintain larger armies. Agricultural societies needed large numbers of people to work the land. Aging parents wanted to be more secure in old age. High birth rates were also encouraged in countries with religious laws against birth control.

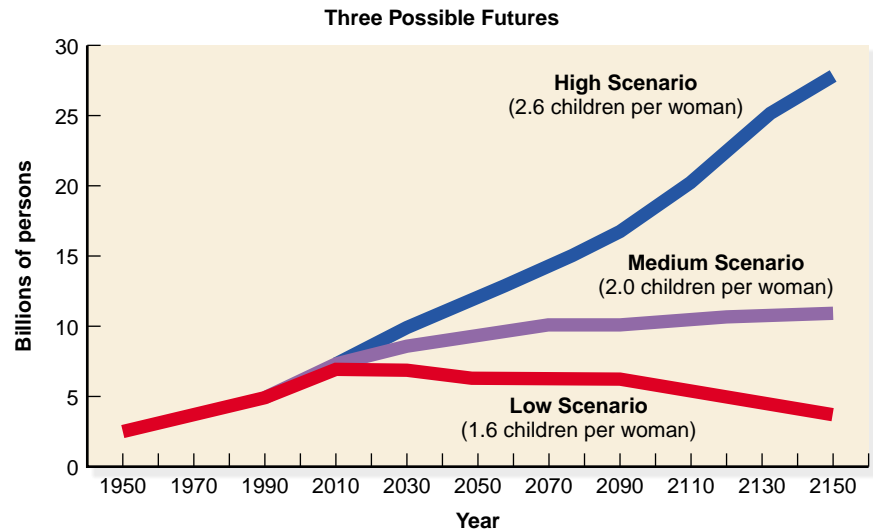


Figure 16.5 Long-Range Projections of World Population: 2000–2150.

The United Nations' estimate of future growth is based on three different assumptions. The high scenario would push world population growth to over 27 billion. The medium scenario would result in a world population of about 11 billion. The low scenario would leave the world population at about 4 billion.

Source: Population Reference Bureau, Washington, DC, 2001.

zero population growth
situation in which deaths are balanced by births so that the population does not increase

population momentum
inability to stop population growth immediately because of previous high rate of growth

replacement level
birth rate at which a couple replaces itself without adding to the population

population control
attempts by government to control birth rates

European countries, such as Germany, have been very successful in controlling population growth through family planning.



Since the middle of the twentieth century, however, more (but certainly not all) governments have come to view high birth rates as a threat to their national well being. By 1990, most countries had in place formal programs to reduce birth rates. Government policies for population control range from voluntary to compulsory.

family planning
the voluntary use of
population control methods

What is voluntary population control? The voluntary use of population control methods is generally known as **family planning**. Governments that support family planning provide information and services that help couples have only the number of children they want. Voluntary government policies range from indirect means such as family planning education to direct means such as distributing birth control materials at health clinics.

Even when effective, however, family planning programs merely enable families to achieve their *desired* family size. Unfortunately for effective population control, the desired family size in many nations is quite high. The average preferred family size (number of children) in African nations is 7.1; in Middle-Eastern nations, 5.1; in Latin American nations, 4.3; and in Asian Pacific nations, 4.0. In European countries, the average preferred family size ranges from 2.1 to 2.8.

How successful is voluntary population control? Family planning has succeeded in Taiwan, where the birth rate had fallen below replacement level by 2000. Taiwan's family planning efforts were launched under very favorable conditions. When the Japanese withdrew from Taiwan after World War II, they left behind a labor force trained for industrial work. Consequently, the Taiwanese were able to use this advantage to build an expanding economy. With economic development came a decline in both birth and death rates. In short, the Taiwanese went through the demographic transition fairly rapidly.

India was a different story. Family planning there got off to a very slow start, and the country has been unable to reduce the rate of population growth through voluntary means. Family planning efforts failed because government officials and family planners did not take the broader social context



into account. For one thing, India did not have Taiwan's advantage of relatively rapid economic development. In addition, the Indian officials and planners did not make enough efforts to overcome cultural and religious opposition to birth control. Nor did they find enough ways to effectively communicate birth control information and technology. Finally, the national birth control program was left in the hands of individual state governments to implement.

Efforts to control population began to succeed in India only after the government turned to a sterilization program in 1976. Although the government did not use the force of law, a system of *disincentives* had the effect of compulsion. Those who could not produce official proof of a sterilization were denied such things as business permits, gun licenses, and ration cards for the purchase of basic goods (Weeks, 1999).

Have compulsory population control methods ever been used successfully? Both China and Singapore have forced population control policies that seem to achieve their goals. China has been successful in reducing its total fertility rate from 7.5 in 1963 to 1.8 in 2001 through a system of rewards and punishments that includes a “one-child” policy. One-child families receive a larger retirement pension and enjoy preference in housing, school admission for their children, and employment. Families with more than one child are subject to an escalating tax on each child, and they get no financial aid from the government for the medical and educational costs of their extra children.

The island city-state of Singapore began formally discouraging large families in 1969. The government passed laws that penalized parents with large families (Weeks, 1999). These measures included

- ❖ denial of a paid eight-week maternity leave.
- ❖ loss of an income tax allowance.
- ❖ diminished access to public housing.
- ❖ increased maternity costs for each additional child.
- ❖ a lower likelihood of children's entering good schools.



India's population control programs have been only moderately successful at best.



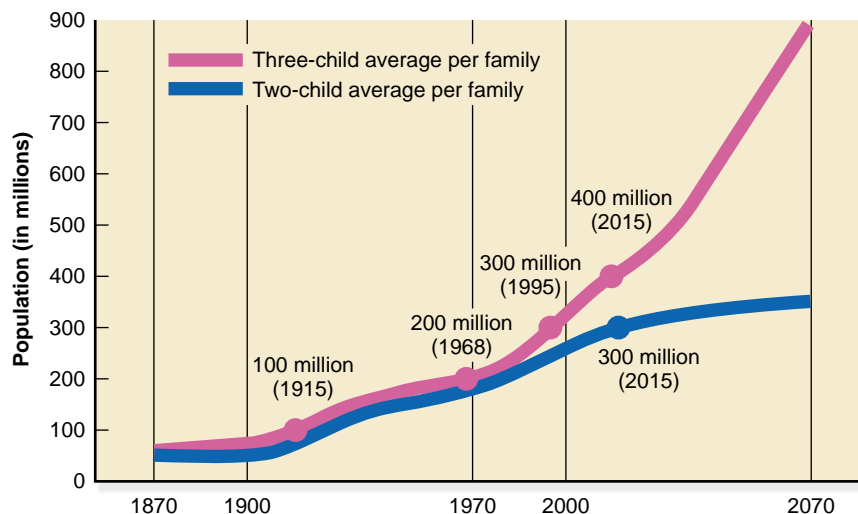
China's population control efforts have been very effective. This poster of a mother and baby was designed to promote small families.

These policies worked so well that the total fertility rate in Singapore dropped from 4.5 children per woman to 1.4 between 1966 and 1985. In fact, the government became worried about the reduction in population size and, in 1987, reversed some of its earlier policies. The government of Singapore now supports three or more children for people able to afford them (Yap, 1995). Despite this effort, Singapore's total birth rate of 1.6 is still below replacement level.

