

# sociology

11TH  
EDITION

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## Demography: The Study of Population

The study of population issues engages the attention of both natural and social scientists. The biologist explores the nature of reproduction and casts light on factors that affect *fertility*, the level of reproduction in a society. The medical pathologist examines and analyzes trends in the causes of death. Geographers, historians, and psychologists also have distinctive contributions to make to our understanding of population. Sociologists, more than these other researchers, focus on the *social* factors that influence population rates and trends.

In their study of population issues, sociologists are aware that the norms, values, and social patterns of a society profoundly affect various elements of population, such as fertility, *mortality* (the death rate), and migration. Fertility is influenced by people's age of entry into sexual unions and by their use of contraception—both of which, in turn, reflect the social and religious values that guide a particular culture. Mortality is shaped by a nation's level of nutrition, acceptance of immunization, and provisions for sanitation, as well as its general commitment to health care and health education. Migration from one country to another can depend on marital and kinship ties, the relative degree of racial and religious tolerance in various societies, and people's evaluation of their employment opportunities.

**Classroom Tip/Contemporary Culture** See "Stimulating Classroom Discussion about A New Species of Trouble" (Class Discussion Topics).

*Demography* is the scientific study of population. It draws on several components of population, including size, composition, and territorial distribution, to understand the social consequences of population change. Demographers study geographical variations and historical trends in their effort to develop population forecasts. They also analyze the structure of a population—the age, gender, race, and ethnicity of its members. A key figure in this analysis was Thomas Malthus.

### Malthus's Thesis and Marx's Response

The Reverend Thomas Robert Malthus (1766–1834), who was educated at Cambridge University, spent his life teaching history and political economy. He strongly criticized two major institutions of his time—the church and slavery—yet his most significant legacy to contemporary scholars is his still-controversial *Essays on the Principle of Population*, published in 1798.

Essentially, Malthus held that the world's population was growing more rapidly than the available food supply. He argued that food supply increases in arithmetic progression (1, 2, 3, 4, and so on), whereas population expands by geometric progression (1, 2, 4, 8, and so on). According to his analysis, the gap between food supply and population will continue to grow over time. Even though the food supply will increase, it will not increase nearly enough to meet the needs of an expanding world population.

**Real Society** See Population in the Topic Index.

Malthus advocated population control to close the gap between rising population and the food supply, yet he explicitly denounced artificial means of birth control because they were not sanctioned by religion. For Malthus, one appropriate way to control population was to postpone marriage. He argued that couples must take responsibility for the number of children they choose to bear; without such restraint, the world would face widespread hunger, poverty, and misery (Malthus et al. [1824] 1960; Petersen 1979).

Karl Marx strongly criticized Malthus's views on population. Marx pointed to the nature of economic relations in Europe's industrial societies as the central problem. He could not accept the Malthusian notion that rising world population, rather than capitalism, was the cause of social ills. In Marx's opinion, there was no special relationship between world population and the supply of resources (including food). If society were well ordered, increases in population would lead to greater wealth, not to hunger and misery.

Of course, Marx did not believe that capitalism operated under these ideal conditions. He maintained that capitalism devoted resources to the financing of buildings and tools rather than to the equitable distribution of food, housing, and other necessities of life. Marx's work is important to the study of population because he linked overpopulation to the unequal distribution of resources—a topic that will be taken up later in this chapter. His concern with the writings of Malthus also testifies to the importance of population in political and economic affairs.

The insights of Malthus and Marx regarding population issues have come together in what is termed the *neo-Malthusian view*, best exemplified by the work of Paul Ehrlich (1968; Ehrlich and Ehrlich 1990), author of *The Population Bomb*. Neo-Malthusians agree with Malthus that population growth is outstretching the world's natural resources. However, in contrast to the British theorist, they insist that birth control measures are needed to regulate population increases. Showing a Marxist bent, neo-Malthusians condemn the developed nations, which despite their low birthrates consume a disproportionately large share of world resources. While rather pessimistic about the future, these theorists stress that birth control and sensible use of resources are essential responses to rising world population (J. Tierney 1990; Weeks 2008).

