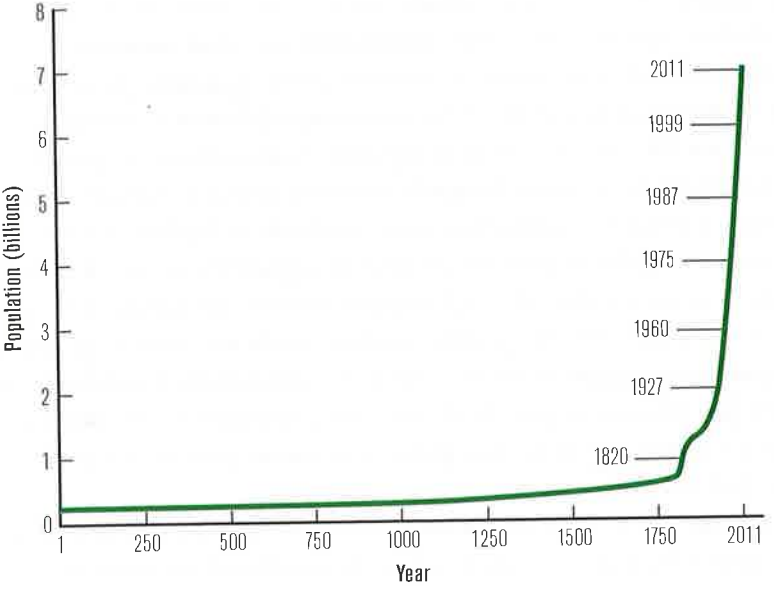
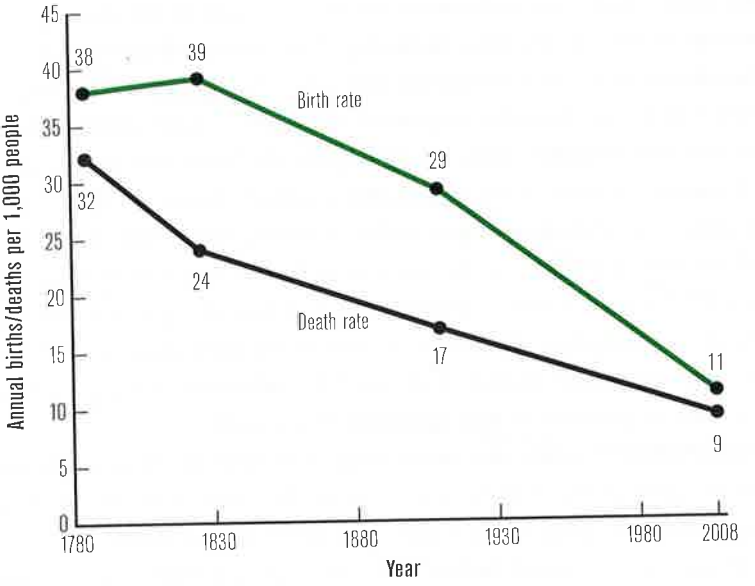
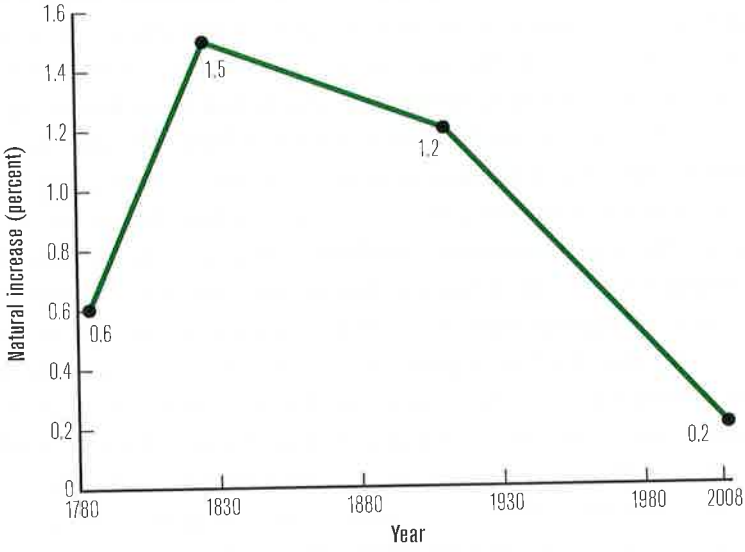


FIGURE 7-1 World Population Growth through History: Years Needed to Add 1 Billion More People

Source: Angus Maddison, "Statistics on World Population, GDP, and Per Capita GDP, 1–2008 AD," www.ggdc.net/MADDISON/Historical_Statistics/vertical-file_02-2010.xls.