Does one child make a difference? The importance of limiting family size, even by one child, can be illustrated by population projections for the United States. Even though the United States is unlikely to increase to a three-child average in the future, the hypothetical American case can help us understand the importance of population control. Figure 16.6 contrasts the projected population of the United States in the year 2070 for an average family size of two children and an average family size of three children. When small decreases in the death rate and net migration at the present level are assumed, an average two-child family size would result in a population of 300 million in 2015. Taking the hypothetical average family size of three children, the U.S. population would grow to 400 million by 2015. As time passed, the difference of only one extra child per family would assume added significance. By 2070, the two-child family would produce a population of 350 million, but the three-child family would push the population close to one billion! To say it another way, with an average family of two children, the U.S. population would not quite double itself between 1970 and 2070. But should the three-child family have been the average, the population would have doubled itself twice during this same period.

The consequences of limiting population in developing regions becomes clearer when the effect of even one child added to the average number of children in a family is recognized. Moreover, the addition of one child per family has a greater effect as the population base gets larger; not only is one extra person added, but theoretically that one person will be involved with the reproduction of yet another three, and on it goes. The largest populations are found in developing countries, which also have the largest average number of children per family.

Figure 16.6 Projected Populations of the United States. This graph illustrates the importance of reaching the population replacement level (two children per family). Are you surprised at the difference in U.S. population growth caused by an average of three children per family versus two children?



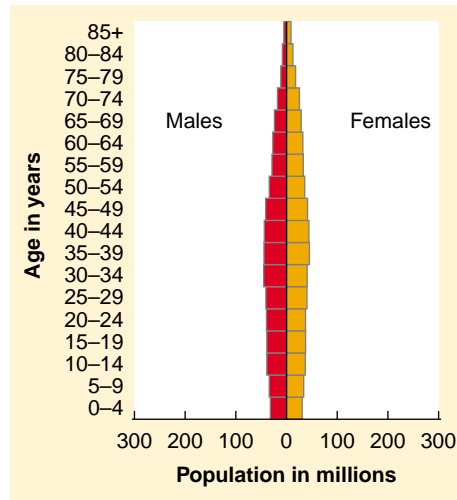
Population Pyramids

Population pyramids allow you to see at a glance the age and sex composition of a population. Age and sex are key indexes to fertility and mortality rates, which in turn are used to project school and housing needs, health resources, and other key social services. Population pyramids illustrate the *dependency ratio* that results from different rates of population growth. The **dependency ratio** is the ratio of persons in the dependent ages (under fifteen and over sixty-four) to those in the “economically active” ages (fifteen to sixty-four). The two aspects of the dependency ratio are *youth dependency* and *old-age dependency*. Developing nations have much higher youth dependency than developed nations. Developed nations have significantly higher old-age dependency. Figure 16.7 displays typical age-sex pyramids for developed and developing nations.

Why is the dependency ratio important? For developing countries such as Mexico, a high youth dependency means that national income must be diverted from economic development to provide food, housing, and education for its large young population. In developed countries such as the United States, rising old-age dependency creates a different set of problems. With a larger



Developed Nations



Less Developed Nations

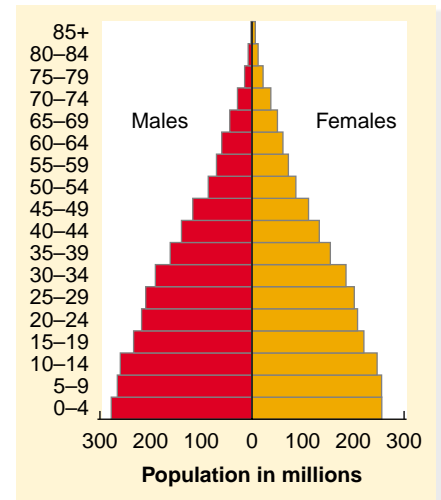


Figure 16.7 Age-Sex Pyramids in Developed and Less Developed Countries.

This figure shows general population patterns by age and sex in developed and developing countries. Using the dependency ratio, explain why children in developed countries are economically better off than those in the developing nations.

Source: United Nations Population Division.

population pyramid

a graphic representative of the age and sex composition of a population

dependency ratio

the ratio of dependent persons to economically active persons

America's aging population is raising the dependency ratio. Why should that concern you?

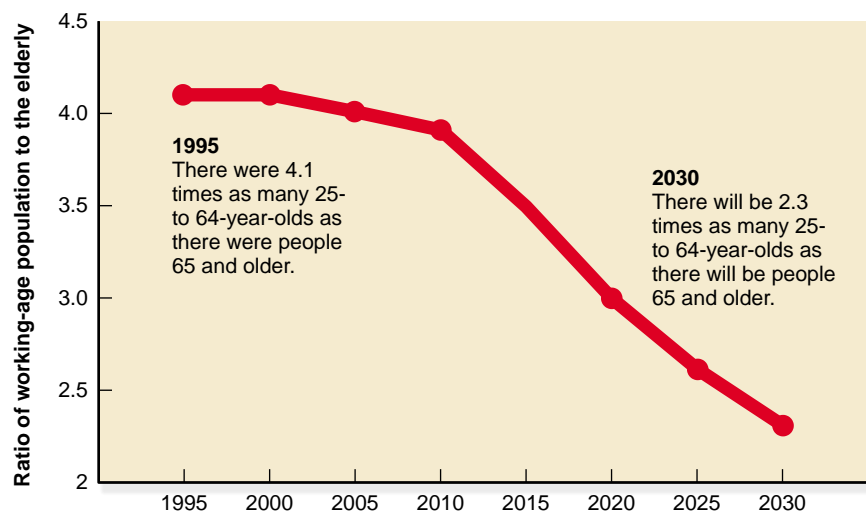


Figure 16.8 Ratio of Working-Age Population to the Elderly in the U.S. 25-to-64-Year-Olds vs 65 and Older. This graph illustrates the rising old-age dependency occurring in the U.S.

Source: Reference Bureau, Washington, D.C.

older population, there are fewer young people in the labor force to support the growing number of older people. For example, in the United States in 1995 there were just over four times as many 25-year-olds as 64-year-olds. By 2030, there will be only 2.3 times as many. (See Figure 16.8.) This shift will increase the burden on the young to pay for Social Security and Medicare. Other problems will include the need for increasing health care services and institutional arrangements for the long-term care of elderly people.

“

Mankind owes to the child the best it has to give.

UN declaration

”

Section 2 Assessment

1. Briefly explain the difference between exponential and linear growth.
2. What are positive checks?
3. How does the demographic transition theory reflect the development of Western nations?
4. Which of the following figures is the world's population most likely to reach before it stops growing?
 - a. four billion
 - b. eight billion
 - c. eleven billion
 - d. twenty-five billion

Critical Thinking

5. **Evaluating Information** Given the exponential rate at which population grows, discuss the effect of zero population growth on the size of the world's population in 2020.



Sociology Today

Demography for Businesses

Businesses have discovered that they can grow bigger by targeting smaller groups of consumers. These groups, called generations, or cohorts, are defined by important life experiences. Events occurring when people first become economic adults (usually between ages 17 and 21) affect their life-long attitudes and values. These attitudes and values are unlikely to change as a person ages. So the kind of music that is popular during these formative years often remains the preferred type of music for life. Similarly, early lifetime experiences influence preferences in many other product and service categories.

Studies of the U.S. population have identified seven distinct groups described in the table below. Which cohort are you? Your parents?

Cohort	Description	Born	Popular Music Styles
The Depression cohort	The G.I. generation	1912–1921	Big band
The World War II cohort	The Depression generation	1922–1927	Swing
The Postwar cohort	The silent generation	1928–1945	Frank Sinatra/Rat Pack
The Boomers I cohort	The Woodstock generation	1946–1954	Rock and roll
The Boomers II cohort	The zoomer generation	1955–1965	Rock and roll, disco
The generation X cohort	The baby-buster generation	1966–1976	Grunge, rap, country western
The Boomlet cohort	The echo-boom generation	1977–	Retro-swing, Latin

Doing Sociology

Have short interviews with members of at least two of the demographic business cohorts profiled above. Identify a number of differences in preferences for products between the members of different cohorts.