## Studying Population Today

The relative balance of births and deaths is no less important today than it was during the lifetime of Malthus and Marx. The suffering that Malthus spoke of is certainly a reality for many people of the world. Malnutrition remains the largest contributing factor to illness and death among children in developing countries. Almost 18 percent of these children will die before age five—a rate over 11 times higher than in developed nations. Warfare and large-scale migration intensify problems of population and food supply. For example, recent strife in Afghanistan, the Congo, and Iraq has caused maldistribution of food supplies, leading to regional health concerns. Combating world hunger may require reducing human births, dramatically in-

**Classroom Tip** The composition, size, and distribution of population are critical to understanding most social problems.

**Key Person** Reverend Thomas Robert Malthus

**Contemporary Culture** What are the ethical boundaries of population control?

**Key Person** Karl Marx



As this crowded street in Delhi, India, suggests, India will soon become the most populous country in the world. Not all developing countries are choked by their populations, however; population patterns can vary dramatically from country to country.

creasing the world's food supply, or perhaps both. The study of population-related issues, then, seems to be essential.

In the United States and most other countries, the census is the primary mechanism for collecting population information. A *census* is an enumeration, or counting, of a population. The Constitution of the United States requires that a census be held every 10 years to determine congressional representation. This periodic investigation is supplemented by *vital statistics*, or records of births, deaths, marriages, and divorces that are gathered through a registration system maintained by governmental units. In addition, other government surveys provide up-to-date information on commercial developments, educational trends, industrial expansion, agricultural practices, and the status of groups such as children, the elderly, racial minorities, and single parents.

In administering a nationwide census and conducting other types of research, demographers employ many of the skills and techniques described in Chapter 2, including questionnaires,

**Theory** Marx's conflict view that capitalism thwarts equitable distribution of food and housing

**Contemporary Culture** Application of Malthusian ideas to contemporary societies

**Policy Pointer** How can policymakers address population problems?

**Methods** Demographers use questionnaires, interviews, and sampling.

# taking SOCIOLOGY TO WORK

Kelsie Lenor Wilson-Dorsett  
Deputy Director, Department of  
Statistics, Government of Bahamas

Kelsie Wilson-Dorsett was born in the Bahamas, where she received her primary and secondary education. She graduated from McMaster University in Hamilton, Ontario, with a combined honors degree in sociology and political science. In studying for her master's degree in sociology at the University of Western Ontario in London, she specialized in demography.

Currently, Wilson-Dorsett holds the positions of Deputy Director, Department of Statistics and Head of the Social Statistics Division, Government of Bahamas, where she oversees the country's census, vital statistics, and other surveys. In this position, she is responsible for the execution of the Bahamas' first Living Conditions Survey (BLCS), which when completed will enable the government to establish a poverty line and to measure the incidence and extent of poverty in that country.

Wilson-Dorsett's study of sociology is directly related to her current job. She states, "The study of sociology has enabled me to put meaning



to the figures which come into my office and has provided me with avenues to interpret these figures and determine the direction of future data collection. The analysis of census data, for instance, allows me to see where my country was several years ago, where it is now, and where it is likely to be in the years ahead."

## Let's Discuss

1. What challenges do you think Wilson-Dorsett might encounter as she oversees a national census in a country like the Bahamas?
2. What other areas of specialization in sociology would be helpful to someone interpreting the results of a project such as the Living Conditions Survey (BLCS)?

interviews, and sampling. The precision of population projections depends on the accuracy of a series of estimates demographers must make. First, they must determine past population trends and establish a current base population. Next, birthrates and death rates must be determined, along with estimates of future fluctuations. In projecting a nation's population trends for the future, demographers must consider migration as well, since a significant number of individuals may enter and leave a country.

## Elements of Demography

Demographers communicate population facts with a language derived from the basic elements of human life—birth and death. The **birthrate** (or more specifically, the **crude birthrate**) is the number of live births per 1,000 population in a given year. In 2006, for example, there were 14 live births per 1,000 people in the United States. The birthrate provides information on the reproductive patterns of a society.

One way demographers can project future growth in a society is to make use of the **total fertility rate (TFR)**. The TFR is the average number of children born alive to any woman, assuming that she conforms to current fertility rates. The TFR reported for the United States in 2006 was 2.0 live births per woman, compared to nearly 8 births per woman in a developing country such as Niger.