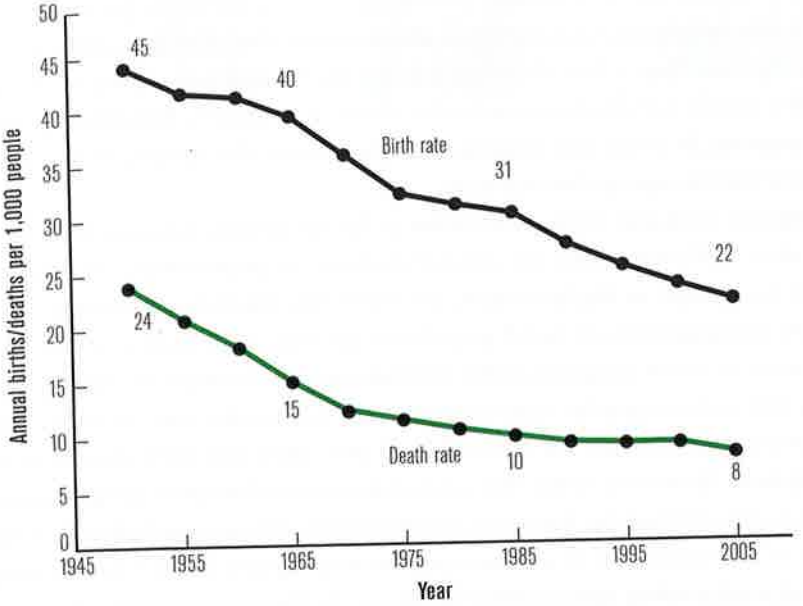
(a)



(b)

FIGURE 7-2 Demographic Transition for Finland (1785–2008)

Source: Arthur Haupt, Thomas Kane, and Carl Haub, *PRB's Population Handbook* 6th edition (Washington, DC: Population Reference Bureau, 2011).



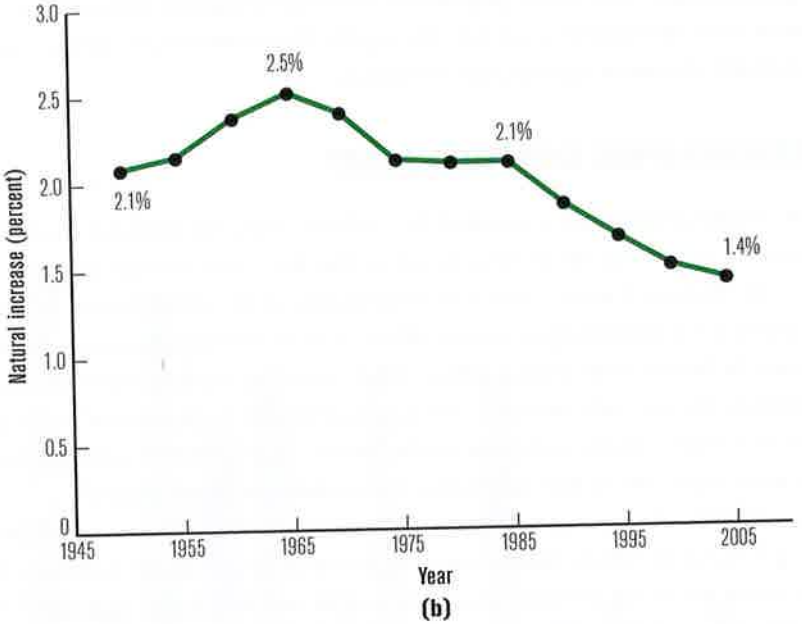


FIGURE 7-3 Demographic Transition for Less-Developed Regions (1950–2008)