Source: Berkowitz, Kerin, Hartley, and Rudelius, *Marketing*, 5th ed. Chicago: Irwin, 1997.

The products in this mall store have been selected by taking into account the buying preferences of teenagers.



Section 3

The Urban Transition

Key Terms

- city
- urbanization
- overurbanization
- suburbanization
- central-city dilemma
- gentrification
- edge city

Section Preview

The first preindustrial cities developed in fertile areas where surplus food could be grown. With the Industrial Revolution came a major increase in the rate of urbanization. The development of factories was an especially important influence on the location of cities. Urbanization in developed and developing nations has occurred at different speeds. The United States is now primarily a suburban nation.

city
dense and permanent concentration of people living in a specific area and working primarily in nonagricultural jobs

urbanization
process by which an increasingly larger portion of the world's population lives in cities

Defining a City

When does a village become a city? In Denmark and Sweden, an area with 200 inhabitants officially qualifies as a city. Populous Japan uses a much higher number—30,000. The cutoff point used by the U.S. Census Bureau to define a city is a population of 2,500. This number was set at a time when urbanization had just begun and population concentrations were small. It is obviously low for modern times.

A city is more than just a reasonably large number of people, however. Cities are also long-lasting. The periodic Woodstock rock festivals gather a large number of people in one place, but only for short periods of time. Clearly, large gatherings alone do not make a city. Cities also have a centralized economic focus. That is, they provide people with a chance to work in commerce, industry, or service. In summary, a **city** is a dense and permanent concentration of people living in a limited geographic area who earn their living primarily through nonagricultural activities.

Urbanization

The world has been greatly changed by **urbanization**—the process by which an increasingly larger portion of the world's population lives in or very near to cities. Urbanization has been so common that it is now taken for granted in many parts of the world. Today, almost as many people live in urban areas as in rural areas. This is a fairly recent development in human history.



Crowded inner cities and sprawling suburbs appear in all American cities.

What were early cities like? The first cities appeared about five or six thousand years ago and were quite small by modern standards. One of the world's first major cities was Ur, located at the point where the Tigris and Euphrates Rivers meet (in modern-day Iraq). At its peak, Ur held only about 24,000 people. Later, during the time of the Roman Empire, it is unlikely that many cities had populations larger than 33,000. The population of Rome itself was probably under 350,000.

In addition to their small size, the cities of ancient and medieval periods contained only a small portion of the world's population. As recently as 1800, less than 3 percent of the world's population lived in cities of 20,000 or more. By contrast, today, 46 percent of the world's population live in urban areas. In North America, 75 percent of the population live in cities (*World Population Data Sheet*, 2001). How did cities develop so quickly and why have cities replaced rural living for most people?

Preindustrial Cities

The first urban settlements were located in Mesopotamia and were established around 3500 B.C. This was after people learned how to cultivate plants and domesticate animals, a period known as the *agricultural revolution*. The Mesopotamian region is among the world's most fertile areas and the farmers in the area were able to provide enough extra, or surplus, food to feed people in the cities. A surplus food supply is necessary for urbanization to occur.

Who lived in preindustrial cities? Besides available food, people needed other reasons to gather in cities. Cities tended to attract four basic types of people: elites, functionaries, craftspeople, and the poor and destitute. For elites, the city provided a setting for consolidating political, military, or religious power. The functionaries were the political or religious officials who carried out the plans of the elites. Their lives were undoubtedly easier than those of the peasant-farmers in the countryside. Craftspeople, still lower in the stratification structure, came to the city to work and sell their products to the elites and functionaries. The poor came hoping to find work but were seldom able to improve their condition.

Do preindustrial cities still exist today? Africa, Asia, and Latin America are only partly industrialized. For this reason, many of their cities still have some preindustrial characteristics. This is particularly true in capital cities because they are a magnet to the rural poor seeking a better life. Rural migrants are attracted to these cities because there are limited opportunities for making a living in the rural areas and the city promises a better life. Unfortunately, most of those who migrate to the cities are disappointed, because the expected employment opportunities do not exist. The migrants end up living in terrible slums.

In Calcutta, India, for example, 12 million people are crowded into a city whose last major sewer line was built in 1896. Epidemics are frequent, and disease is commonplace. Calcutta's housing supply, waterworks, electrical system, and other facilities are not sufficient to cope with the city's rapid growth.



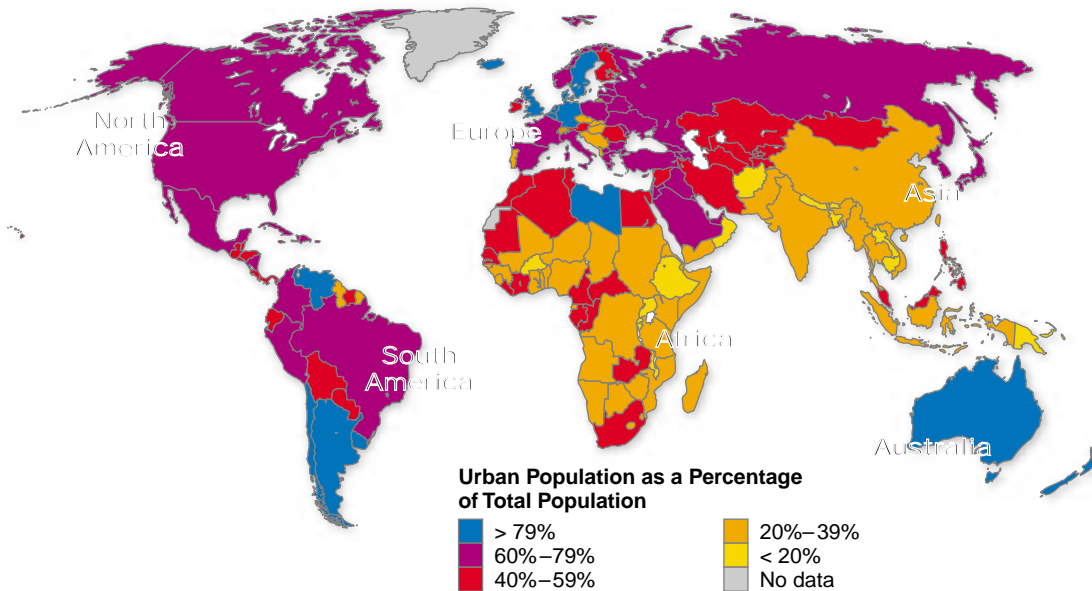
Calcutta, India, remains essentially a preindustrial city.

World View



Urban Population as a Proportion of Total Population

As discussed in the text, the Industrial Revolution encouraged the rapid growth of cities. The map below shows that many countries now have urban populations that comprise 60 percent or more of their total populations.



Interpreting the Map

1. The map shows that countries such as England, Germany, and Sweden have urban populations that make up over 80 percent of their total populations. This can be explained by the effects of the Industrial Revolution, since these countries' economies are highly developed. However, other countries, such as Venezuela, Argentina, and Libya, which are not highly developed, also have urban populations that comprise over 80 percent of their totals. Can you think of reasons why this is so? Explain.
2. What effects will increased urbanization have on countries and the world?

Adapted from *The State of the World Atlas*, 5th ed.

The Rise of the Modern City

Beginning in the 1700s, the Industrial Revolution created major changes in transportation, agriculture, commerce, and industry. Technological developments led to better agricultural productivity and more efficient transportation systems. Farm workers were free to leave rural areas and move into cities. More important, however, was the spread of factories.