Mortality, like fertility, is measured in several different ways. The **death rate** (also known as the **crude death rate**) is the number of deaths per 1,000 population in a given year. In 2006, the United States had a death rate of 8.0 per 1,000 population. The **infant mortality rate** is the number of deaths of infants under one year old per 1,000 live births in a given year. This particular

measure serves as an important indicator of a society's level of health care; it reflects prenatal nutrition, delivery procedures, and infant screening measures. The infant mortality rate also functions as a useful indicator of future population growth, since those infants who survive to adulthood will contribute to further population increases.

A general measure of health used by demographers is **life expectancy**, the median number of years a person can be expected to live under current mortality conditions. Usually the figure is reported as life expectancy *at birth*. At present, Japan reports a life expectancy at birth of 82 years—slightly higher than the United States' figure of 78 years. In contrast, life expectancy at birth is less than 40 in several developing nations, including Botswana (see Figure 21-1, page 000).

The **growth rate** of a society is the difference between births and deaths, plus the difference between **immigrants** (those who enter a country to establish permanent residence) and **emigrants** (those who leave a country permanently) per 1,000 population. For the world as a whole, the growth rate is simply the difference between births and deaths per 1,000 population, since worldwide immigration and emigration must of necessity be equal. In 2006, the United States had a growth rate of 0.6 percent, compared to an estimated 1.2 percent for the entire world (Haub 2006).

## World Population Patterns

One important aspect of demographic work involves a study of the history of population. But how is that possible? After all, official national censuses were relatively rare before 1850. Re-

**Classroom Tip** See "Total Fertility Rates Reflect Society's Diversity" (Additional Lecture Ideas).

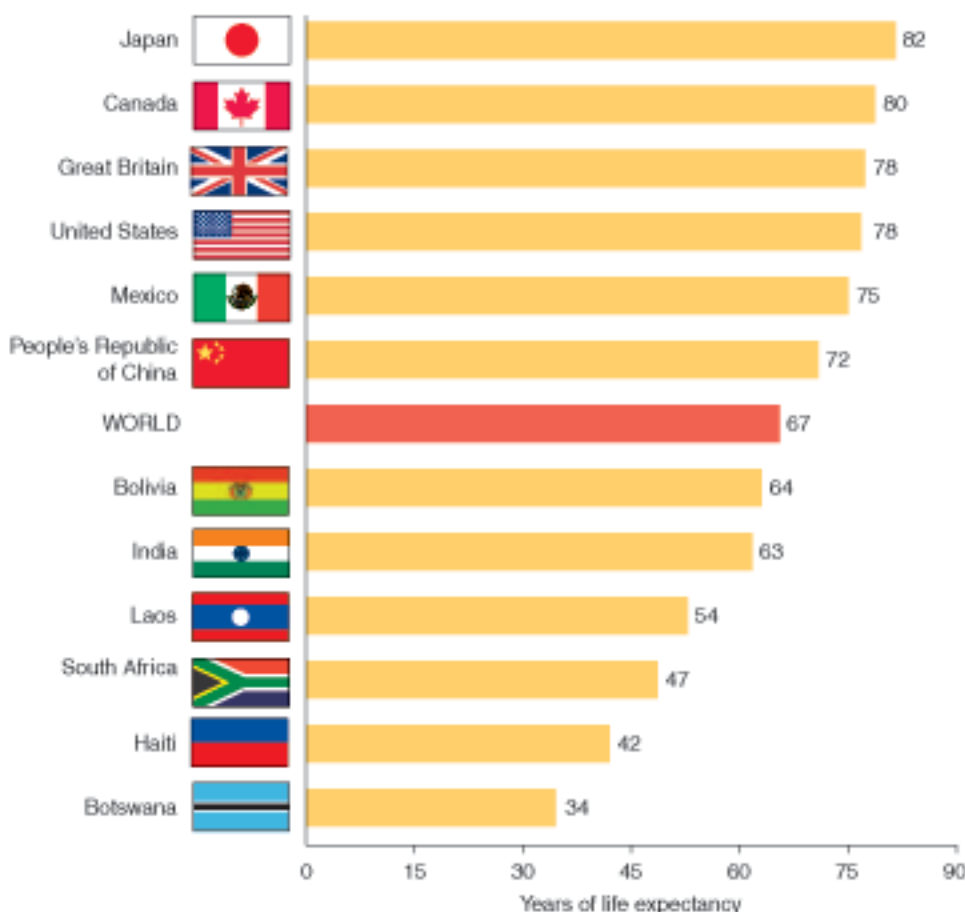
**Classroom Tip** See "Japan: The 1.57 Shock" (Additional Lecture Ideas).