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects: The 2002 Revision* and *World Population Prospects: The 2008 Revision.*

Another way to assess population trends is to examine fertility behavior. One of the most common measures of fertility is the total fertility rate (TFR). TFR sometimes is thought of as a measure of the average number of children a woman will bear, but this is not entirely correct. TFR is a *synthetic* measure. It sums the age-specific fertility rates of women in a given year, where age-specific fertility rates refer to the average number of children born to women of a specific age (usually, 15–19, 20–24, . . . , 40–44). In other words, TFR is the number of children the average woman would have in her lifetime if age-specific fertility rates remained constant. But these rates change over time as younger women delay having their children and as women have fewer children over all. TFR is a reliable indicator of the number of children women *currently* are having, and trends in TFR reveal a great deal about the world's demographic transition.

The figure below charts TFRs over the past 40 years for the World Bank's seven geographical regions. In 1967 in Africa, Asia, and Latin America, TFR was 5.5 children or more. Only the high-income economies and the nations of Europe and central Asia had reached low TFRs of fewer than 3 children. Over the next four decades, and at varying speeds, fertility rates fell in every region. In East and

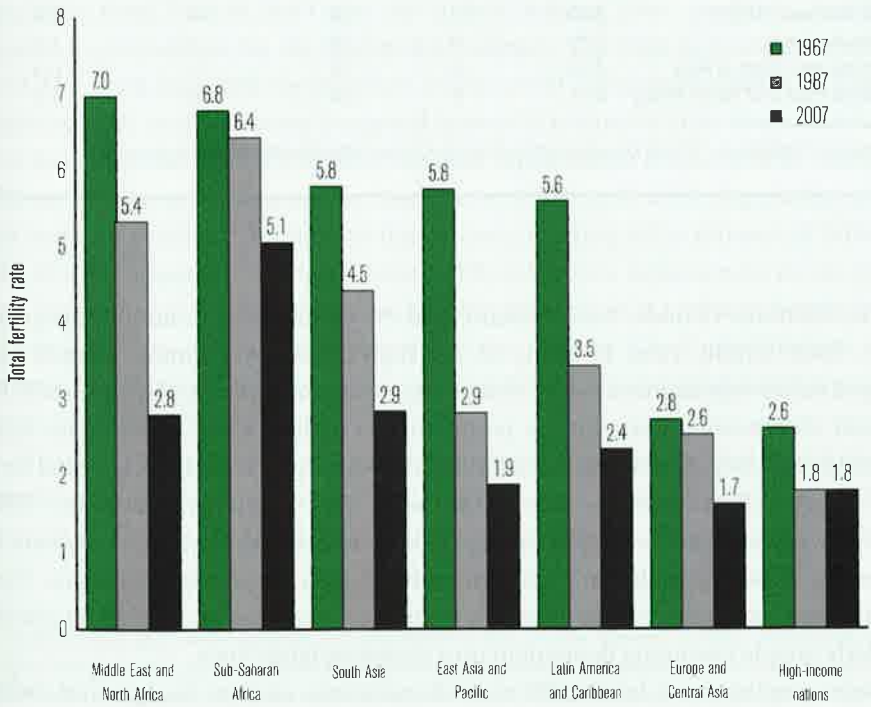


TABLE 7-1 Levels and Trends in the World Population, 2009

	TOTAL POPULATION		POPULATION GROWTH		
	NUMBER (MILLIONS)	PERCENT OF TOTAL	BIRTH RATE (PER 1,000)	DEATH RATE (PER 1,000)	NATURAL INCREASE (PERCENT)
World	6,775	100	20	8	1.2
Income category					
Low income	846	13	34	11	2.3
Middle income	4,813	71	19	8	1.1
High income	1,117	16	12	8	0.4
Region					
East Asia	1,944	29	14	7	0.7
South Asia	1,568	23	24	7	1.7
Sub-Saharan Africa	840	12	38	14	2.4
Latin America	572	8	18	6	1.2
Europe and Central Asia	404	6	15	11	0.4
Middle East and North Africa	331	5	24	6	1.8

Source: World Bank, "World Development Indicators Online," http://databank.worldbank.org.