Figure 16.9 Focus on Theoretical Perspectives

Urban Society. This table illustrates how functionalism and conflict theory might approach the study of urban society. Symbolic interactionism was not included. Why do you think it was excluded? Can you suggest a research topic in either population or urbanization for which symbolic interactionism would be appropriate?

Theoretical Perspective	Concept	Sample Research Topic
Functionalism	Urbanization	Study of the relationship between population density and the suicide rate
Conflict Theory	Overurbanization	Investigation of the relationship between the distribution of scarce resources and social class



Factories were not established to encourage the growth of cities, but they had that effect. Factory owners tended to build in the same area to share raw materials and to take advantage of natural features such as water power and river transport. Machinery and equipment makers located their plants next to the factories they would be supplying. All these businesses in turn attracted retailers, innkeepers, entertainers, and a wide range of people offering services to city dwellers. The more services offered, the more people were attracted, maintaining the cycle of urban growth. The industrial world was becoming an urbanized world.

World Urbanization

Urbanization is a worldwide movement. From 1800 to the mid-1980s, the number of urban dwellers increased one hundred times, while the population increased only about fivefold. Over 2.8 billion people—nearly 46 percent of the world’s population—now live in urban areas. In developed countries, 75 percent of the population lives in urban areas compared to 40 percent in developing countries. (See Figure 16.10 on page 553.)

What are the patterns for urbanization? Developed and developing countries have distinct patterns of urbanization. Most of the urban growth in developing countries before the turn of the century occurred through colonial expansion. Western countries, which had been involved in colonial expansion since the late fifteenth century, held half the world under colonial rule by the latter part of the nineteenth century. It has been only since World War II that many of these colonial countries have become independent nations (Bardo and Hartman, 1982).

Since gaining independence, these former colonies have been experiencing rapid urbanization and industrialization. In fact, urbanization in these areas is now proceeding nine times faster than it did in the West during its urban expansion period. The rate of urbanization for major industrial nations in the West was 15 percent each decade throughout the nineteenth century. In the 1960s, the rate of urbanization in major developing countries was 20 percent per decade (Light, 1983).

What are some other differences in the pattern of world urbanization? In the first place, industrialization in developing countries, unlike the Western experience, has not kept pace with urbanization. Cities of North America and Europe had jobs for all migrants from rural areas. In the cities of developing nations, the supply of labor from the countryside is greater than the demand for labor in the cities. A high rate of urban unemployment is the obvious result. The term **overurbanization** has been created to describe a situation in which a city is unable to supply adequate jobs and housing for its inhabitants.

overurbanization

situation in which a city cannot supply adequate jobs and housing for its inhabitants



Los Angeles drivers spend about 82 hours a year, two full weeks of work, waiting in traffic. Does this mean that Los Angeles is overurbanized?

suburbanization

loss of population of a city to surrounding areas

Another difference between urbanization in developed and developing countries is the number and size of cities. When grouped by size, cities in developed countries form a pyramid: a few large cities at the top, many medium-sized cities in the middle, and a large base of small cities. In the developing world, in contrast, many countries have one tremendously big city that dwarfs a large number of villages. Calcutta, India, and Mexico City are examples. Of the world's ten largest cities, only two—Shanghai and Calcutta—were in developing countries in 1950. By 2000, as you can see in Figure 16.10 on the opposite page, seven of the top ten largest urban areas were in developing countries. By the end of the twenty-first century, it is predicted that there will be twenty-one “megacities” with populations of ten million or more. Eighteen of these will be in developing countries, including the most impoverished societies in the world.

What are “push” and “pull” factors? In explaining why people in developing countries move to large cities with inadequate jobs and housing, urban sociologists point to the operation of “push” and “pull” factors. People are pushed out of their villages because expanding rural populations cannot be supported by the existing agricultural economy. They are forced to migrate elsewhere, and cities are at least an alternative. Poor people are also attracted to cities in the belief there are opportunities for better education, employment, social welfare support, and good medical care. Unfortunately, they are likely to be disappointed.

Suburbanization in the United States

Unlike cities in the developing world, cities in the United States have recently been losing population, not gaining. Since 1950, the proportion of the population living in suburbs has more than doubled. **Suburbanization** occurs when central cities lose population to the surrounding areas. The United States is now predominantly suburban.

What makes suburbanization possible? Suburbanization has become an important trend partly because of technological developments. Improvements in communication (such as telephones, radios, and television and later computers, fax machines, and the Internet) have allowed people to live away



from the central city without losing touch with what is going on there. Developments in transportation (especially trains, highways, automobiles, and trucks) have made it possible both for people to commute to work and for many businesses to leave the central city for suburban locations.

Technology is not the only cause of suburbanization. Both cultural and economic pressures have encouraged the development of suburbs. Partly because of America's frontier heritage, American culture has always had a bias against urban living. Some Americans prefer urban life, but most report that they would rather live in a rural setting. Even those who choose to live in the city believe they are giving up some advantages. Suburbs, with their low-density housing, have allowed many people to escape the problems of urban living without leaving the urban areas completely. Suburbs are attractive because of decreased crowding and traffic congestion, lower taxes, better schools, less crime, and reduced pollution.

The scarcity and high cost of land in the central city also encourages suburbanization. Developers of new housing, retail, and industrial projects often find suburban locations far less expensive than those near the central city. Finally, government policy has often increased the impact of economic forces. Federal Housing Administration regulations, for example, have favored the financing of new houses (which can be built most cheaply in suburban locations) rather than the refurbishing of older houses in central cities. Among other things, this has led to the *central-city dilemma*.

What is the central-city dilemma? When suburbanization first became noticeable in the 1930s, only the upper and middle classes could afford to leave the central city. Not until the 1950s did the white working class follow them. Despite federal legislation prohibiting housing discrimination, the suburbs remained largely white until the 1970s. Since then, central-city minorities have moved to the suburbs in greater numbers. Still, the percentage of African Americans living in central cities has declined only slightly since 1970 (Farley, 1997; Palen, 1997).

The problem is not merely that minorities remain trapped in inner cities. Businesses have followed the more affluent people to the suburbs where they can find lower tax rates, less expensive land, less congestion, and their customers who have already left the city. Accompanying the exodus of the middle class, manufacturers, and retailers is the shrinking of the central-city tax base. As a result, the central city has become increasingly populated by the poor, the unskilled, and the uneducated. This has created the **central-city dilemma**—the concentration of a large population in need of public services (schools, transportation, health care) without the tax base to provide them.

Can the central-city dilemma be solved? Some countertrends exist. There are city governments now requiring certain public employees to live in

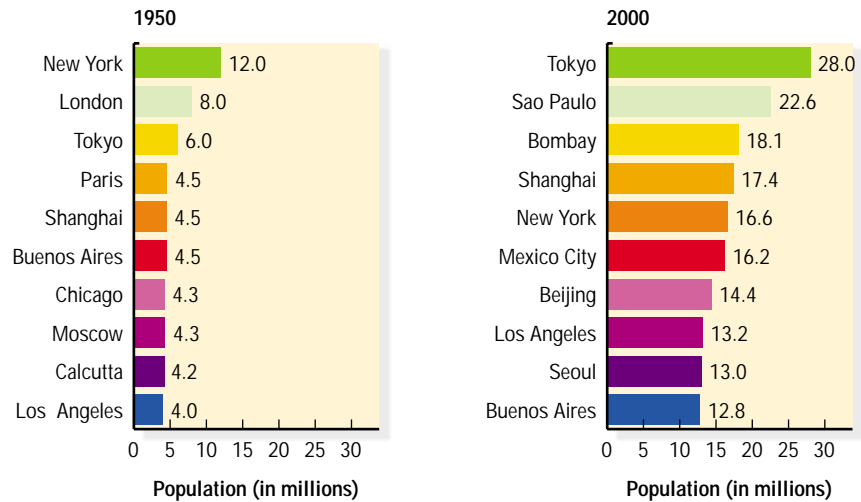


Figure 16.10 World's Largest Urban Areas: 1950, 2000.