**Classroom Tip** See "Life Tables" (Class Discussion Topics).

**Classroom Tip** See "Demographic Transition" (Class Discussion Topics).

**Web Resource** In the audio clip for this chapter, Rick Schaefel, the author of the text, discusses the demographic transition theory. Students can link to the clip through the student center of the Online Learning Center ([www.mhhe.com/schaefel11](http://www.mhhe.com/schaefel11)).

FIGURE 21-1

**Life Expectancy in Selected Countries**

Source: Estimates for 2006 by Population Reference Bureau. Haub 2006.

searchers interested in early population must turn to archeological remains, burial sites, baptismal and tax records, and oral history sources. In the next section we will see what such detective work has told us about changes in population over time.

## Demographic Transition

On October 13, 1999, in a maternity clinic in Sarajevo, Bosnia-Herzegovina, Helac Fatina gave birth to a son who has been designated the 6 billionth person on this planet. Until modern times, relatively few humans lived in the world. One estimate places the global population of a million years ago at only 125,000 people. As Table 21-1 (page 000) indicates, in the last 200 years the world's population has exploded (World Health Organization 2000:3).

The phenomenal growth of population in recent times can be accounted for by changing patterns in births and deaths. Beginning in the late 1700s—and continuing until the mid-1900s—death rates in northern and western Europe gradually decreased. People were beginning to live longer because of advances in food production, sanitation, nutrition, and public health care. But

while death rates fell, birthrates remained high; as a result, this period of European history brought unprecedented population growth. By the late 1800s, however, the birthrates of many European countries had begun to decline, and the rate of population growth had also decreased.

The changes in birthrates and death rates that occurred in 19th century Europe serve as an example of *demographic transition*. Demographers use the term *demographic transition* to describe changes in birthrates and death rates that occur during a nation's development, resulting in new patterns of vital statistics. In many nations today, we are seeing a demographic transition from high birthrates and death rates to low birthrates and death rates. As Figure 21-2 shows, this process typically takes place in three stages:

1. Pretransition stage: high birthrates and death rates with little population growth.
2. Transition stage: declining death rates—primarily the result of reductions in infant deaths—along with high to medium fertility, resulting in significant population growth.
3. Posttransition stage: low birthrates and death rates with little population growth.

The demographic transition should be regarded not as a “law of population growth,” but rather as a generalization of the population history of industrial nations. This concept helps us to understand world population problems better. About two-thirds of the world's nations have yet to pass fully through the second stage of the demographic transition. Even if such nations make dramatic advances in fertility control, their populations will nevertheless increase greatly because of the large base of people already at prime childbearing age.

The pattern of demographic transition varies from nation to nation. One particularly useful distinction is the contrast between the rapid transition now occurring in developing nations—which include about two-thirds of the world's population—and that which occurred over the course of almost a century in more industrialized countries. In developing nations, the demographic transition has involved a rapid decline in death rates without adjustments in birthrates.

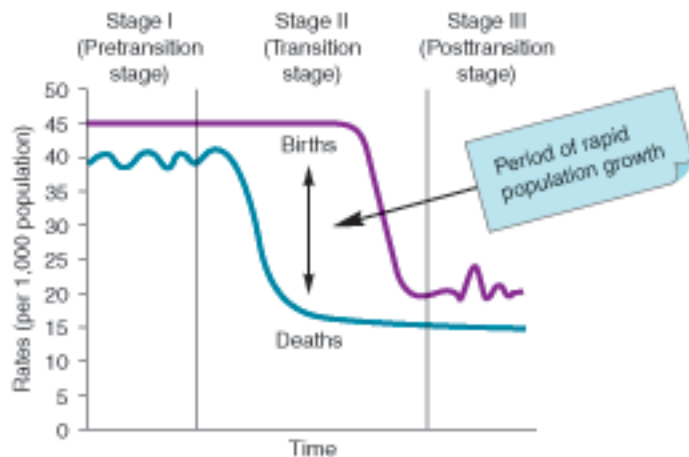
Specifically, in the post-World War II period, the death rates of developing nations began a sharp decline. This revolution in “death control” was triggered by antibiotics, immunization,



Throughout the world, population patterns vary widely. As this scene in Warsaw, the capital of Poland, suggests, Eastern Europe has been losing population as the birthrate falls and young people emigrate to other countries. In Africa, by contrast, the population is growing. Over the next four decades, the country of Somalia is expected to double in population.

