3

Investing in people

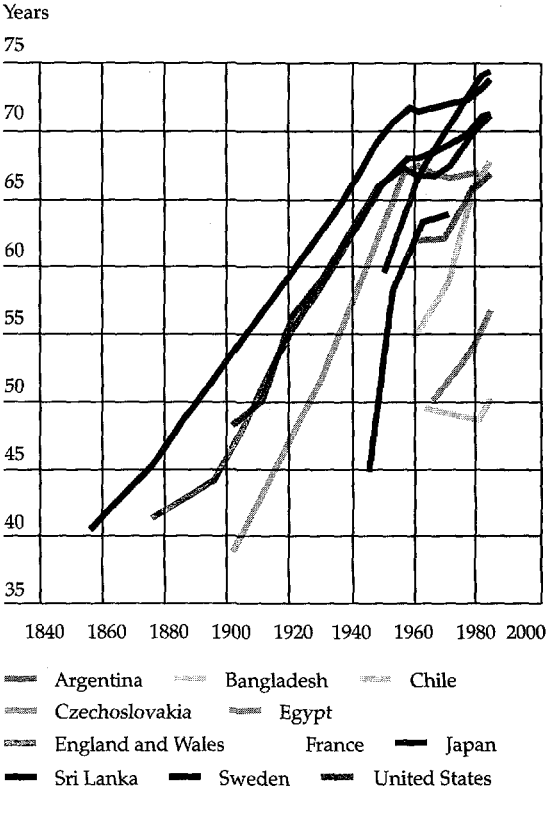
If you plan for a year, plant a seed. If for ten years, plant a tree. If for a hundred years, teach the people. When you sow a seed once, you will reap a single harvest. When you teach the people, you will reap a hundred harvests.

—K'UAN-TZU, 551–479 B.C.

In the past century, vast progress has been achieved in human welfare—the ultimate goal of development. This advance has usually taken place hand in hand with economic growth. Even where growth lagged, however, the quality of life improved. Governments have played a leading role. Public spending on classrooms and textbooks, safe drinking water and sanitation, nutrition and immunization programs, and family planning clinics have been critical, especially for the world's poor. But the demands of the future require better targeting, new and more efficient methods of delivery, fewer regressive subsidies, and closer partnership with the private sector in the provision of certain services.

During times of economic hardship, such as the 1980s, tough choices need to be made, and short-term gains in economic growth need to be balanced against long-term threats to human development and the quality of life. One lesson from the past is that the economies—such as Japan and the Republic of Korea—which committed themselves to education and training made great strides in both human development and economic growth. Equally, however, investing in education buys no guarantee of faster growth. When econ-

Figure 3.1 Male life expectancy at birth, selected countries, 1855-1985



Note: Countries were selected because of the availability of long-term life expectancy data based on census data and life tables, rather than on extrapolations.
Sources: United Nations 1982a; World Bank data.

Box 3.1 Nutrition and life expectancy

The age-standardized death rate in the United States declined from 40 per thousand in 1700 to 5 in 1980. During the same period, the British death rate fell from 28 to 7 per thousand. Life expectancy at age 10 years for a U.S. native-born white male increased from about 50 years in 1700 to 57 in 1925, whereas British males started at a lower life expectancy of 39 and achieved 54 in 1925. The causes of these changes remain controversial. They have been widely attributed to improvements in medical technology and expansion of hospital services. Considerable evidence points to the important role disease control has played in increasing life expectancy. Others have argued that improvement in nutrition was the principal factor and that the decline in rural mortality before 1920 is largely attributable to the rising living standards of the rural population.

Recent studies have strengthened the nutrition argument. For national populations in North America and Europe, average adult height has been found to be highly correlated with life expectancy. Americans were found to have achieved modern heights by the mid-eighteenth century and to have reached levels of life expectancy that were not attained by the general population of England or even by the British peerage until the first quarter of the twentieth century. One of the reasons given for this difference is the higher average meat consumption by Americans, even in middle of the eighteenth century.

The studies have found that improvements in nutritional status accounted for as much as four-tenths of the secular decline in mortality rates, with nearly all of this effect concentrated on infant mortality. Data from eight European countries from 1880 to 1970 reveal that a 1 percent increase in height was associated with a 5 percent decline in crude mortality rates, and a three times larger decline in infant mortality. Increases in height accounted for 39 percent of the decline in the infant mortality rate, whereas growth in per capita income accounted for 27 percent, and the remaining 33 percent was attributable to unmeasured factors. Moreover, using a body mass index in addition to height at maturity as an indicator of nutritional level appears to explain most of the decline in mortality rates in England, France, and Sweden between 1775 and 1875, and about half the mortality decline between 1875 and 1975.

Eliminating chronic malnutrition may not depend solely on agricultural production. Famines have coexisted with surpluses, the result not of natural calamities or inadequate farm technology but of a sharp loss in purchasing power of a section of the population and failures in the system of food distribution. The English experience during the period 1600–40 showed that hunger could also be avoided by appropriate government policies on food inventories and food prices in times of shortage, combined with advances in agricultural technologies.

omies are badly managed, investments in people may go to waste. The Philippines had great promise in the 1950s; its per capita income and literacy rate were almost as high as in Korea. Today it lags behind the other economies of Southeast Asia—a result of highly protectionist industrial policies and years of authoritarian rule, which squandered foreign borrowings and undermined domestic entrepreneurship.

Welfare and growth

In 1890, Alfred Marshall wrote that "health and strength, physical, mental, and moral . . . are the basis of industrial wealth; while conversely the chief importance of material wealth lies in the fact that when wisely used, it increases the health and strength, physical, mental, and moral, of the human race." The historical experience of nations bears witness to this statement.

Health

Better diets, housing, and control of communicable diseases have raised the quality of life everywhere. By reducing illness, these improvements have increased people's alertness, capacity for learning, and ability to cope with and enjoy life. By prolonging life, they have made investments in knowledge and skills even more worthwhile. And the benefits of good health flow well into the future: a mother's good health strongly influences the early physical and mental development of her children.

Between 1880 and 1985, average life expectancy at birth of males in industrial countries rose by twenty-five to thirty years (Figure 3.1 and Box 3.1); female life expectancy rose even faster. Similar increases in life expectancy have been achieved more quickly and at lower levels of income in some developing countries since the 1940s. Average male

Table 3.1 The economic burden of adult illness, selected countries and years

Country and year	Days ill (past month)[a]	Work days absent (past month)[a]	Potential income loss (percentage of normal earnings)[b]
Ghana, 1988/89	3.6	1.3	6.4
Côte d'Ivoire, 1987	2.6	1.3	6.4
Mauritania, 1988	2.1	1.6	6.5
Indonesia, 1978	1.0	0.6	2.5
Philippines (Bicol region), 1978	0.9	0.6	2.5
Bolivia (urban), 1990	..	1.2	4.4
Peru, 1985/86	4.5	0.9	3.1
Jamaica, 1989	1.2	0.5	2.1
United States, 1988[c]	..	0.3	1.5

Note: Countries were selected on the basis of data availability.
a. To calculate these numbers for the eight developing countries, the probability of being ill (or absent from work) was multiplied by the number of days ill (or work days lost because of illness) in the month before the survey.
b. Potential income loss is the probable number of days of absence from work as a percentage of reported normal days at work.
c. For the United States, data are reported for the number of restricted-activity days resulting from illness in the population aged eighteen to forty-four years.
Sources: For the United States, U.S. Department of Health and Human Services 1989. For other countries, household surveys; see the Chapter 3 section on adult illness in the technical note at the end of the main text.

life expectancy increased in Japan from about 60 years in 1950 to 75 years in 1985, surpassing levels in other industrial countries; in Sri Lanka it increased from 45 years in 1945 to 64 years in 1971. Many factors have contributed to these improvements. For example, UNICEF (1991) estimates that vaccines given to children in developing countries in the past ten years have prevented 1.6 million polio cases. The percentage of developing-country households with access to safe water (vital in the control of infectious diseases) rose from a mean of 48 percent in 1975 to 57 percent in 1985. The improvements in life expectancy, however, have been distributed unevenly: life expectancy (at fifteen) in the poorest countries is still as much as twenty years less than in other developing countries. In developing countries, about 25 million children and young adults die each year—most from preventable causes. About 1.5 billion people still lack basic health care (UNDP 1991).