This figure compares the world's largest urban areas in 1950 and 2000. What is the most surprising aspect of these data to you?

Source: Population Division of the UN Secretariat Estimate.

CLICK HERE

SOCIOLOGY
Online

Student Web Activity

Visit the *Sociology and You* Web site at soc.glencoe.com and click on **Chapter 16—Student Web Activities** for an activity on suburbanization.

central-city dilemma
concentration of people in need of public services without tax base-generated money to provide for them



This view of Dallas was taken from the rooftop pool area of an old garment factory converted into luxury apartments.

gentrification

the development of low-income areas by middle-class homebuyers, landlords, and professional developers

edge city

a suburban unit specializing in a particular economic activity

the city. Some parts of inner cities are being restored through **gentrification**—the development of low-income areas by middle-class home buyers, landlords, and professional developers. Finally, there is a fairly significant movement of whites back to the central city. This movement is particularly evident among baby boomers who are remaining single or establishing childless or two-income families. Because these people are not as heavily involved in child rearing, they prefer central-city living more than the previous generation did (Palen, 1997). The importance of these countertrends for easing the central-city dilemma remains to be seen. They certainly have not been sufficiently important to stop the emergence of *edge cities*.

What are edge cities? As stated, increasing numbers of businesses and jobs have followed people to the suburbs. In fact, “suburban downtowns” are changing the face of urban America. An **edge city** is a smaller, more focused, version of an urban downtown. It is a suburban unit that specializes in a particular economic activity (Garreau, 1991). Employment in one edge city may focus on computer technology; employment in another, on financial services or health care. A specialized edge city, of course, will have many other types of economic activities as well, such as industrial tracts, office parks, distribution and warehousing clusters, and home offices of national corporations. Edge cities are actually little cities in themselves with a full range of services, including schools, retail sales, restaurants, malls, recreational complexes, medical facilities, and hotels and motels. Edge cities do not have legal and physical boundaries separating them from the larger urban area in which they are located. This has not prevented names from being attached to several of them. Tyson’s Corner is located in northern Virginia near Washington, D.C., Los Colinas is close to the Dallas-Fort Worth airport, and King of Prussia is northwest of Philadelphia. Some edge cities bear the names of highways, such as Route 128 outside of Boston.

Section 3 Assessment

1. Give a brief definition of *urbanization*.
2. What are two conditions necessary for the development of modern cities?
3. Where are preindustrial cities located today?
4. What term do sociologists use to describe mass migration to the suburbs?

Critical Thinking

5. **Analyzing Information** Do you think preindustrial cities can continue to exist? Why or why not?

“

Our national flower is the concrete cloverleaf.

Lewis Mumford
U.S. novelist

”

Tech Trends

Virtual Communities

Some people find life in the big city so impersonal that they feel no sense of belonging to a community. Recently organizers in several locations have been trying to use the Internet to rebuild community relationships through electronic networks. These *dedicated*—specialized—virtual communities use communications technology to link people who live in the same area, city, or neighborhood.

Organizers of community networks share the goals of local participation, community building, and democracy. As with the New England colonies' town meetings, the ideal of the new community networks is to include everyone. Supporters of the new technology claim that electronic communications will allow people to reestablish more personal relationships.

As with all projects involving technology, though, the problem of “electronic stratification” arises. Because of the costs involved, access to technological advances is not equally distributed throughout the community. Low-income individuals and families cannot afford computers or Internet access, and public agencies are not ready to supply sufficient funding. Furthermore, as computers become more sophisticated, people who are not already computer literate (especially lower-income people) will have an increasingly difficult time catching up. The technologically poor will become technologically poorer.

The Boulder (Colorado) Community Network (BCN), established in the mid-1990s, experienced many of these problems. The founders of BCN trained many different Boulder groups to use community networks. They found that acceptance varied widely among the groups. For example, residents at a local senior citizens' home became avid users of the community computers placed in their facility. In contrast, a group of low-income single parents virtually ignored the existence of the computers and the Internet, even after extensive training (Virnoche, 1998).

If community networks do become firmly established, critics warn, the “human factor”

will still be lacking. When people meet through the Internet, they have no social clues, such as body language and facial expressions, with which to learn about their new acquaintances. No matter how much you learn about another person on-line, critics say, you have not met someone for real until you meet in person (Herbert, 1999).



iVillage.com is a Web site offering a virtual community for women.

Analyzing the Trends

What do you think will be the most significant effects of virtual communities on social roles?

Section 4

Urban Ecology

Key Terms

- urban ecology
- concentric zone theory
- sector theory
- multiple nuclei theory
- peripheral theory

Section Preview

Urban ecologists have developed four major theories of city growth: concentric zone theory, sector theory, multiple nuclei theory, and peripheral theory. Combining insights from all four theories is useful to our understanding of how humans relate to city environments.

urban ecology

the study of the relationships between humans and city environments

concentric zone theory

theory that describes urban growth in terms of circular areas that grow from the central city outward

The Nature of Urban Ecology

Although every city is unique, patterns have been found in the way humans interact with the cities they inhabit. **Urban ecology** is the study of the relationships between humans and their city environments.

In the 1920s and 1930s, sociologists at the University of Chicago studied the effects of the city environment on city residents. They asked such questions as why there are differences between areas of a city, how do different areas affect one another, and what processes change an area. To answer these and other questions, the University of Chicago sociologists developed theories of urban ecology, including theories of city growth (Flanagan, 1993; Kleniewski, 1997; Micklin and Poston, 1998).