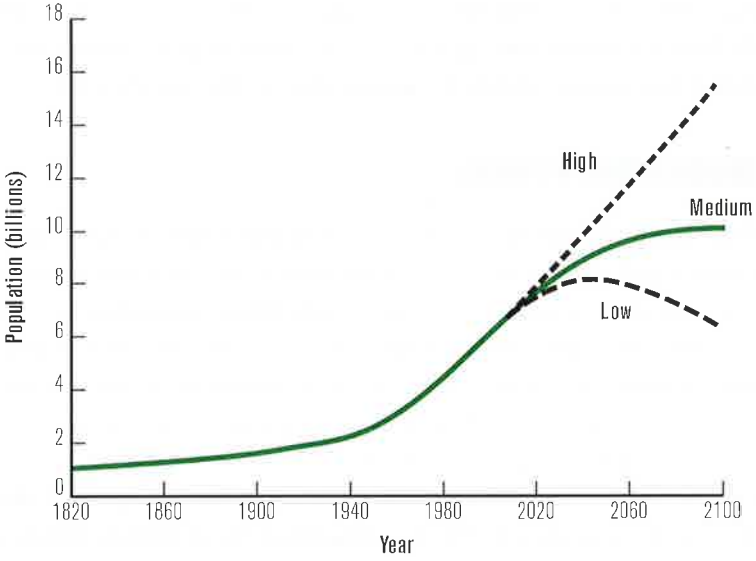


FIGURE 7-4 World Population Historical Trends and Projections

UN population projections for 2000–2100. The scenarios presented here represent different future levels of fertility.

Source: Angus Maddison, "Statistics on World Population, GDP, and Per Capita GDP, 1-2008 AD," www.ggdc.net/MADDISON/Historical_Statistics/vertical-file_02-2010.xls. U.N. Department of Economic and Social Affairs, Population Division, Population Estimates and Projection Section, *World Population Prospects, The 2010 Revision*, October 20, 2011, available at http://esa.un.org/unpd/wpp/index.htm; accessed February 2012.

The impact of population momentum on future population levels can be illustrated by the following example of two families. The first generation of each family consists of one man and one woman. Each woman has four children over her reproductive life. This second generation includes four females and four males.

PERIOD ONE

Fertility above Replacement Level: Total Population, 12

First generation:

Second generation:

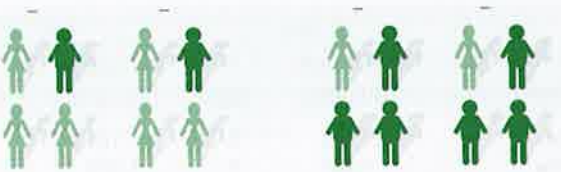
PERIOD TWO

Fertility at Replacement Level: Total Population, 16

First generation dies:

Second generation marries:

Third generation is born:



PERIOD THREE

Fertility at Replacement Level: Total Population, 16

Second generation dies:

Third generation marries:

Fourth generation is born:

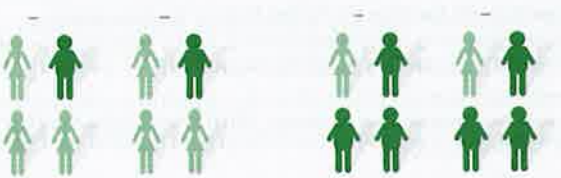


TABLE 7-2 Projections: The World's 10 Most Populous Nations in 2050*

COUNTRY	2050 POPULATION (MILLIONS)	2050 RANK	2010 POPULATION (MILLIONS)	2010 RANK	POPULATION INCREASE MILLIONS	POPULATION INCREASE PERCENT
India	1,748	1	1,189	2	559	47
China	1,437	2	1,338	1	99	7
United States	423	3	310	3	113	36
Pakistan	335	4	185	6	150	81
Nigeria	326	5	158	8	168	106
Indonesia	309	6	235	4	74	31
Bangladesh	222	7	164	7	58	35
Brazil	215	8	193	5	22	11
Ethiopia	174	9	85	13	89	105
Congo	166	10	68	19	98	144
Total (share of world's population)	5,355 (0.56)		3,925 (0.57)		1,430 (0.55)†	