Better health is desirable as an end in itself. But it also brings substantial economic benefits—releasing resources that can then be used to achieve other development goals. Better health and nutrition raise workers' productivity, decrease the number of days they are ill, and prolong their potential working lives. By reducing morbidity and debility, the malaria eradication program in Sri Lanka in the 1940s and 1950s led to a 10 percent rise in incomes. In Sierra Leone, a 10 percent increase in the caloric intake of farm workers consuming 1,500 calories a day raised output by 5 percent. Similar results have been found among Kenyan road construction workers with a daily intake of 2,000 calories.

Household survey data from nine countries suggest that the economic effects of illness may be substantial. An average adult worker in Peru might expect to be ill 4.5 days a month and miss about one day of work as a result; in Ghana the corresponding figures were 3.6 and 1.3 days (Table 3.1). In the United States, workers aged between eighteen and forty-four years miss, on average, one-quarter of a day's work a month.

The potential income loss from illness in eight developing countries averages 2.1–6.5 percent of yearly earnings. Reducing illness could raise GDP accordingly. Averting illness obviously requires resources, but these figures suggest that it might yield a large benefit even in narrow economic terms, in addition to its human benefits. There are complications. These estimates assume that other household members will not compensate by working more. Yet potential loss of earnings is only a partial measure of output loss. The full cost would include the value of lost nonmarket work (such as child care and food preparation), forgone earnings of other household members, costs of treatment, and so on. On the whole, the strictly economic case for effective efforts to improve health is strong.

Health and nutrition also have long-run effects on productivity and output because they influence a child's ability and motivation to learn. Disease and malnutrition in infancy may retard mental development, and illness and temporary hunger may reduce children's ability to concentrate and keep them away from school. Among Nepalese children, height-for-age, a measure of nutritional history, was found to be the most important factor,

after family income, in explaining grade or school enrollment and attainment. In the Philippines, weight-for-height was a significant predictor of performance in mathematics achievement tests among urban school children. These effects, in turn, influence adult productivity. Studies in south India and the Philippines suggest that the long-run effects of nutrition on wages can be large and positive.

Education

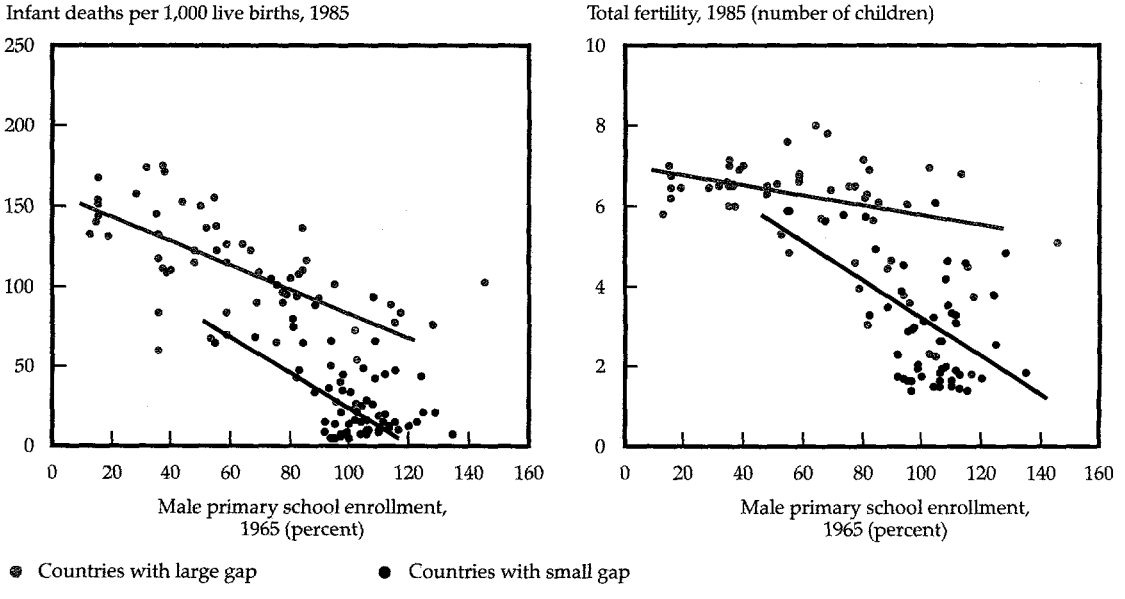
By improving people's ability to acquire and use information, education deepens their understanding of themselves and the world, enriches their

Box 3.2 Educating women: a key to development

When schools open their doors wider to girls and women, the benefits from education multiply. Consider the scatter plots in Box figure 3.2, which show primary school enrollment rates of males in 1965 compared with infant mortality and fertility rates in 1985. The scatter plots confirm the expected negative correlation between education and infant mortality and fertility; they suggest that raising a country's education level (here represented by male enrollment rates) can improve the health and life expectancy of children and create incentives for reducing family size. But in the group of countries with a large gender gap (represented by the top trend line in each plot)—where the enrollment ratio of girls is only three-fourths or less that of boys—infant mortality and total fertility rates are higher at every level of male enrollment. Countries which achieved near universal primary education for boys in 1965 but in which enrollment rates for girls lag far behind have about twice the infant mortality and fertility rates in 1985 of countries with a smaller gender gap.

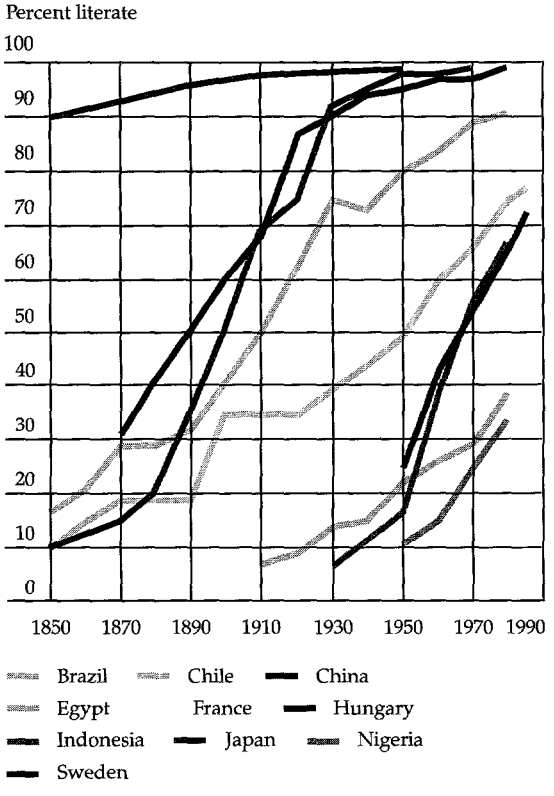
This illustrates a point confirmed by other studies: failing to raise women's level of education closer to men's detracts from the social benefits of raising men's. If the cost of increasing enrollment rates rises as a country approaches universal enrollment, then it may be more cost-effective to spend the additional resources on girls who have lower enrollment rates than on boys.

Box figure 3.2 The effect of the gender gap in education on infant mortality and total fertility, 1985



Note: The figure assumes that primary school enrollment affects infant mortality twenty years later. The gender gap in education is the ratio of female to male enrollment at the primary school level.
Source: King and Hill, forthcoming.

Figure 3.2 Adult literacy, selected countries, 1850-1985



Note: Countries were selected because of the availability of census-based literacy rates; the exception is Japan, for which estimated data for 1850-1920 are also included. Because adult literacy may be defined differently across countries and within countries across years, these data should be used with care.
Sources: Vanhanen 1979; World Bank data; United Nations data.

minds by broadening their experiences, and improves the choices they make as consumers, producers, and citizens. Education strengthens their ability to meet their wants and those of their family by increasing their productivity, and their potential to achieve a higher standard of living. By improving people's confidence and their ability to create and innovate, it multiplies their opportunities for personal and social achievement.

Consider the evidence on the benefits of women's education (Box 3.2). Better-educated women, who are more informed about the value of health care and personal hygiene, tend to be less affected by the absence of community health programs and tend to use them more frequently when they are available. In Nigeria and the Philippines, studies suggest that the mother's education is so important in determining child mortality that it makes up for the absence of medical facilities in the community (Barrera 1990; Caldwell 1979). Other studies have found that if women are better educated, couples are more likely to use contraception.

