The next billion people: who? where?

No social phenomenon has attracted more attention in the past half century than the "population explosion"—that surge from about 2.5 billion people in 1950 to more than 6 billion in 1999, making the 20th century one of unprecedented population growth. As the number of people grew, the interval for adding another billion people became shorter and shorter, with the increase from 5 billion to 6 billion occurring in only 12 years (figure 2a).

According to recent projections,[1] the 7 billion mark will be exceeded in 2014—the first time since reaching one billion that adding the next billion people is expected to take longer than for the previous billion (box 2a). More than half of the next billion will come from South Asia (310 million) and Sub-Saharan Africa (240 million). East Asia and the Pacific will add about 220 million, and the remaining 230 million will be divided mostly between the Middle East and North Africa and Latin America and the Caribbean. Europe and Central Asia will add 9 million people—just 1 percent—and the world's high-income countries will add 30 million (figure 2b).

Why the differences? Because of different rates of population growth and different base populations. Regions with the same growth rate will add more people when the rate is applied to a larger base. For example, Sub-Saharan Africa is growing at a much faster rate than South Asia, but South Asia will claim a larger share of the next billion people because of its larger population base.

The next billion people will also be born into less favorable economic circumstances. The majority—just under 600 million—are projected to be in low-income countries (as defined in 1999). Middle-income countries will add 375 million people, most of them in the lower-middle-income group. Today's high-income countries will add a scant 30 million, or 3 percent of the total, in the next 15 years (figure 2c).

And the next billion people will be predominantly urban, concentrated in cities and areas of current population settlement, particularly environmentally stressed seacoasts and river valleys. During these 15 years the urban population will increase from about 47 percent of the total to 54 percent, a net gain of 925 million, mostly due to migration from rural to urban areas and to the urbanization of rural areas.

Population's momentum in developing countries

The population growth rate is a key demographic characteristic of a country, but the composition of the population by age can have more important consequences. The age structure determines not only the allocation of resources

Box 2a

Projecting the future

By far the most common methodology for projecting future populations is the cohort component method, used in the projections by the World Bank and by many other international organizations and national statistical agencies.

The cohort component method involves first compiling information on the characteristics of a country's population in the starting, or base, year for the projection. The necessary pieces of information consist of estimates of the population by age and sex in the projection's base year—and estimates of fertility, mortality, and net migration by age and sex for the base year or the period immediately preceding it.

The sources for these base year estimates vary. For population, they are usually recent censuses or estimates from national statistical offices based on registration data. For vital rates, vital registration systems are the preferred source, but demographic surveys are frequently the only source available.

In many developing countries no recent census is available, and current estimates may be extrapolations by the country, United Nations agencies, or others. The lack or poor quality of base year data is an important source of error in projections, which often becomes magnified as the projections extend into the future.

Few countries collect reliable data on net migration, as movements in, and especially out of, countries often are not monitored. Data from censuses, in countries that receive more migrants as well as in countries from which more migrants depart, are often used to obtain a picture of migratory movements.

The cohort component method for projecting national populations is based on assumptions on future trends in the three components of population growth:

- Fertility—the distribution over age at which women bear children.
- Mortality—the distribution over age at which people die.
- Migration—the number of people who move from one country to another.

In the World Bank's projections these future trends in vital rates and migration are derived from recent country-specific trends, in combination with a set of assumptions and demographic models.

For example, future fertility in countries with declining family size is assumed to follow a pattern in the near future similar to that in the recent past. The result: countries that had a fast fertility decline over the past 10 years are projected to maintain a faster than average decline. A similar assumption is made for changes in mortality: countries in which health conditions have been improving rapidly are assumed to have continued mortality decline in the near future. Models—such as model life tables and model fertility and migration schedules—are used to supplement and adjust empirical data.

Future patterns of vital rates and migration thus play a major role in projections, and misspecified patterns are an important source of error. The projections in the tables here use assumptions based on an analysis of observed past patterns, in which it was determined that preceding trends are the best predictor for following trends in vital rates.

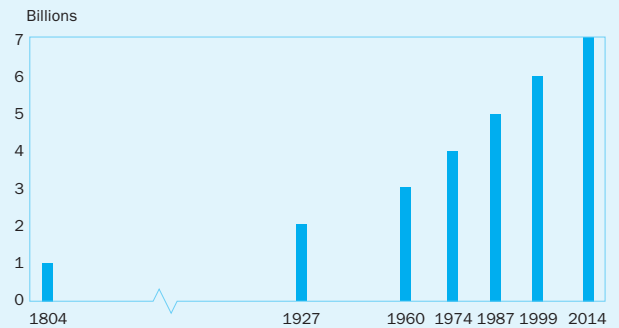
Only two added variables are included in the projection of future trends in vital rates: urbanization and female enrollment in secondary education, both of which are fairly stable in the short term. Other variables, such as income, are subject to rapid changes and are therefore unsuitable for use in predicting changes in vital rates.