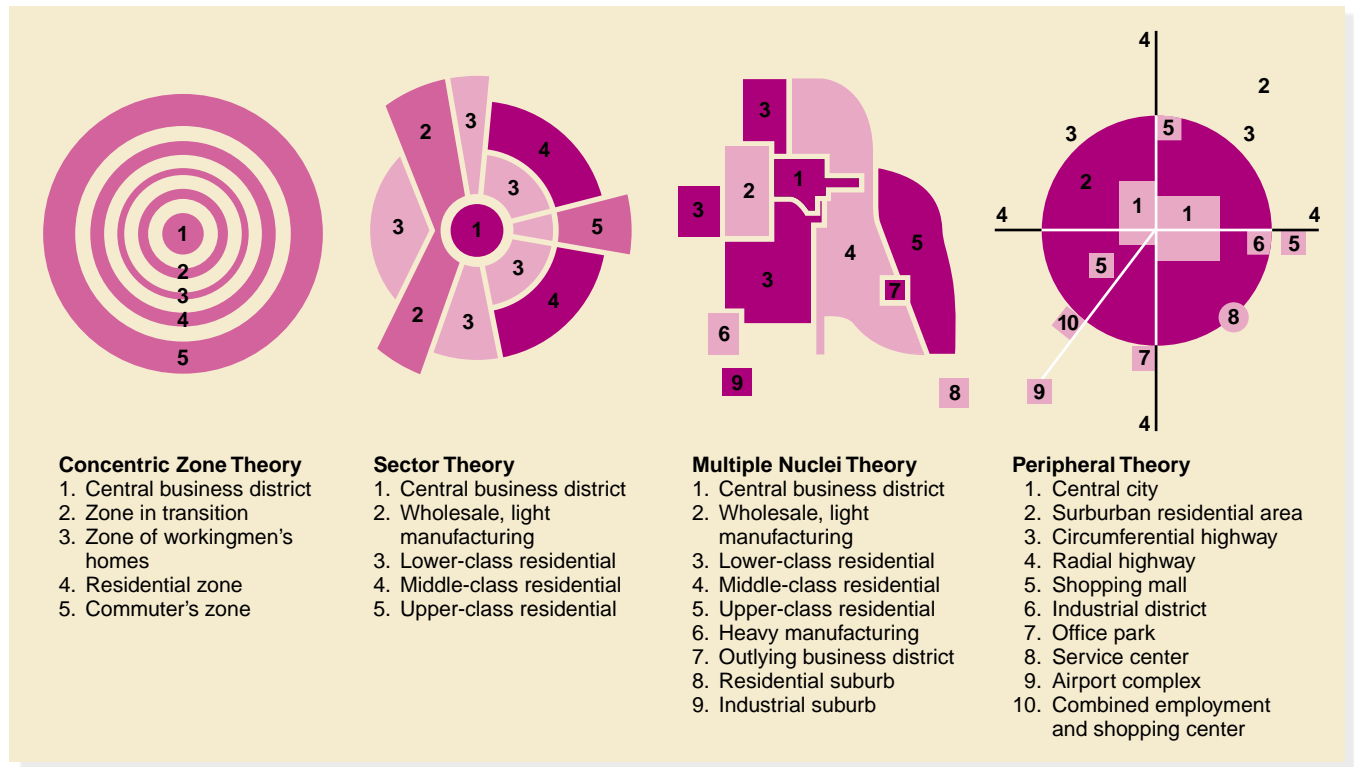
Theories of City Growth

Sociologists focus on four major theories of city growth. *Concentric zone theory* describes urban growth in terms of circular areas that grow from the central city outward. *Sector theory* emphasizes the importance of transportation routes in the process of urban growth. *Multiple nuclei theory* focuses on specific geographic or historical influences. *Peripheral theory* emphasizes the growth of suburbs around the central city. The four approaches lead to quite different images of urban space. (See Figure 16.11 on the facing page.) No city exactly fits any of these images, however. Indeed, the theories tell us more when considered together than they tell us separately. To understand why this is so, we must first examine each theory.

What is concentric zone theory? Ernest Burgess (1925), like other early sociologists at the University of Chicago, was interested in the causes and consequences of Chicago's growth. His work led to the **concentric zone theory**, which describes city growth in terms of distinctive zones—zones that develop from the central city outward in a circular pattern. Many northern cities that experienced a great deal of immigration and rapid growth developed this way.

As illustrated in Figure 16.11, the innermost circle is the *central business district*, the heart of the city. This district contains major government and private office buildings, banks, retail and wholesale stores, and entertainment and cultural facilities. Because land values in the central city are high, space is at a premium. The central business district contains a large proportion of a city's important businesses partly because the less important





ones are unable to compete for the expensive space in the central business district.

The central business district strongly influences other parts of a city. Its influence is especially clear in the zone immediately surrounding it. Burgess called this the *zone in transition* because it is in the process of change. As new businesses and activities enter the central business district, the district expands by invading the next zone. This area may have been a residential area inhabited by middle- or upper-class families, who left because of the invasion of business activities. Most of the property in this zone is bought by those with little interest in the area. Rather than investing money in building maintenance, landowners simply extract rent from the property or sell it at a profit after the area has become more commercialized. Until the zone in transition is completely absorbed into the central business district (which may never occur), it is used for slum housing, warehouses, and marginal businesses that are unable to compete economically for space in the central business district itself. In short, the invasion of business activities creates deterioration for the zone in transition.

Surrounding the zone in transition are three zones devoted primarily to housing. The *zone of workingmen's homes* contains modest but stable neighborhoods populated largely by blue-collar workers. In the northern United States, the zone of workingmen's homes is often inhabited by second-generation immigrants who have had enough financial success to leave the deteriorating zone in transition. Next comes a *residential zone* containing mostly middle-class and upper-middle-class neighborhoods. Single-family dwellings dominate this zone, which is inhabited by managers, professionals, white-collar workers, and some well-paid factory workers. On the outskirts of

Figure 16.11 Theories of City Growth. This figure diagrams the four major theories of city growth. Discuss one important contribution each theory makes to our understanding of urban growth.

Source: Adapted from Chauncy D. Harris, *Urban Geography*, 1997.

“

The planner's problem is to find a way of creating, within the urban environment, the sense of belonging.

Leo Marx
philosopher and culturist

”



Focus on Research

Secondary Analysis: Gang Violence

Gangs have been a constant feature of the American urban landscape during most of the twentieth century. James Hagedorn's research (1998), however, led him to propose that postindustrial society has changed patterns of gang violence. Hagedorn's conclusions are based on a combination of three methods: a review of the research of others, secondary analysis of data collected by other researchers, and original data gathered himself.

Gangs (mostly male) in the industrial period were tied to specific neighborhoods and new immigrant groups. Gang violence primarily centered on "turf" battles among neighborhood peer groups. Pride in violence came from defending territory. Violence provided excitement and a sense of place in a group. Nevertheless, these working- and lower-class boys would eventually move on to hold decent jobs, have families, and live in better neighborhoods.

Gangs today still tend to form around racial and ethnic groups and neighborhoods. Currently, gangs tend to be African American, Latino, or Asian, just as earlier gangs were formed mostly by European immigrants, such as those from Ireland, Italy, or Eastern Europe. According to Hagedorn, however, postindustrial gangs are different in important ways. First, gang violence has significantly increased. Second, gang-related homicides have risen dramatically. Gang violence, he notes, skyrocketed at the same time American corporations were moving well-paying jobs away from the central city. As legitimate work disappeared in inner cities, gangs turned from their earlier territorial emphasis to participation in the illegitimate drug market. The common outlook of gang members today is expressed by this gang member:

I got out of high school and I didn't have a diploma, wasn't no jobs, wasn't no source of income, no nothing. That's basically the easy way for a . . . young man to be—selling some dope—you can get yourself some money real quick, you really don't have nothing to worry about, nothing but the feds. You know everybody in your neighborhood. Yeah, that's pretty safe just as long as you don't start smoking it yourself (Hagedorn, 1998:390).

Significantly, this gang member was not a teenager. While a minority of gang members remain committed to the drug economy, most seek "legit" jobs as they approach their thirties.

Working with the Research

1. Explain why urban gangs tend to form around minority groups.
2. Relate Hagedorn's findings on urban gang violence, to Merton's strain theory, discussed in Chapter 7.



the city, often outside the official city limits, is the *commuter's zone*, which contains upper-class and upper-middle-class suburbs.

What is sector theory? Not everyone agreed with Burgess's theory of how cities grow. The sociologist Homer Hoyt (1939) offered another model—**sector theory**. Hoyt's work indicated that growth patterns do not necessarily spread out in rings from the central business district. Instead, growth is more strongly affected by major transportation routes.

As Figure 16.11 shows, sectors tend to be pie-shaped, with wedges radiating from the central business district to the city's outskirts. Each sector is organized around a major transportation route. Once a given type of activity is organized around a transportation route, its nature tends to be set. Thus, some sectors will be predominantly industrial, others will contain stores and professional offices, others will be “neon strips” with motels and fast-food restaurants, and still others will be residential sectors, each with its own social class and ethnic composition.