A century and a half ago, the countries that are now industrialized achieved levels of literacy higher than those in many developing countries in Africa and Asia today (Figure 3.2). But literacy rates have also risen rapidly in some developing countries. Two striking examples are Chile, which reached a literacy level comparable to that of industrial countries at a lower level of income, and Indonesia, where adult literacy rose from just 17 percent in 1950 to 67 percent in 1980. Governments everywhere have declared universal literacy to be a principal goal.

An increase in formal schooling accounts for most of the literacy gains in the developing world in the past three decades. Even in low-income countries, primary school enrollments have outpaced the growth of the youth population, and gross enrollment rates (excluding China and India) rose from 38 percent in 1960 to 76 percent in 1987. But countries have not progressed at the same rate. More than 1 billion adults are still illiterate in the developing world (UNDP 1991). Some countries in Sub-Saharan Africa have extremely low enrollment rates—Burkina Faso, Ethiopia, Guinea, Mali, Niger, and Somalia enrolled only 20–40 percent of children in 1987—and enrollment rates stagnated or fell in the 1980s in other countries that had been performing well. For example, gross primary enrollment rates fell from 93 percent in 1980 to 66 percent in 1987 in Tanzania, and from 94 to 76 percent in Zaire. Moreover, within countries, wide disparities persist. Among women, only one out of two is literate in Asia and only one out of three in Sub-Saharan Africa. The gaps between majority and minority groups and between rural and urban populations also remain large.

Again, progress on education is to be sought mainly as an end in itself. But the evidence that education promotes economic growth, and thus puts other goals of development within reach, is firm. A one-year increase in schooling can augment wages by more than 10 percent after allowing for other factors (Table 3.2). An additional year of schooling has raised farm output by nearly 2 percent in the Republic of Korea and 5 percent in Malaysia. And in family-owned enterprises in urban Peru, education appears to be more critical to earnings than physical capital.

Table 3.2 The effect of an additional year of schooling on wages and farm output, selected countries and years

Country and year	Percentage increase in wages		Percentage increase in farm output	Sources
	Male	Female		
Côte d'Ivoire, 1987	12 P 21 S			van der Gaag and Vijverberg 1987
Ghana, 1988/89	5			Glewwe 1990
Korea, Rep. of, 1976, 1974	6		2	Lee 1981, Jamison and Lau 1982
Indonesia, 1986	8	12 S		Behrman and Deolalikar 1988
France, 1987		11		Riboud 1985
Peru, 1986	13	12 P	3	King 1989, Jacoby 1989
	8	8 S		
Malaysia, 1987	16	18	5	Jamison and Lau 1982, World Bank data
Nicaragua (urban), 1985	10	13		Behrman and Blau 1985
Philippines, 1980		18		Griffin 1987
Spain, 1979		10		Hernandez-Iglesias and Riboud 1985
Thailand, 1986; 1973	17	13 P	3	Schultz, forthcoming; Jamison and Lau 1982
	7	25 S		
United States, 1967				Smith 1979
Whites	6	7		
Blacks	5	11		

P, primary school level.
S, secondary school level.
Note: These results were all estimated controlling for other factors such as work experience and other individual characteristics. In most cases, the estimated effects have also been corrected for any statistical bias resulting from selecting a sample of wage earners only. The estimates for Côte d'Ivoire, Ghana, and Korea pertain to combined samples of men and women.

Education affects productivity and growth through several channels. A better-educated person absorbs new information faster and applies unfamiliar inputs and new processes more effectively. When a new product or process is introduced, much needs to be learned about how it works and how it applies to specific circumstances and environments. In the dynamic and uncertain environment of technological change, more highly educated workers have a big advantage. In Peru, if farmers had an additional year of schooling, it increased their probability of adopting modern farm technology by 45 percent. In Thailand, farmers with four years of schooling were three times more likely to use new chemical inputs than farmers with one to three years of schooling.

Japan's rapid industrialization after the Meiji Restoration was fueled by its aggressive accumulation of technical skills, which in turn was based on its already high level of literacy and a strong commitment to education, especially the training of engineers (Box 3.3). Korea's relatively strong base of human capital in the early 1960s speeded its own industrialization. This accumulation of human capital started during the period 1910–45, with substantial on-the-job training and foreign technical assistance. Important education programs were launched during the late 1940s and 1950s, focusing on universal primary education and adult literacy; higher education was also expanded, and many students were sent overseas for technical and advanced training (Pack and Westphal 1986).

Contrary to popular belief, education appears to promote entrepreneurship at least as powerfully as cultural factors—important though these have sometimes been. Legal restrictions on the ownership of land forced the Jews of medieval Europe into commerce; and cultural taboos often create economic opportunities for ethnic minorities (migrant Hakka Chinese dominate northern India's leather-tanning industry, which is thought to be polluting by high-caste Hindus; Basu, forthcoming). But, more generally, entrepreneurship is a matter of skills, not cultural inheritance. That is why entrepreneurship may be one of the most important channels through which education raises economic productivity.

In market economies entrepreneurs are the link between innovation and production. They perceive new economic opportunities, take risks, and change their methods of production and distribution. Entrepreneurial ability has been characterized as a combination of moderate risk-taking, individual responsibility, long-range planning, and organizational ability. Education promotes all

Box 3.3 Meiji Japan's penchant for education

Countries with a longstanding commitment to educating their populations have the most advanced economies today. The policy changes associated with the restoration of the Meiji emperor in Japan in 1868 are a case in point. Japan had been isolated from global technological developments for more than two centuries, and was agricultural and largely feudal. In the mid-1800s, it came under intense pressure from European and U.S. traders to open its ports and, more generally, to match the economic and military prowess of the West. A revolution brought a new, technocratic government to power. The government's initiatives to import technology are by now legendary: missions were sent abroad to learn about science, technology, and administration; machinery was imported; legions of foreign advisers were hired; and model factories were established in textiles, glass, cement making, and machine tools. The salaries of hired foreigners who accompanied imported new machinery between 1870 and 1885 averaged 42 percent of total annual expenditures of the Ministry of Industrial Affairs. Engineers and technicians accounted for 40 percent of all foreigners employed by the government and private firms.

What is less well-known, but probably more important for Japan's sustained success, is that extraordinary changes were made in the educational system. At the beginning of the Meiji era, literacy was only 15 percent, but by 1872 a universal and compulsory system of elementary education had been introduced and the foundations for secondary education had been laid. On the basis of careful investigation, the education system was patterned on the French system of school districts; the university system was patterned on that of the United States. Primary school attendance rates grew from less than 30 percent in 1873 to more than 90 percent in 1907. The number of secondary schools expanded tenfold during the period 1885–1915. Japan became one of the world's most educated and most education-conscious nations. Achieving this required a strong commitment. Japan consistently expended a greater share of its real domestic product on education than any European or other Asian nation.

four. In a study of entrepreneurs in northern Thailand, 40 percent had a university degree. In Malaysia, even when ethnicity and family wealth are controlled for, entrepreneurs in larger enterprises are more educated than entrepreneurs in smaller firms. In Bolivia, Côte d'Ivoire, Ghana, and Peru, entrepreneurs—defined narrowly as persons who own a nonfarm enterprise with at least one hired worker—are not more educated than wage employees; but, as in Malaysia, enterprise size is positively associated with the entrepreneur's years of education (Figure 3.3).

Population

The decline in death rates from about thirty per thousand in 1945 to about ten per thousand in 1988—a decline that has outweighed the decrease in fertility rates during that period—has fueled rapid population growth in the developing world. The world's population has doubled since 1950, and the share of the world's population living in the poorest developing regions rose from two-thirds in 1950 to three-fourths in 1985. The average population growth rate in developing regions increased to more than 2 percent in the period 1950–75 (Figure 3.4). It has since dropped in Latin America and steadied in Asia as a whole; but it will continue to rise in Africa during the next two decades, despite initial signs of declining fertility in Botswana, Kenya, and Zimbabwe.