FIGURE 21-2

### Demographic Transition



Demographers use the concept of *demographic transition* to describe changes in birthrates and death rates that occur during a nation's development. This graph shows the pattern that took place in presently developed nations. In the first stage, both birthrates and death rates were high, so that there was little population growth. In the second stage, the birthrate remained high while the death rate declined sharply, which led to rapid population growth. By the last stage, which many developing countries have yet to enter, the birthrate had declined as well, reducing population growth.

insecticides (such as DDT, used to strike at malaria-bearing mosquitoes), and largely successful campaigns against such fatal diseases as smallpox. Substantial medical and public health technology was imported almost overnight from more developed nations. As a result, the drop in death rates that had taken a century in Europe was telescoped into two decades in many developing countries.

Birthrates had little time to adjust. Cultural beliefs about the proper size of families could not possibly change as quickly as the falling death rates. For centuries, couples had given birth to as many as eight or more children, knowing that perhaps only two or three would survive to adulthood. Families were more willing to accept technological advances that prolonged life than to abandon fertility patterns that reflected time-honored tradition and religious training. The result was an astronomical "population explosion" that was well under way by the middle 1900s. By the middle 1970s, however, demographers had

Table 21-1

### Estimated Time for Each Successive Increase of 1 Billion People in World Population

Population Level	Time Taken to Reach New Population Level	Year of Attainment
First billion	Human history before 1800	1804
Second billion	123 years	1927
Third billion	32 years	1959
Fourth billion	15 years	1974
Fifth billion	13 years	1987
Sixth billion	12 years	1999
Seventh billion	13 years	2012
Eighth billion	14 years	2026
Ninth billion	16 years	2042

Source: Bureau of the Census 2007d.

observed a slight decline in the growth rate of many developing nations, as family planning efforts began to take hold (Kent and Haub 2005).

## The Population Explosion

Apart from war, rapid population growth has been perhaps the dominant international social problem of the past 40 years. Often this issue is referred to in emotional terms as the “population bomb” or the “population explosion.” Such striking language is not surprising, given the staggering increases in world population recorded during the 20th century (refer to Table 21-1). The population of our planet rose from 1 billion around the year 1800 to 6.7 billion by 2008.

Beginning in the 1960s, governments in certain developing nations sponsored or supported campaigns to encourage family planning. In good part as the result of government-sponsored birth control campaigns, Thailand’s total fertility rate fell from 6.1 births per woman in 1970 to only 1.7 in 2006. In China, the government’s strict one-child policy actually produced a negative growth rate in some urban areas (see Box 21-1, page 000). Yet even if family planning efforts are successful in reducing fertility rates, the momentum toward growing world population is well established. Developing nations face the prospect of continued population growth, since a substantial proportion of their population is approaching the childbearing years (see the top half of Figure 21-3, page 000).

A *population pyramid* is a special type of bar chart that shows the distribution of a population by gender and age; it is generally used to illustrate the population structure of a society. As Figure 21-3 shows, a substantial portion of the population of Afghanistan consists of children under age 15, whose childbearing years are still to come. Thus, the built-in momentum for population growth is much greater in Afghanistan (and in many other developing countries in other parts of the world) than in Western Europe or the United States.