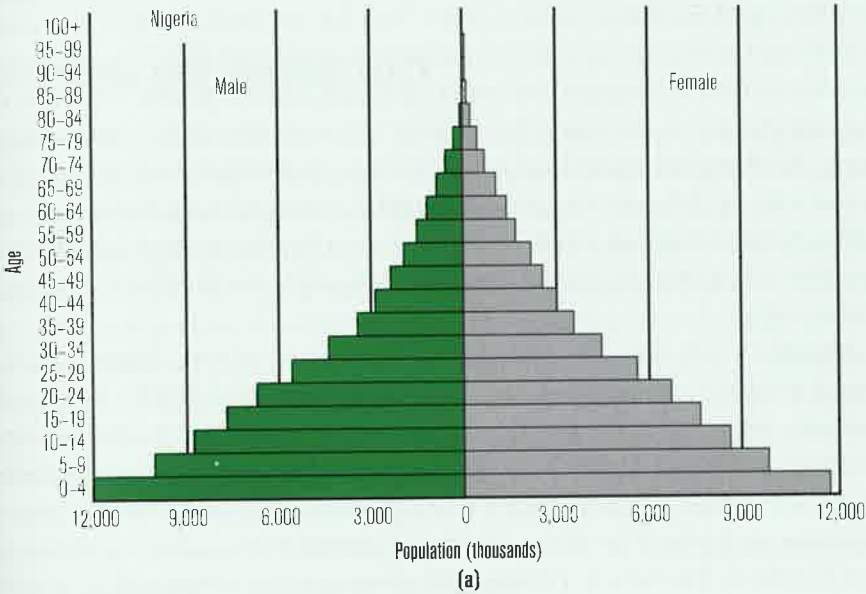
*Projections are based on the "United Nations" medium variant.

†The absolute increase in the population of the 10 most populous nations in 2050 divided by the change in total world population between 2010 and 2050.

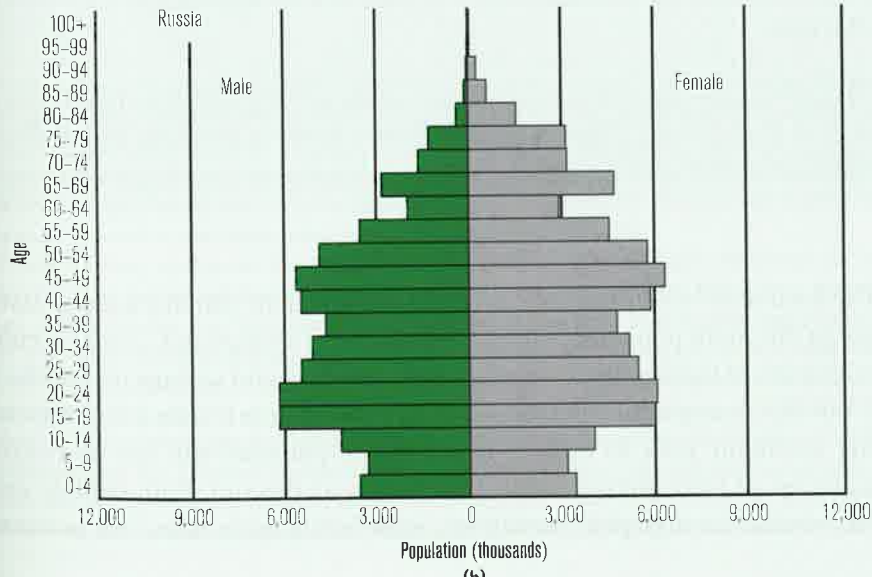
Source: Population Reference Bureau, *2010 World Population Data Sheet*, www.prb.org/pdf10/10wpds_eng.pdf.