Rapid population growth has caused serious concern about the outlook for economic growth, human development, and the environment in developing countries. Although not a threat in every country, for many developing countries it is a critical issue. For example, in some countries, high fertility rates and poverty together form a vicious circle that threatens the welfare—or even survival—of the population, especially children. Through malnutrition and disease, poverty leads to more infant and child deaths, which in turn induce couples to have more children to guarantee the survival of some. At the same time, high birth rates have been shown to be associated with higher infant and maternal deaths.

Although mortality rates still differ widely among countries, differences in population growth are mainly the result of differences in fertility rates. Fertility reflects decisions made by individuals, which raises the question of how such decisions can come to be detrimental to society as a whole. Why should the social costs and benefits of having children differ from the private costs and benefits? It has often been argued that rapid population growth promotes development because a large population makes it possible to achieve scale

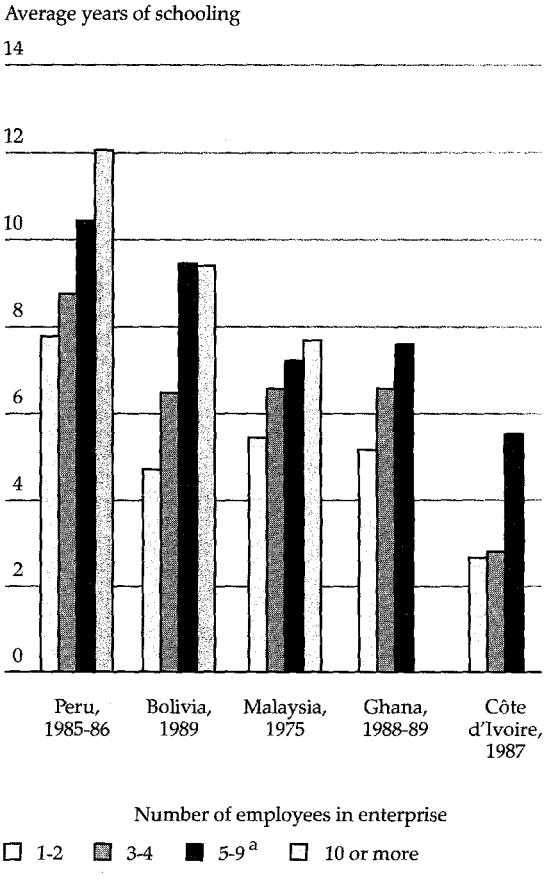
economies in production. But removing barriers to international trade means that a country's own population is no longer a barrier to achieving economies of scale. The small industrializing countries of Asia demonstrate this benefit from trade. Singapore, with a population of 2.7 million, annually exports about $35 million worth of manufactured exports—about twice as much as does Brazil, with a population of 147 million.

The effect of population growth on the natural environment is another source of divergence between private and social costs (Box 3.4). The pressure of population can raise agricultural demand, leading in turn to the abuse of marginal land and other natural resources. The annual rate of deforestation in the 1980s was 0.5–2.3 percent in Brazil and 0.4 percent in Bolivia, whereas extensive deforestation in Nepal is thought to have caused land erosion and floods in Bangladesh and India. Although many parts of Sub-Saharan Africa still have large areas of potentially cultivable lands and relatively low population densities, a rapidly expanding population moving into the tropical forests already poses environmental problems. Côte d'Ivoire is said to have an annual deforestation rate of 6–16 percent; its forests could disappear in less than twenty years.

Policies to slow population would help to ease the long-term threat to the natural environment from global warming and other ecological problems. But these dangers reflect other pressures, too: the widespread use of natural-resource-intensive technologies; ineffective regulation of common-property resources; land tenure systems that do not secure long-term rights to land use; and policies that distort the prices of nonrenewable resources. Action on such matters must be a priority for governments everywhere.

Population growth may exacerbate other market failures besides the depletion of resources. The congestion of urban areas is one. Here, again, population control needs to be accompanied by other measures: better city planning, rural development, traffic control, and so on. Universal education helps motivate people to limit the number of children they have and to improve the quality of their children's lives; it is one of the most effective population-control policies.

Figure 3.3 Educational attainment of entrepreneurs in five developing countries



a. For Côte d'Ivoire and Ghana, this category includes all enterprises with five or more employees.
Source: Derived from household surveys; see the technical note at the end of the main text.

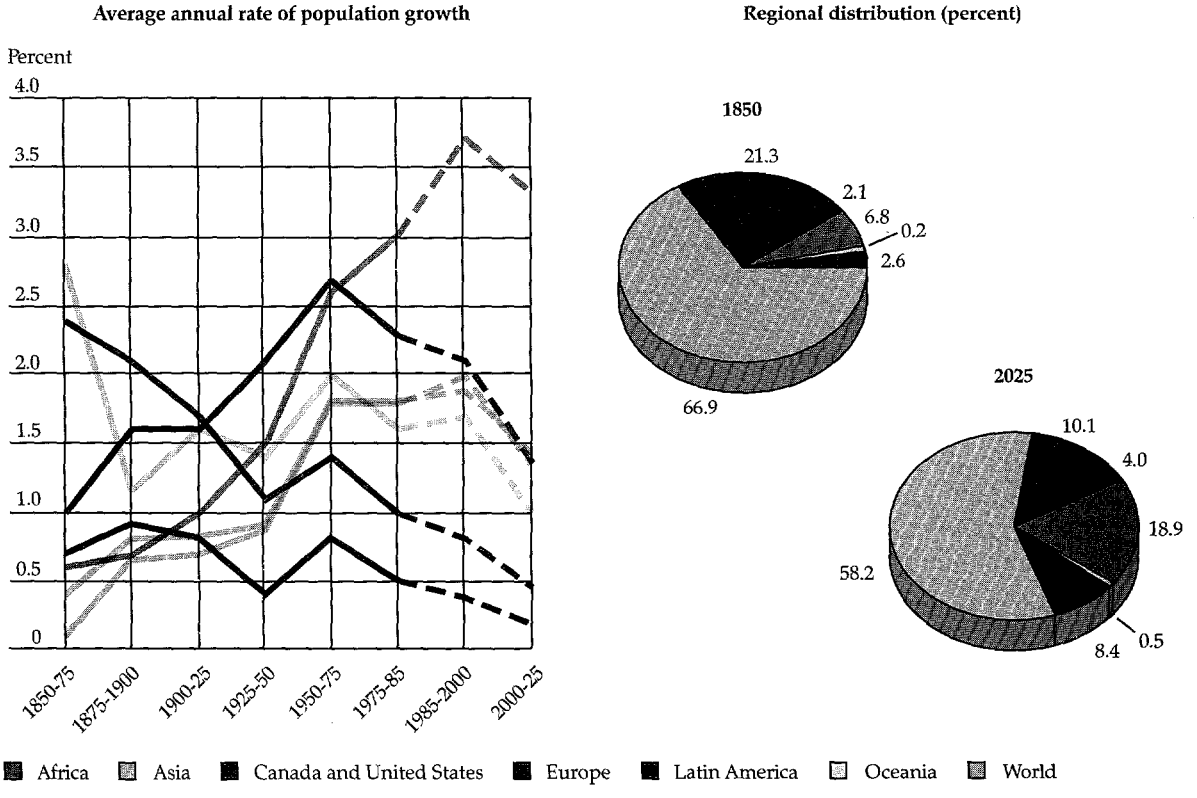
Challenges in human development

The agenda for human development differs widely from country to country. Egypt's most pressing concerns will not be the same as Thailand's or Turkey's—although all three are lower-middle-income countries with roughly the same population. Despite the diversity, however, most countries have the following goals in common: to slow population growth, to improve health and nutrition, to build technical capacity, and to reduce poverty.

Slowing population growth

Family planning has been promoted by external aid and finance agencies as a means to control overall population growth. This approach has been accepted by some governments. But others have reacted negatively to the idea of population

Figure 3.4 Population change by region, 1850-2025



Note: All data for periods after 1985 are projections.
Sources: McEvedy and Jones 1978; Bulatao and others 1990.

control as an end in itself, preferring instead to view family planning programs as a way to enable couples (especially women) to exercise choice, to improve the health of mothers and children, or to reduce poverty.

Urbanization and economic growth in developing countries both tend to reduce population growth. They make caring for many children more difficult or more expensive; they encourage parents to spend more on educating each child rather than on supporting a bigger family. In general, high-income countries have low fertility rates and high levels of education and health; low-income countries have high fertility rates and low levels of education and health. In India, farm households in higher-growth areas, which were exposed to the new technologies of the green revolution, had fewer children and gave them significantly more schooling than did those in other areas .