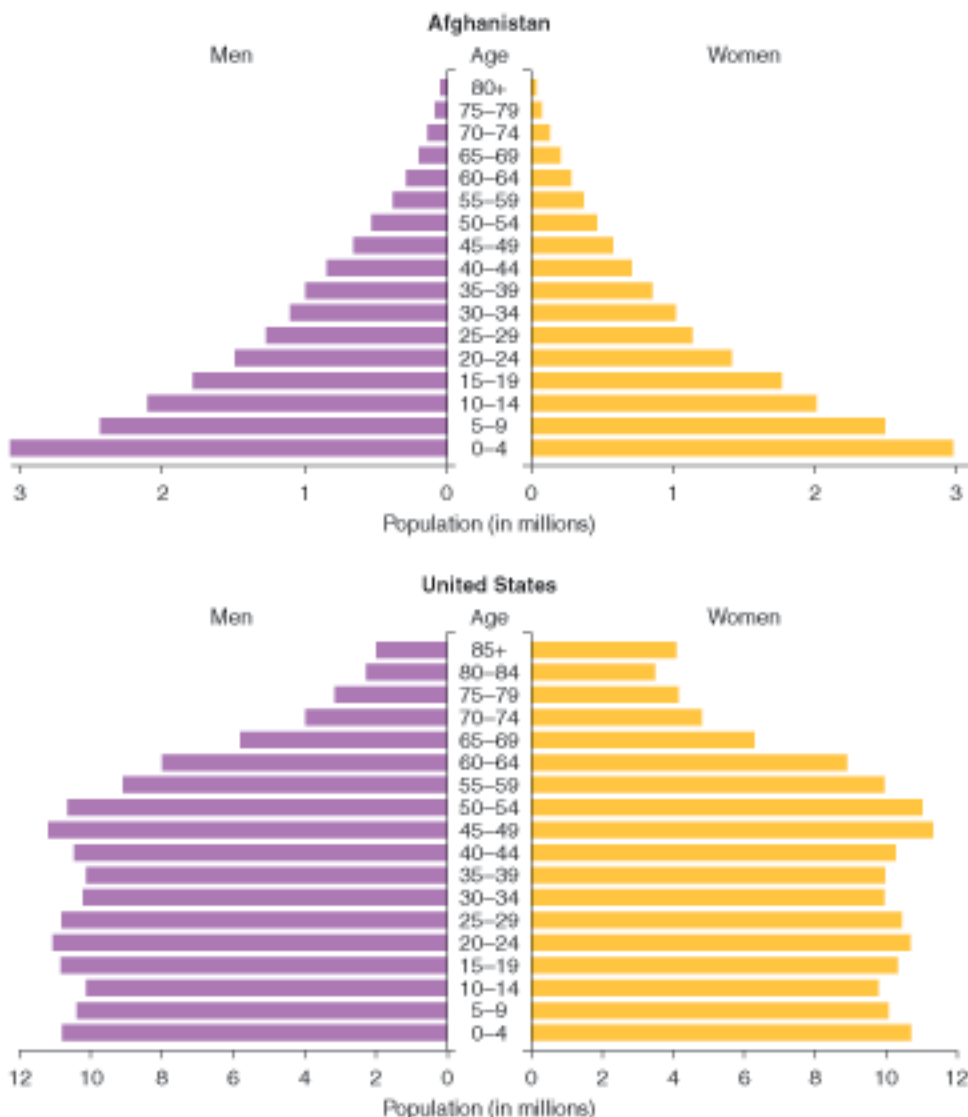
Consider the population data for India, which in 2000 surpassed 1 billion residents. Sometime around 2026, India’s population will exceed China’s. The substantial momentum for growth that is built into India’s age structure means that the nation will face a staggering increase in population in the coming decades, even if its birthrate declines sharply (Bureau of the Census 2007c).

Population growth is not a problem in all nations. Today, a handful of countries are even adopting policies that encourage growth. One such country is Japan, where the total fertility rate has fallen sharply. Nevertheless, a global perspective underscores the serious consequences that could result from continued population growth overall.

Sadly, in the last 25 years, the spread of the once unknown disease of AIDS has begun to restrict population growth. The Social Policy section at the end of Chapter 19 considers the AIDS health crisis and its devastating effects on African communities.

FIGURE 21-3

### Population Structure of Afghanistan and the United States, 2010



Source: Projections updated as of August 24, 2006. Bureau of the Census 2007c.

**Student Alert** Population pyramids are not necessarily pyramidal in shape.

**Classroom Tip** See “Population Pyramid” (Class Discussion Topics).

**Classroom Tip** Note the relationship between demographic changes and economic problems.