BOX 7-3 POPULATION GROWTH, AGE STRUCTURE, AND DEPENDENCY RATIOS

In 2009, Nigeria had a population of 153 million people compared to Russia with 142 million. Although similar in population size, the two nations are at very different points in their demographic transitions. Nigeria has a total fertility rate



(a)



(b)

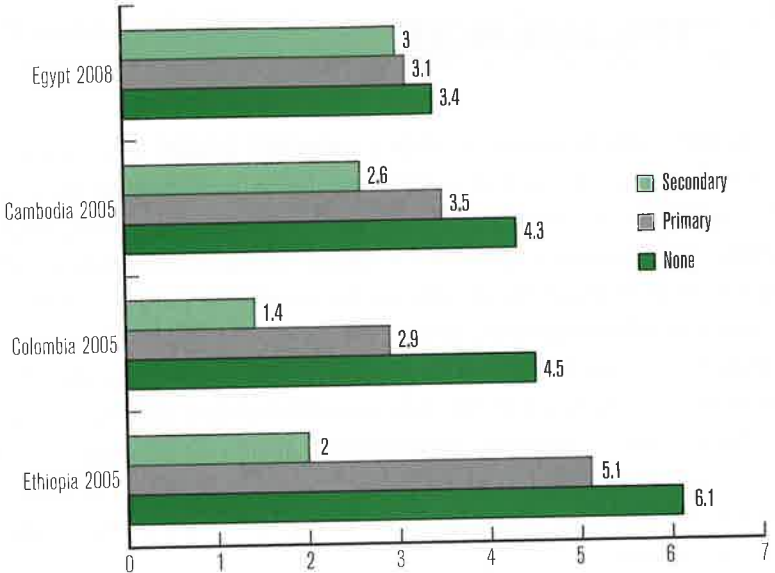
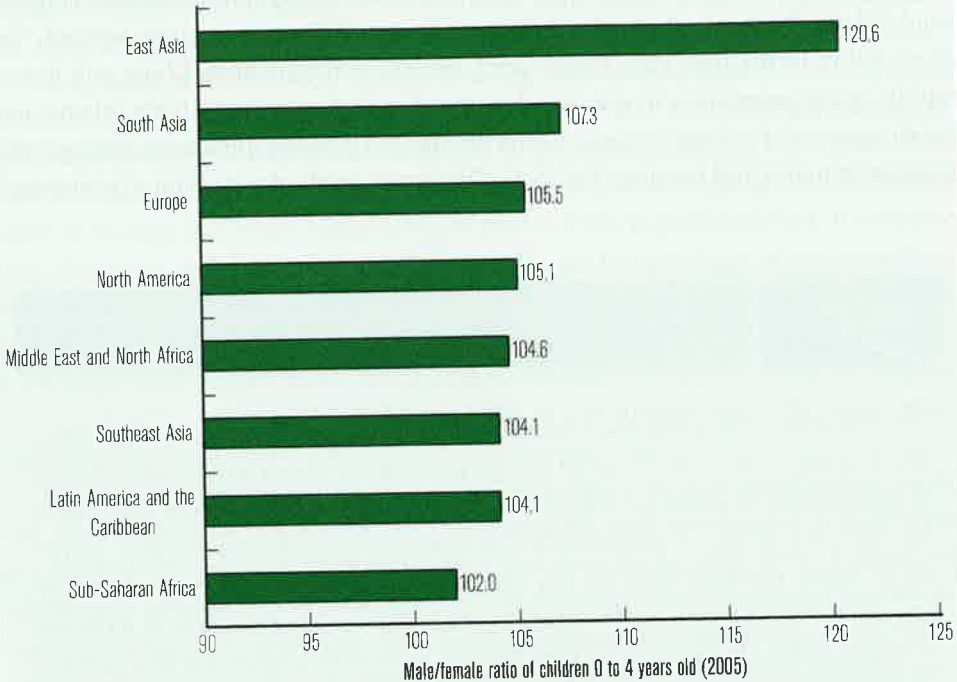


FIGURE 7-5 Total Fertility Rates by Mother's Education

Source: Demographic and Health Surveys, available at www.measuredhs.com.



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects: The 2008 Revision*, available at www.un.org/esa/population/publications/wpp2008/wpp2008_highlights.pdf.