But income growth is neither necessary nor sufficient to control population. Family planning programs can work. The implementation of these programs has contributed significantly to the decline of fertility in low-income countries such as Indonesia and Sri Lanka. Thailand has successfully reduced its population growth rate from 3.1 percent in the 1960s to 1.9 percent in the period 1980–89, and the total fertility rate declined from 6.3 children in 1965 to 2.5 in 1989. Family planning can also have additional effects on child survival by improving maternal health or increasing resources available per child. Studies have found that a doubling of government expenditures per capita on family planning programs in urban areas would reduce infant mortality by 3 percent in Colombia, and that a 20 percent rise in the proportion of villages with a family planning clinic would reduce infant mortality by more than 4 percent in India.

Box 3.4 Population, agriculture, and environment in Sub-Saharan Africa

Rapid population growth, agricultural stagnation, and environmental degradation are closely interrelated and mutually reinforcing. Until recently, it was generally believed that controlling population was not a priority in Sub-Saharan Africa, where population density is low and land is abundant. However, population density and land availability vary greatly across countries in the region. Countries with low per capita arable land and high population growth, such as Burundi, Ethiopia, Ghana, Kenya, Nigeria, Rwanda, and Togo, are experiencing an economic and environmental crisis of agricultural stagnation, deforestation, land degradation, and desertification. Per capita arable land declined from 0.5 hectare per person in 1965 to 0.3 in 1987. The traditional system of shifting cultivation is under stress as land has become more scarce, and fallow periods are gradually being reduced. In Kenya, Lesotho, Liberia, Mauritania, and Rwanda, fallow periods are no longer sufficient to allow soil fertility to be restored, and crop yields have fallen as a result. People are forced to migrate onto marginal land in semi-arid areas and into tropical forests to establish new farms, so population pressure is causing not only soil degradation, but also deforestation, desertification, and falling agricultural output.

The pressure on land has been exacerbated by people's needs to gather fuelwood and graze their livestock. Fuelwood accounts for about 80 percent of energy needs in Sub-Saharan Africa, and it is in very short supply. As the situation worsens, farmers have to burn animal dung and crop residues instead of using them to enrich the soil. With an estimated 160 million head of cattle in Africa, overgrazing is acute. More than one-quarter of Sub-Saharan Africa's land area of 750 million hectares is moderately to very severely desertified. The agricultural potential in these areas may have been lost for years.

Agricultural stagnation and environmental degradation also affect population growth. High infant and child mortality rates caused by food shortage and malnutrition induce men and women to have more children, partly to ensure that some survive to support them in old age. Fertility is high in the region, at 6.6 children for an average woman, compared with 4 in other developing countries. To break this vicious circle, policies are urgently needed to control population; increase agricultural productivity without damaging the environment; and reduce malnutrition, poverty, and infant and child mortality.

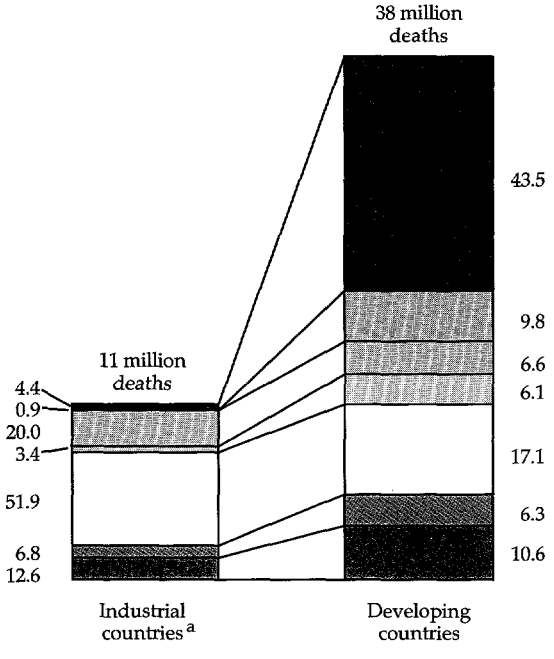
Contraceptive use has been lowest, and fertility rates highest, in Sub-Saharan Africa. A compelling reason for trying to slow population growth in the region is the already mounting cost of providing basic health care and schooling, services that need to be not merely maintained but greatly improved. However, the trends in African population growth are not well understood. Low contraceptive use has been attributed to ignorance: only about half of Africa's women have heard of a way to prevent pregnancy, compared with 85–95 percent in other regions. But evidence also shows that African women, on average, want larger families—between six and nine children—than women in other regions. This suggests that even more information and family planning services might make little difference to begin with. Recent surveys, however, indicate that a growing proportion of women want no more children. In the 1970s, only 16 percent of Kenyan women wanted no more children, according to the World Fertility Survey; in 1989, 49 percent gave that answer, according to the most recent Demographic and Health Survey. The same trend is appearing in other countries. This may indicate that the region has reached a demographic turning point, but it is too early to tell.

Improving health and nutrition

In this Report, infant mortality and life expectancy at birth have so far received the most attention as measures of social welfare. This is partly because of the availability of data. However, it should not distract attention from the chronic deprivation and morbidity of living children and adults. Two tasks are urgent: to provide nutrition to improve the mental and physical well-being of children and adults; and to improve the control and treatment of disease.

Undernutrition and micronutrient malnutrition affect the more than 1 billion people who live in poverty in developing countries. In infants and pre-adolescent children, micronutrient deficiencies have been associated with stunted growth, mental retardation, and learning disabilities. In adults, they cause a higher incidence of disease and worsen performance at work. Preventive and curative approaches to the problem have been tried. The best techniques vary according to cir-

Figure 3.5 Distribution of deaths by cause, about 1985
(percent)



Note: Data are reported for 1985 or the closest year, depending on availability by country.
a. Including Eastern European countries and the USSR.
b. Infectious and parasitic diseases in developing countries include diarrheal diseases (13.2 percent), tuberculosis (7.4 percent), acute respiratory illness (19.5 percent), and others (3.4 percent).
Source: Lopez, forthcoming.

cumstances. One lesson, however, is that education about nutrition is important. Failure to educate the public is a major reason why diet-fortification programs in some Latin American countries have failed. A second lesson is that nutritional initiatives can be carried out by all sorts of different institutions. For example, schools can be used to deliver micronutrients to children as well as to the general community.

The appropriate methods for treating and controlling disease will again vary from case to case. In the developing countries as a whole, infectious and parasitic diseases account for almost half of all deaths, nearly all of which are children under five years; in the industrial countries, circulatory and degenerative diseases are the main killers, accounting for more than half of all deaths (Figure 3.5). When a new disease such as AIDS erupts, however, these patterns can shift dramatically (Box 3.5).

Among developing countries, epidemiological profiles vary widely—because of different levels of government efforts to control communicable diseases, different fertility rates, and many other factors that alter the risks of various diseases. For example, the profiles of Brazil, China, and the Republic of Korea have more and more resembled those of wealthier, industrial countries. In Brazil, rapid urbanization and industrialization in the 1970s were accompanied by an increase in the number of traffic-related deaths and industrial injuries; cardiovascular diseases have become the leading cause of death, accounting for a third of the deaths in the country as a whole and even higher proportions in urban areas. In China, industries are exposing the population to severe environmental pollution. In some parts of the country, exposures to lead and dust are sixty to eighty times the maximum allowable limits; mercury concentration in the air is twelve times the limit; and noise pollution is bad enough to have caused hearing loss among workers. In Korea, rapid industrial growth and urbanization have also changed lifestyles and shifted the epidemiological profile. In the 1980s, the main causes of deaths were cancer, heart disease and stroke, and injuries from accidents and violence; these accounted for 60 percent of deaths in 1987.