Complications in determining future trends in the components arise from the fact that not all future patterns reflect the past. In countries with high HIV prevalence, as in some Sub-Saharan countries, mortality trends are not likely to resemble past trends, but are more likely to turn upward as mortality from AIDS becomes more frequent. Projections for countries with measurable levels of HIV infection have been modified by separate projections of the impact of AIDS on mortality. In the most severely affected countries this has resulted in substantial declines in life expectancy and other mortality measures. Migration trends are particularly difficult to predict, as recent migration flows often reflect short-term causes of population movements, such as political violence, economic differences, or natural disasters.

Once estimates of a population's current size and composition have been made—and a method to estimate future levels of fertility, mortality, and migration has been established—the cohort component projection is carried out by applying age- and sex-specific estimates of the components to the age and sex distribution of the base population. The results consist of future estimates of population by age and sex, which in turn can be used as a base to which subsequent component estimates are applied.

Figure 2a

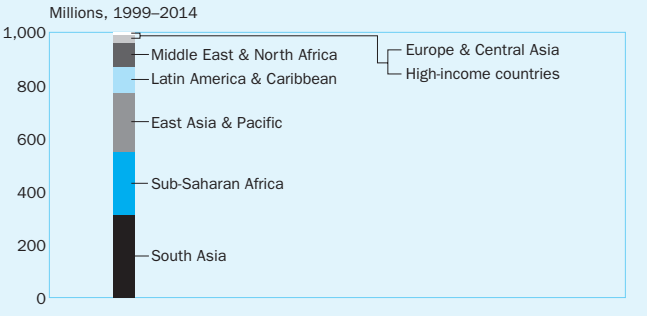
The interval for adding another billion in world population has become shorter and shorter



Source: World Bank staff estimates.

Figure 2b

Where the next billion will come from

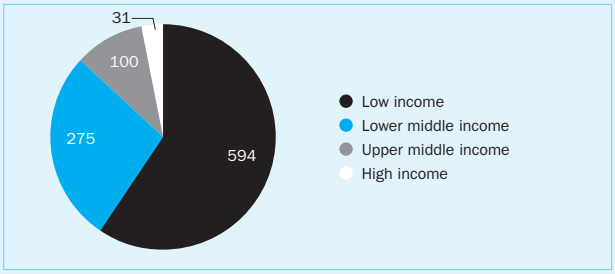


Source: World Bank staff estimates.

Figure 2c

Most of the next billion will be born in low-income countries

Millions, 1999–2014

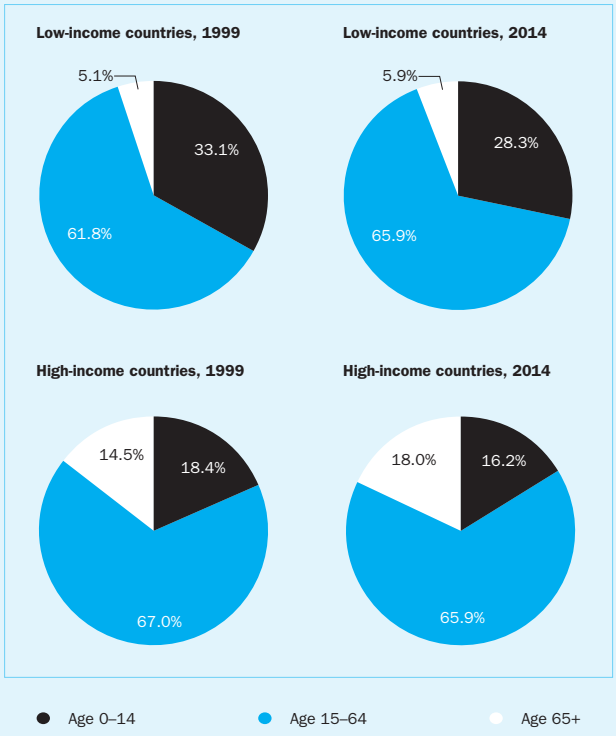


Source: World Bank staff estimates.

Figure 2d

Rapid growth in the working-age population in low-income countries will add to population momentum

Age distribution



Source: World Bank staff estimates.

to education, health, and social security, but also birth and death rates. In 1999 a third of the people in the poorest countries were in the young-age dependent group (under 15 years old), but only a small fraction were aged 65 or older (figure 2d). By contrast, the high-income countries have a much smaller percentage under 15 (about 18 percent in 1999), but much greater old-age dependency.