As in concentric zone theory, cities are generally circular in shape. But because of the importance of transportation routes extending from the central business district, the boundaries of many cities form a starlike pattern, rather than a uniformly circular shape. The exact shape of a city, however, is not a major issue in sector theory. Emphasis here is on how patterns of growth are organized around transportation routes. Cities that follow this pattern include Seattle, Richmond, and San Francisco.

What is multiple nuclei theory? Many cities have areas that cannot be explained by either concentric zone or sector theory. Chauncy Harris and Edward Ullman (1945) suggested that cities do not always follow a pattern dependent on a central district. The **multiple nuclei theory** states that a city may have several separate centers, some devoted to manufacturing, some to retail trade, some to residential use, and so on. These specialized centers can develop because of the availability of automobiles and highways. They reflect such factors as geography, history, and tradition. The city of Boston fits this model.

What is peripheral theory? The three theories of urban growth just discussed were originally developed more than fifty years ago. Despite their age, the insights of each theory still help us to understand how cities have expanded from the center outward. This is especially the case for older cities such as Chicago and San Francisco. Many cities today, however, no longer have a central city core to which other parts of the metropolitan area are oriented all of the time.

Dependence on shipping, railroads, and heavy manufacturing has been replaced by more flexible means of transportation, such as cars and trucks. And large urban areas are now encircled by highways. New technologies (fax machines, cell phones, computers, the Internet) are also loosening the ties of most parts of the city to the central city core. As a result, many cities are now oriented *away* from the older urban core.

As noted earlier, many Americans have moved from the city to the suburbs. They have done so in part because many businesses—offices, factories, schools, retail stores, restaurants, health centers—are also in the suburbs. To describe changes in urban areas today, urban geographer Chauncy Harris (1997) has formulated the **peripheral theory**. The dominant feature of this model is the growth of suburbs (and edge cities) around

sector theory

theory that emphasizes the importance of transportation routes in the process of urban growth

multiple nuclei theory

theory that focuses on specific geographic or historical influences on urban growth

peripheral theory

theory that emphasizes the growth of suburbs around the central city

Explain which theory of urban growth best accounts for this suburban office building.



and away from the central cities. (See Figure 16.11.) Peripheral theory brings urban growth research up to date.

Which of these theories of city growth is correct? As suggested earlier, no single theory covers the dynamics of city growth for all cities. But each theory emphasizes the importance of certain factors that cannot be overlooked by anyone interested in city growth.

- ❖ Concentric zone theory emphasizes the fact that growth in any one area of a city is largely influenced by politics and economics. According to this theory, the distribution of space is heavily influenced by those with the money to buy the land they want for the purposes they have in mind.
- ❖ Sector theorists have also contributed to an understanding of urban growth. As they have noted, transportation routes have a strong influence on cities. Decisions about the placement of railroad lines had important effects on the growth of cities in the nineteenth and early twentieth centuries. Highways and major streets have an even larger impact now.
- ❖ Although multiple nuclei theory is vague in its predictions, the types of geographic and historical factors it emphasizes are also important for understanding any specific city.
- ❖ Peripheral theory has brought urban growth research up to date by emphasizing the development of suburbs around the central city.

“

Men come together in cities in order to live. They remain together in order to live the good life.

Aristotle
Greek philosopher

”

Section 4 Assessment

1. Provide a brief description of each of the following zones.

a. central business district	d. zone in transition
b. commuters' zone	e. zone of workingmen's homes
c. residential zone	
2. What is the driving force behind the sector theory?
3. Why is the multiple nuclei theory considered more flexible than the concentric zone theory or the sector theory?

Critical Thinking

4. **Summarizing Information** Summarize the evolution of cities, focusing on the differences between life in preindustrial cities and life in industrial and suburban cities.
5. **Applying Concepts** Discuss the major contributions the four theories of city growth have made to our understanding of city growth.

CHAPTER 16 ASSESSMENT

Summary

Section 1: The Dynamics of Demography

Main Idea: Demography is the scientific study of population. The collection of population data is very important today, in part because of its use by government and industry. Demographers consider three population processes when looking at population change: fertility, mortality, and migration.

Section 2: World Population

Main Idea: Thomas Malthus (1798) predicted that population size would ultimately outstrip the food supply, resulting in mass starvation and death. The demographic transition theory looks at economic development to predict population patterns. While the rate of world population growth is slowing, the world's population will continue to increase for many years.

Section 3: The Urban Transition

Main Idea: The first preindustrial cities developed in fertile areas where surplus food could be grown. With the Industrial Revolution came a major increase in the rate of urbanization. The development of factories was an especially important influence on the location of cities. Urbanization in developed and developing nations has occurred at different speeds. The United States is now primarily a suburban nation.

Section 4: Urban Ecology

Main Idea: Urban ecologists have developed four major theories of city growth: concentric zone theory, sector theory, multiple nuclei theory, and peripheral theory.



Self-Check Quiz

Visit the *Sociology and You* Web site at soc.glencoe.com and click on **Chapter 16—Self-Check Quizzes** to prepare for the chapter test.

Reviewing Vocabulary

Complete each sentence using each term once.

- | | |
|---------------------|--------------------------|
| a. demography | g. crude death rate |
| b. fertility | h. infant mortality rate |
| c. fecundity | i. migration |
| d. crude birth rate | j. doubling time |
| e. fertility rate | k. replacement level |
| f. mortality | l. urban ecology |

- _____ is the number of children born to a woman or a population of women.
- The annual number of live births per one thousand women aged fifteen to forty-four is called _____.
- _____ refers to the deaths within a population.
- The annual number of deaths per one thousand members of a population is called _____.
- _____ is the annual number of deaths among infants under the age of one per one thousand live births.
- The number of years needed to double the base population is known as the _____.
- _____ is the birth rate at which a couple replaces itself without adding to the population.
- The scientific study of population is called _____.
- The study of relationships between humans and their city environments is called _____.
- _____ is the movement of people from one geographic area to another.
- The annual number of live births per one thousand members of a population is called _____.
- _____ is the maximum rate at which women can physically produce children.

CHAPTER 16 ASSESSMENT

Reviewing the Facts

1. Identify and describe the three population processes. Use a diagram similar to the one below to record your answers.

Process	Description
1.	
2.	
3.	

2. What is suburbanization?
3. What was Thomas Malthus' solution for over-population?
4. In your own words, explain population momentum.
5. What is the difference between replacement level and zero population growth?
6. List and explain the four major theories of city growth.

Thinking Critically

1. **Making Generalizations** The United States is actually nearing zero population growth—except for the influx of immigrants. Recall from your history or government classes as many of the benefits and disadvantages of open immigration as you can and discuss them in class. Do you think immigration should be a factor in considering methods of controlling population? Why or why not?
2. **Drawing Conclusions** Sometime in October 1999, the world population reached six billion. As you read in the chapter, the population is expected to reach seven billion by 2010. How are technological improvements contributing to this rapid growth?
3. **Analyzing Information** Technology has been credited with increasing population growth. In what ways might it be employed to slow down the rate of population growth?
4. **Making Inferences** One of the great debates

concerning population growth is whether there is enough food to supply the world. Some argue that, each year, tons of food supplies sit in bins waiting to be used but are wasted because there is no way to get the supplies where they are needed. Others argue that we can raise agricultural productivity no higher and will soon be unable to feed the world. What factors affect the availability of food in developing nations? In industrial and postindustrial societies?