What is the best way to improve developing-country health care? In particular, how much should be spent on preventive, as opposed to curative, care? WHO and UNICEF estimate that nearly 43 percent of the 14.6 million child deaths each year could be prevented through vaccinations (at an average cost of $13 per child) or low-cost interventions such as oral rehydration therapy (at $2 to $3 per child per year). A recent World Bank study (Jamison and Mosley, forthcoming) ranked various policies by cost-effectiveness (as measured by cost per year of healthy life saved). One conclusion is that measles immunization programs and programs to reduce perinatal mortality are very cost-effective. With such measures, an extra year of healthy life costs just $5. The appropriate balance of spending between preventive and curative care depends, however, not only on cost but also

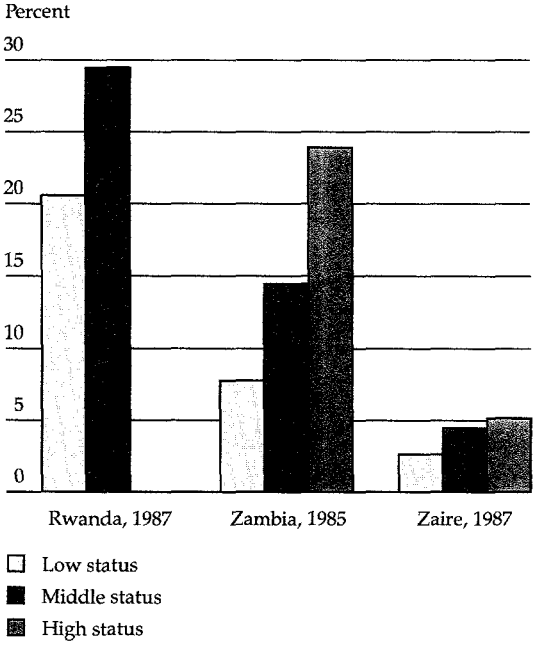
on reach. Health promotion and disease prevention are generally neglected in favor of expensive treatments that reach relatively few and are often ineffective, such as for many kinds of cancers. Immunization programs still deserve priority in low-income countries. Programs for family planning, nutrition education and supplementation, and perinatal care are also highly cost-effective. Once these needs have been met, however, the presumption in favor of preventive over curative programs is weaker. Tuberculosis treatment programs, for example, have proved cost-effective.

Box 3.5 AIDS in developing countries

Acquired Immune Deficiency Syndrome (AIDS) is a fatal disease which strikes an adult on average eight or ten years after being infected by the human immunodeficiency virus (HIV). Since 1985, the cumulative number of persons infected with HIV has risen worldwide from 2.5 million to between 8 and 10 million, and in Africa from 1.5 million to about 5.5 million. By the year 2000, the World Health Organization estimates that 25 to 30 million adults worldwide will have been infected with HIV. The share of developing countries has grown from 50 percent in 1985 to 66 percent now, and is expected to increase to 75 percent in the year 2000 and to 80–90 percent by 2010. Infection rates among adults in several large African capital cities and even in some rural areas are already 25 percent and are expected to climb to this level in other cities over the next ten years. Because every 10 percent increase in the infection rate increases annual mortality by at least 5 per thousand, previously high levels of adult mortality are tripling and quadrupling in these areas. Outside Africa, new infections appear to be rising most rapidly in Asia.

This human tragedy is imposing a potentially crippling burden on Africa's peoples, economies, and already inadequate health care systems. It is a human and economic disaster of staggering dimensions. Infections strike adults in the prime of life, plus up to one-third of all children born to infected mothers. By 1992, the total number of infected children in Africa alone is expected to reach 1 million, and many more will become orphans. In contrast to malaria and other causes of excess adult mortality in developing countries, AIDS does not spare the elite. In some African cities, relatively well-educated and more productive workers are infected in disproportionately large numbers (Box figure 3.5). The epidemic is therefore likely to have a detectable, and possibly substantial, effect on per capita income growth and welfare for years to come. Moreover, AIDS patients fortunate enough to be admitted to hospitals will occupy places thereby denied to others, many with conditions that would otherwise have been curable. They will require long hospital stays, expensive drugs, and the time of skilled staff. In some central African capitals, more than 50 percent of admissions to hospitals are now AIDS cases. The direct costs of treatment have also been estimated to be quite high, ranging from 78 to 932 percent of per capita GNP in Zaire and from 36 to 218 percent of per capita GNP in Tanzania, depending on the type of treatment used.

Box figure 3.5 HIV infection rate and socioeconomic status in selected urban samples, Sub-Saharan Africa



Note: HIV, human immunodeficiency virus. For definitions of socioeconomic status and the samples used, see the Chapter 3 section on AIDS in the technical note at the end of the main text.
Sources: Bugingo and others 1987; Melbye, Nselesani, and Bayley 1986; Ndilu 1988.

Building technical capacity

Building and strengthening technical capacity—the ability of people to use new and existing technologies—is necessary for economic growth. A major technological change in the workplace in recent years is the use of computers, even in jobs usually regarded as requiring less skill. This has profound implications for education needs. It calls for learning primarily through symbols rather than visual observation, and for problem-solving in dynamic situations. To meet these needs, the government could play two roles: expand and improve the quality of primary and secondary education, and create incentives to increase the supply of and demand for more specialized technical training.

Many developing countries are expected to be able to achieve universal primary education by the year 2000. But making this expansion in enrollment worthwhile requires improvements in the quality of education. A large proportion of students who complete primary education in low-income countries fail to reach national or international standards of achievement in mathematics, science, and reading. Industrial countries too must continually improve and update their educational systems as rapid changes in technology make failures to learn more costly. The perceived decline in the competitiveness of U.S. industry has been attributed to a decline in the quality of the technical preparation of students relative to other industrial countries. A 1986 survey of adults aged 21–25 found that 20 percent had not achieved an eighth-grade reading level, whereas many job manuals require tenth- to twelfth-grade skills. And although only 1 percent were unable to perform simple arithmetic operations, 35 percent were not able to answer questions involving simple quantitative problem-solving.

Beyond the basics, what is the right educational base for rapid economic growth? In lower-middle-income developing countries where workers already are assembling electronic devices for international markets, skill needs will change quickly as trade and employment patterns shift and technology advances. Managerial and advanced technical skills will be crucial for exploiting new opportunities and technologies. The newly industrialized, export-oriented countries will have different needs—in particular, indigenous technological innovation to maintain their competitiveness. This will require investing in research and development, but it will also depend on achieving even higher standards of general education. There may be a conflict between the goals of greater breadth in the education of scientists and technologists and of specialization in certain fields of study. In particular, where the number of scientists and technicians is small, specialization may be premature. Science research is also important in the long term, but it must be tied closely to production on the shop floor if it is to have a significant and immediate effect on productivity.

Estimates of the social returns from investing in education indicate that the strongest case for public support of education is at the primary level in low-income countries—this meets the goal of promoting equity as well as that of raising productivity. These results do not mean that investments in higher education are unimportant. Educated, well-trained people can provide the leadership needed in agriculture, the emerging industrial sector, and government. The public cost of such investments may be too high, however, especially when it drains resources from primary education and other basic social services, for which government support is essential. Governments will need to be more selective in choosing which level of education or training to improve, which costs to meet (for example, academic materials rather than boarding expenses), and whom to subsidize.

Reducing poverty

More than 1 billion people in the developing world today live in poverty. *World Development Report 1990* concluded that this number could be reduced by a strategy of both labor-intensive economic growth and efficient social spending. Economic growth is necessary to reduce poverty, but experience shows that it is insufficient. Social expenditures on health care and schooling expand opportunities for the poor, but again may not be enough. Even in countries where basic social welfare indicators have improved, segments of the population remain relatively underserved. In Brazil, more than 10 percent of infants born in the northeastern region do not reach their first birthday, a higher infant mortality rate than that in many African and Asian countries. In Peru, the infant mortality rate in the Andean provinces is five times or more the rate in Lima. And the health problems of the female population are exceptionally acute in Bangladesh, Bhutan, Nepal, and Pakistan. The life expectancy at birth of girls in these countries is lower than that of boys; in other low-income countries, women live longer than men. These countries are different because families spend more on their sons than on their daughters.

Safety nets are needed to protect the most vulnerable groups: the unemployed, the disabled, the

aged, and (often) women, who all lack access to public programs that are tied to employment; and the poor, who suffer most when times are hard. Guaranteeing food security through food-price subsidies, food rations, or food supplementation schemes meets basic needs, provided the measures are well targeted. Carefully targeted income-support programs for the elderly or the infirm provide safety nets for people who are otherwise hard to reach. Public employment programs, such as those used in South Asian countries, build and maintain infrastructure that could benefit the poor while cushioning their incomes during spells of unemployment.