By 2014 young-age dependency is expected to decline to 28 percent in the low-income countries as a result of projected fertility declines, and only a small increase is expected in the percentage at older ages. As a result the proportion of people of working age will increase to 66 percent. The rapid increase in the number of young working-age people will contribute to "population momentum." Although fertility rates will decline, the number of births will remain high because the number of couples entering reproductive ages is outpacing the decline in fertility rates. Such population momentum is becoming more important in South Asia. Bangladesh and India can expect to grow by 30–40 percent even as they reach replacement-level fertility, expected in the next 10–15 years.

A demographic bonus?

Why are these changes in age structure important? Because when fertility declines, young-age dependency ratios quickly follow suit. The ratio of working-age people to dependents rises as the young population increases more slowly than the working-age population. This happened first in East Asian countries, followed by Latin America and South Asia.

The long period of economic growth in East Asia occurred as young-age dependency dropped rapidly, but before the rise in old-age dependency, providing a demographic window of opportunity. Bloom and Williamson (1998) estimate that a third of the per capita GNP growth in some East Asian countries is due to this "demographic bonus." Pressures on education systems were reduced, allowing greater coverage and improvements in quality. These shifts brought transitory rises in savings rates—which, with increases in productive employment, gave an added boost to the East Asian economies.

But this demographic bonus does not come automatically. It requires a combination of policies that strengthen human capital development and allow the labor force to absorb new entrants. The declining dependency projected for low-income countries thus provides an opportunity as well as a challenge.

New demands for services

Countries that experienced earlier fertility declines, such as those in Europe, face rapid aging of their populations. In 2014 the proportion aged 65 or older in high-income countries will reach 18 percent. These shifts change the demands on health care systems and other social services, many of which may be unsustainable when the full effects of the new age structure are felt. To the extent that better management of chronic conditions increases life expectancy at older ages, resources for old-age support and health care may have to increase beyond current expectations.

Although developing countries have more time before their populations reach a mature age structure, the population aging will be faster than in Europe because of the rapid increase in the availability of technologies for reducing fertility. For countries now moving through these transitions, the required reforms in the financing and delivery of social services need to be enacted well in advance of the time when larger beneficiary populations will be using them. The timing of these reforms is critical.

Box 2b

Population and development

The 1994 International Conference on Population and Development (ICPD) held in Cairo adopted a program of action calling for new approaches to address the relationships between population and sustainable development. Human development issues—women's reproductive health, gender equality, adolescence—are at the core of the agreed action plan.

The conference endorsed an approach to population that deemphasizes demographic targets and instead stresses individuals' reproductive health rights, such as access to family planning, safe pregnancy and delivery, and prevention and treatment of sexually transmitted diseases. Sustainable population growth is seen as best achieved through individual reproductive choices freely made by women and men. The ICPD action plan led to the formulation of several indicators and targets that are now core international development goals, such as maternal mortality ratios (to be reduced by 75 percent by 2015), or that inform other goals, such as access to reproductive health. This second group includes universal access to safe and effective contraceptive methods, by 2015; a 50 percent reduction in the number of people who want to space or limit births but are not using family planning, by 2005; and an increase in the presence of skilled attendants to 90 percent of all births, by 2015.

In 1999, five years after the Cairo conference, the United Nations reviewed progress by countries in implementing the action program, at an "ICPD + 5" intergovernmental meeting. Among the achievements noted at ICPD + 5 was the widespread acceptance of viewing population as more than a demographic concept: population has become recognized as part of the development agenda, with governments and nongovernmental organizations jointly implementing reproductive health programs. Nevertheless, some parts of the action plan were seen as lagging, among them the capacity for data collection and analysis. Inadequate capacity in many countries is making it difficult to monitor ICPD goals for improving reproductive health.

Population growth, poverty, and human development

Most of the increase in the global population over the past five decades has occurred in developing countries, and future increases are projected to occur in the poorest of them, mainly in South Asia and Sub-Saharan Africa. Has this rapid population growth been good or bad for the economic prospects of these countries?

The links between population growth and poverty are complex. Evidence suggests that high fertility is as much a symptom of poverty as a cause. The poor continue to experience unacceptably poor reproductive health, including unwanted fertility, malnutrition, and high child and maternal mortality rates (box 2b). While poverty affects all, many of the burdens of poverty weigh more heavily on girls and women. In most parts of the developing world fewer girls than boys enroll, stay, and learn in school—with negative implications for future reductions in fertility and child mortality.

Some of the factors that affect fertility, and thus population growth, can be addressed by ensuring that programs in health and education are more focused, taking into account the different situations and needs of women and men. Since investment in health and education is the most widely accepted way of improving the asset base of the poor, gender-sensitive investment in human capital now not only will improve the environment in which future populations will be born, but may also lengthen the interval between the six billionth child and the seven billionth.

Note

1. For summary statistics see tables 2.1 and 2.2. The full set of demographic projections by country is available on the *World Development Indicators* CD-ROM.