5. **Drawing Conclusions** Universal education, according to Thomas Malthus, could be the great equalizer in raising the quality of life for all human beings. As a budding sociologist, would you agree with Malthus that education is the only real solution to current world problems? Would universal education really level the playing field for all? Explain your views.
6. **Making Inferences** Emile Durkheim was concerned about the changes brought on by the Industrial Revolution. He studied suicide rates and found them to be higher in urban areas. What factors might contribute to higher suicide rates in urban areas that would not be factors in rural areas? Do you think Durkheim's findings hold today, or is the likelihood of suicide just as great in rural and suburban areas?
7. **Applying Concepts** By U.S. Census Bureau definition, a population of 2,500 qualifies a community to be called a city. What are some factors that clearly distinguish communities of 2,500 from places such as Los Angeles and New York? Do you consider your community to be a city in the modern sense? Why or why not?

Sociology Projects

1. **Doubling Time** Choose a country and find its doubling time. Then, using the library or multimedia sources, identify reasons for that country's doubling time. Consider some of the variables mentioned in the text, such as infant mortality rate, wars, and epidemics. Be prepared to give a brief oral report to the class on your findings.

2. **The Effects of Doubling Time** Review the analogy of the chessboard given on page 538 of the text. Now, get a calculator and draw a chessboard with sixty-four squares. Starting with one “person” on the first square, start doubling the number of people for each square. At what point do the numbers become unmanageable? How does this little demonstration illustrate the effects of doubling time?
3. **Demographic Transition** Pick another country. Of the four stages of demographic transition described on pages 539–540, which one best reflects the country you chose? What are the factors that caused you to place the country at this stage?
4. **Theories of Urban Growth** Obtain a map of a large city in your area. (If you live in a fairly large city, use a map of it.) By looking at the map, can you determine if patterns of growth in this city proceeded according to one of the theories of urban growth described in the chapter? If so, take a marker and illustrate the patterns on the map. You might also talk with people in the city who have some knowledge of how the city changed over time, such as the local historical society, city clerks, or a local sociologist. Try to find out what growth pattern the city followed.
5. **Social Institutions** By definition, all communities have the following social institutions: family, education, science/technology, politics, religion, sports, and economy. Locate a map of your community (city hall is a good source for these maps). With two or three classmates, pick a part of town for the focus of your project. In the part of town you chose, take a photograph of at least one example of each type of institution. For the family, for instance, you might take a picture of a house. Look to see how many of the institutions are in your chosen neighborhood, and then bring back some item or souvenir from each of the institutions, if possible. For example, if you select a restaurant (economic institution) you might bring back a menu. *Be sure to ask permission for everything you take.* Present your photos and souvenirs to the class on a poster board.
6. **World Population Growth** Talk with some older people in your family or neighborhood

about how the growing world population has affected them. Ask them to identify some changes that have taken place since 1960 (when the world population was only three billion). Write down their comments in the form of a script, as if you were interviewing them for a magazine article.

7. **Urban Planning** Choose three classmates to join you as members of the Urban Planning Board of Betterville, USA. As members of the Urban Planning Board, it is your task to jointly design the city for redevelopment. Examine the four major theories of city growth. Determine which theory or combination of theories you would use to design Betterville. Create a visual representation of your city design (e.g., blueprint, chart, artist rendering, etc.). Write a one-page essay explaining the theory or combination of theories that you chose and the rationale for your choice.

Technology Activity



1. William Julius Wilson, a sociologist at Harvard University, has done extensive research on what the text calls the central-city dilemma. The Public Broadcasting System (PBS) sponsored an on-line forum with Dr. Wilson, called “A Look at the Truly Disadvantaged.” Go to this web site at http://www.pbs.org/newshour/forum/november96/wilson_11-29.html and select “Why is inner city education so poor?”
 - a. What is to blame for the poor results often obtained in inner city schools, according to Dr. Wilson?
 - b. Now select “How can inner cities be reconnected to the rest of American society?” What are Dr. Wilson’s recommendations for solving the central-city dilemma?
 - c. Read some of the “Viewer comments.” Do you agree or disagree with any of the comments shown there? What do you think could be done to solve the problems in inner cities?

Chapter 16



Enrichment Reading

Life Expectancy: Surprising Demographic Trends

by David Stipp

Baby boomers have ushered in most every major trend over the past 50 years. But it was their grandparents who initiated the most radical demographic change of the past half-century—a dramatic decline in death rates at older ages. In fact, about the time boomers were rambunctiously burning draft cards, their elders quietly began **nullifying actuarial tables**. By 1990 there were more than 1.5 million Americans age 85 and over who wouldn't have been alive if death rates had stayed at the 1960 level.

Extrapolating this trend, demographer James Vaupel has made a bold prediction: Half of the girls and a third of the boys recently born in the developed world will live to be 100. Vaupel similarly expects millions of former flower children to defy federal population forecasts and make good on their old chant, “Hell no, we won’t go!”—he has projected there could be nearly 37 million boomers age 85 and over by 2050, more than twice the government’s best guess. That would mean a much higher proportion of senior citizens nationwide than Florida has today. . . .

Vaupel [is] no shallow visionary. A few years ago many of his colleagues scoffed when he challenged a grim **canon** about aging. It holds that death rates rise exponentially with age in adult animals, including humans—the older you are, the theory goes, the more likely you are to die. Aided by other researchers, he marshaled data on everything from Swedish women to Medflies to show it ain’t so; for good measure, he

threw in supporting data on the death rates of old cars. The team demonstrated that mortality can plateau and, strangely, even drop among the very old—as if the Fates were nodding off after a long wait.

Vaupel sees this “mortality deceleration” as a subplot of a grand mystery that has preoccupied demographers for over a decade: Why have the elderly been living longer than their forebears since about 1970? Some of the causes are obvious, such as the **averting** of millions of fatal heart attacks by blood-pressure drugs widely used since the 1960s. But many experts on aging feel that such well-known factors can’t explain the trend’s surprising speed and breadth. . . .

Casting about for explanations, some demographers theorize that deep, little-understood changes are afoot that will help sustain the trend for decades. Vaupel has stuck his neck out farther than most by proposing that the aging process may actually slow down in very old people, an idea based on his mortality-deceleration work. That particular idea remains highly controversial. But Vaupel’s **bullish** view that longevity gains will continue apace is widely shared. Indeed, many demographers are now more bullish than the Social Security Administration, which projects that the decline in old-age death rates will slow to a crawl early in the next century.

The bulls’ predictions raise a burning issue: If we receive a gift of extra years, will it turn out to be a **Pandora’s box** filled with hobbling diseases? For most of this century death rates and the prevalence of chronic diseases among the el-

derly have dropped in tandem. But “we’re balanced on a razor’s edge,” says Eric Stallard, a demography professor at Duke University. If medical advances make mortality fall faster than disease, we’ll wind up spending costly extra years in nursing homes. Or worse: “We may face the gruesome prospect of poor, disabled, homeless older Americans living out the end of their lives on city streets and in parks,” warns Edward L. Schneider, dean of gerontology at the University of South Carolina.

Source: Adapted from David Stipp, “Hell No, We Won’t Go,” *Fortune*, July 19, 1999: 102, 104.

What Does it Mean?

averting

turning aside; avoiding

bullish

optimistic; encouraging

canon

an accepted principle or rule

extrapolating

projecting known data into an area not known or experienced

nullifying actuarial tables

reversing current population trends

Pandora’s box

source of many troubles (based on a Greek myth about a box of evils released by a curious woman who had been instructed not to open the box)

This active older couple is enjoying the increasing longevity in modern society. What are some of the most important consequences of this trend?



Read and React

1. What is the surprising demographic trend referred to in the title of this article?
2. What has happened to the death rates in the United States since 1960?
3. What is meant by the term *mortality deceleration*?
4. What are some positive and negative effects an aging population would have on the social structure of this country?