Public policy

The queen of Travancore in what is now the state of Kerala, India, announced in 1817 that "the State shall defray the entire cost of the education of its people in order that there may be no backwardness in the spread of enlightenment among them, that by diffusion of education they become better subjects and public servants." Most governments would agree that public policy must play the leading role not just in education, but in social services generally. Not only the quantity but also the quality of public expenditure is important. How successful has public policy been in these areas during recent decades?

The correlations of income growth and government spending with social indicators were assessed for this Report using cross-country, time-series data. The limitations of the quality of data and aggregative analysis were fully recognized. With these caveats, it was found that for industrial countries, income growth, not government spending, explains improvements in infant survival and secondary enrollment. This is unsurprising. These countries had already achieved high levels in these two indicators by 1960; changes in their social spending since then have been geared to other objectives. The results for developing countries, however, were mixed. According to one model, a 10 percent increase in health spending reduces infant mortality by 0.8 percent, and a 10-percent increase in income decreases infant mortality by 1.1 percent. Using a different model, only the income effect remains statistically significant. A 10 percent increase in private income is associated with a fall of 0.5 percent infant mortality. Similarly mixed results were found for secondary school enrollment (see the Chapter 3 section on public spending in the technical note at the end of the main text).

In countries with high infant mortality, an additional dollar of public health spending per capita would be associated with a decrease in infant mortality rate of 16 per thousand, if the government expenditure were twice as efficient. Note that, in these countries, average health spending per capita is very much lower than the average for countries with low mortality (about $1 per capita compared with about $20). Thus, a large percentage increase translates into a modest increase in money terms—but with substantial effects on mortality.

Many well-designed and well-targeted programs have worked—and not necessarily with a heavy drain on public resources. In the health sector, the eradication of malnutrition and greater availability of health facilities reduced mortality rates. Chile's infant mortality dropped from 120 per thousand in the 1960s to 19 in 1989, and the percentage share of malnourished children declined from 37 to 7.5 percent. Nutritional programs for children and pregnant women as well as an improvement in the country's basic health infrastructure contributed to this steady progress. China reduced infant mortality significantly from an estimated 265 per thousand in 1950 to 44 in 1981 (Ahmad and Wang 1991), a decline attributable to a broad, publicly financed disease-prevention strategy, coupled with accessible and affordable primary care as well as income growth. Lower mortality rates in Kerala than in the equally densely populated state of West Bengal in India could not be explained by the difference in their per capita incomes, income and asset distributions, and extent of industrialization or urbanization. They do seem to be attributable to the wider distribution and greater utilization of health facilities in rural areas of Kerala. Another study found that 73 percent of the decline in infant mortality in Costa Rica during the period 1972–80 could be explained by the greater availability of primary care facilities (rural and community health programs and vaccination campaigns) and secondary care (such as clinics), after controlling for income growth.

Similarly, in education, a labor retraining program in Mexico in the 1980s was successful in upgrading the skills of tens of thousands of workers, increasing productivity and alleviating poverty among them. In Peru's push to expand primary enrollment since the 1950s, government programs played a key role by building more schools in rural areas and by increasing the supply of textbooks. This narrowed the gap in access to schools between rural and urban residents.

Where more public spending is warranted, it

needs to be better targeted. Government spending is not always efficient or equitable. Many countries spend a disproportionate share of their education budgets on higher education; students from upper-income groups benefit most. In Chile, Costa Rica, the Dominican Republic, and Uruguay, the top income quintile has received more than half the higher education subsidies, the bottom quintile less than one-tenth. In Bangladesh, India, Nepal, and Papua New Guinea, the best-educated 10 percent have received more than half of what the government has spent on education; in Bangladesh, the worst case, the top 10 percent get 72 percent of the education budget.

In health, an emphasis on expensive hospital and other kinds of elaborate curative care instead of inexpensive, preventive care means that basic health indicators show a smaller improvement. Public spending for hospital care is high in Brazil, at 78 percent of total health expenditures in 1986, compared with spending for immunization, prenatal care, and control of communicable diseases. Côte d'Ivoire's infant mortality rate is higher than that of other countries in the region with similar or lower income levels and smaller health budgets. This has also been attributed to its emphasis on hospital care, which draws resources away from rural primary care facilities that are understaffed, lack essential inputs, and often run without supervision.

The evidence also shows that many programs have been ineffective. Despite the remarkable rise in primary school enrollment, a large proportion of pupils have failed to achieve functional literacy and numeracy. This is frequently attributed to poor teacher preparation and shortages of learning materials. An Indonesian study found that the average primary school teacher had mastered only 45 percent of the subject matter in science subjects, and that most textbooks were out of date. Public health facilities in some countries are underused, even in areas with high mortality and morbidity. The decline in outpatient attendance in Ghana has been blamed on the shortage of essential drugs and other medical supplies, and on poor staff morale caused by falling real wages. Capital investments in the social sectors are often rendered ineffective by a failure to provide for current spending on essential inputs. Governments often seem unable to set standards, monitor quality, and target programs accurately.

Providing resources

Social programs have come under severe financial pressure in the past decade. Regional averages conceal this; they show a rising, or at least constant, share of education and health expenditures to GDP during the period 1975–85 (Table 3.3). But in about half of the countries for which data are available, public expenditures for education and health as a percentage of GDP fell between 1980 and 1985. In the fewer countries that have more recent expenditure data, the decline was even larger after 1985. In many cases this will have meant a falling standard of provision—but not always. For example, spending on health was cut in Chile during the country's difficult macroeconomic adjustment, but real per capita resources for primary health care and nutrition increased.

Table 3.3 Government expenditures for education and health as a percentage of GDP, 1975, 1980, and 1985

Region or group	Education			Number of countries with declining expenditures, 1980–85[a]		Health			Number of countries with declining expenditures, 1980–85[a]	
	1975	1980	1985			1975	1980	1985		
Industrial countries	6.0	5.9	5.5	12	(21)	3.3	3.4	4.0	8	(18)
Central and West Asia	3.9	4.1	4.4	4	(13)	1.1	1.1	1.4	5	(8)
South Asia	2.0	2.4	3.1	0	(4)	0.7	0.8	0.7	2	(4)
East Asia	2.8	2.9	3.1	0	(9)	0.9	0.9	1.0	2	(6)
North Africa	6.0	5.7	6.9	1	(5)	1.5	1.5	1.4	2	(3)
Sub-Saharan Africa	4.2	4.6	5.0	13	(23)	1.1	1.3	1.2	6	(10)
Latin America and the Caribbean	4.2	4.6	4.4	13	(24)	1.7	2.3	2.2	5	(13)
Eastern Europe	4.9	4.8	4.7	4	(7)	..	0.9	1.1	1	(2)
Total				47	(106)				31	(64)

Note: The numbers of countries with data for 1975, 1980, and 1985 are in parentheses. For purposes of comparability across countries, data are taken only from consolidated budget accounts; countries that report only budgetary central government expenditure are not included. Government social spending before 1975 is reported by a much smaller number of countries and is therefore not shown.

a. Number of countries in which public education (health) expenditures as a percentage of GDP declined between 1980 and 1985.

Sources: IMF data; Unesco data.

It often makes sense to shelter some social programs from short-term economic pressures for the sake of long-term investments in social welfare. But the state's role need not be limited to financing and provision. By setting and enforcing standards of provision, and by otherwise influencing the private sector, it can widen its role even in the face of tight budgets. For some publicly provided services, it may be appropriate to charge users. Other services can often be provided by the private sector, though governments will need to establish safety nets for the poor. Such measures will conserve scarce public funds and promote efficiency at the same time.

ALTERNATIVE FINANCING SCHEMES. Most developing countries already have a fee-for-service private health care system; introducing elements of cost recovery into the public health system therefore ought to be feasible. The government's share in total spending in the social sectors has been substantial, especially in education, but households have also borne part of the cost (Table 3.4). In the Republic of Korea, for instance, spending on public health as a proportion of GDP has been rising, but the role of the government is still small compared with the private sector's. The government concentrates on preventive care for rural residents and the poor. User charges have risen as insurance coverage broadened and firms increased the subsidy for their employees' health care. Since 1980, Zimbabwe has made impressive progress in health care, especially in rural areas, through increases in public spending and a broadening base of finance. By source of funds, the private sector covered 35 percent of costs in 1988 (50 percent in 1985, according to United Nations data); this includes costs met from private insurance, industry, and out-of-pocket spending. The diversity of providers of services and sources of funding has increased the ability of the government to maintain services despite economic pressure (Box 3.6).

Many other financing options besides fee-for-service are available. Health insurance systems can play a useful role. Although broad insurance coverage may not be currently attainable in most developing countries, limited health insurance is feasible. Brazil, Korea, and Mexico demonstrate that the coverage of health insurance can be gradually expanded—in Brazil and Mexico, from a third or less of the population to nearly 100 percent in 15–20 years; in Korea, from less than a tenth of the population in 1977 to 47 percent in 1986. Many other developing countries are experimenting with private health insurance plans as a way to meet future demands for health care, especially expensive curative care. There are concerns, however, about equity (because these plans generally start in the formal employment sector) and the risk that costs will rise too quickly (because consumers and health care providers lack incentives to economize).

Table 3.4 The government share in total education and health expenditures
(percent)

Country and year	*Education*	*Health*
Low-income countries		
Tanzania, 1975	..	57.0
India, 1980	45.4	20.2
Ghana, 1975	..	60.2
Sri Lanka, 1988	73.1	44.5
Sudan, 1980	..	17.2
Sierra Leone, 1985	..	40.5
Average	..	39.9
Middle-income countries		
Zimbabwe, 1985	69.0	50.2
Honduras, 1985	..	21.2
Thailand, 1988	..	13.6
Ecuador, 1985	..	24.1
Colombia, 1985	73.0	20.3
Peru, 1985	..	27.4
Jordan, 1985	57.5	27.0
Fiji, 1985	..	67.4
Malta, 1988	94.1	60.3
Venezuela, 1980	..	44.4
Korea, Rep. of, 1988	..	4.2
Greece, 1985	88.0	44.6
Iran, Islamic Rep. of, 1975	..	43.3
Average	..	34.5
Average for sixteen high-income countries, mid-1980s[a]	88.5	58.2

Note: Countries were selected on the basis of data availability. Data are for 1975 or the latest year available.
a. Presented for purposes of comparison.
Source: United Nations 1990b.

In education, several countries have encouraged community participation and parental support at the primary level. Korea's experience in promoting primary education in the 1950s shows that this need not create inequities. Students and parents covered 71 percent of the costs of constructing and operating schools, learning materials, and transportation, and the central and local governments financed teacher salaries and the remaining expenses. Later, when the central government financed a larger share, local sources continued to provide about one-fourth of the cost of local education. Zimbabwe's success in expanding education in the 1980s was built on a strong partnership between the public and private sectors. Government schools were built by local groups and par-

Box 3.6 The role of international aid in the social sectors

In the 1980s, the share of education and health in bilateral aid to developing countries fell from 18 percent to 16.3 percent, and in multilateral aid from 14 percent in 1985 to 12 percent in 1988. Nearly 10 percent of bilateral aid and 5 percent of multilateral aid were allocated to education, which represented an average annual funding of $4.3 billion. Five to 6 percent of bilateral aid and 8 to 9 percent of multilateral aid was spent on health and population programs, with an average annual flow of $2.7 billion (Box table 3.6).

Evidence suggests that aid has not been allocated to priority areas. More than 95 percent of education assistance was targeted to the secondary and higher levels of education, rather than to the primary level. Moreover, the bulk of aid given to primary education was not allocated to increasing the supply of critical resources for learning, such as teaching materials and teacher training, which have been found to be the most cost-effective. In low-income countries, quantitative expansion has been the focus; buildings, furniture, and equipment accounted for 57.8 percent of all aid. Only 1.5 percent of total aid is given for primary health care, and only 1.3 for population assistance.

Box table 3.6 International aid for the social sectors, 1980–88
(percent)

Source and type of aid	*1980–81*[a]	*1983–84*	*1985–86*	*1987*	*1988*
Bilateral[b]					
Education	12.7	11.9	10.9	10.6	11.0
Health and population	5.5	5.1	5.3	5.2	5.3
Total	18.2	17.0	16.2	15.8	16.3
Multilateral[c]					
Education	..	..	5.0	4.3	4.3
Health and population	..	..	8.9	7.8	7.8
Total	..	..	13.9	12.1	12.1

a. Data not available for 1982.
b. Bilateral aid, which accounts for about three-fourths of total aid for the period 1980–88, includes aid from member countries of the Development Assistance Committee of the OECD: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, and United States.
c. Multilateral aid includes aid from international organizations such as the European Community, the World Bank, and various other U.N. agencies.
Source: OECD 1980 through 1989.

ents' associations; the government paid for maintenance and repair, staff salaries, instructional materials, and operational expenses. Other schools were established and maintained by nongovernmental or local government organizations: the central government paid a grant for each enrolled student and covered up to one-fourth of the total costs of building.

NONGOVERNMENTAL PROVISION OF SOCIAL SERVICES. It is always important to ask whether governments have the capacity to implement their social programs. In some cases, large and complex programs could overextend the government's planning and administrative resources. Relying for some services on nongovernmental organizations, both nonprofit and for-profit, helps to broaden access to adequate schooling and health care. Private, nonprofit providers tend to be smaller and more flexible in their planning and budgeting; the government, constrained by civil service laws and employees' unions, is less able to change ineffective programs. Allowing private organizations to provide services under controversial programs—such as family planning in some Latin American countries—enables the government to keep its distance while still ensuring that services are available.

Cooperation between the public and private sectors may be particularly appropriate if nongovernmental providers are experienced and efficient and if the government has been unable to expand rapidly enough to satisfy demand. In Rwanda, religious missions, which have traditionally provided most health care services, are reimbursed by the government for 86 percent of staff salaries; these missions continue to provide 40 percent of health services. The governments of Zambia and Zimbabwe also cover a substantial part of mission expenditures on health services. As with other goods and services, competition among for-profit providers in the social sectors is important to ensure efficiency in the delivery of services. Any public subsidies to the for-profit sector (whether in the form of tax breaks or import subsidies) are best linked to the quality of services provided.

Past increases in literacy, numeracy, and technical skills have been achieved not only through formal schooling, but also in many other ways. These range from village literacy projects to national campaigns, from agricultural extension services to firm-based training and technical assistance. All these lend themselves well to community support and private sector provision. There are lessons here for building technical capacity in the future. Japan and Germany developed successful training

systems, voluntarily provided by firms that recognize training on the job to be particularly important when the pace of technical change is rapid. In several developing countries, private firms also played an active role, but the incentives to provide job training were shaped by policy. In Brazil, firms that develop their own in-service training are entitled to deductions from a payroll tax; this program has been used to develop and run a national system of youth apprenticeships since the late 1950s. It is said that the program has enabled Brazil to meet the needs of firms and national goals for training, as well. In Nigeria, a 1 percent payroll tax levied in 1971 was also meant to encourage more employer-sponsored training. Firm-sponsored training programs, however, were slow in coming. The tax program has now become a financing mechanism for establishing vocational training centers.

THE ROLE OF THE POLICY CLIMATE. Human development does not depend solely on the policies of education and health ministries. Other enabling policies are also important. Expanding work opportunities for women and providing day care services for mothers create incentives for women to stay in school longer. Family planning programs have been most successful in countries that have seen improvements in the education and work opportunities of women. Clean water and improved waste disposal are important for controlling the spread of communicable diseases. Environmental regulations limiting air pollution and the disposal of toxic chemicals have long-run health benefits.

Finally, economic growth is crucial. Countries with high growth rates between 1975 and 1985 have infant mortality rates that are 15 percent lower than countries that had an average annual growth rate lower than 5 percent. The overall stance of policy also influences the productivity of social investments. The performance of World Bank investment projects in the social sectors is associated not only with the project design and institutional arrangements, but also with the overall economic policy framework. Policies that encourage innovation and investment and that increase the demand for workers who are better educated and better trained provide the crucial conditions for development. In India, returns on investments in schooling were higher in areas that were able to adopt the modern high-yielding grain varieties of the green revolution, and investments in schooling in those areas also increased. In the United States, firms with newer physical capital, especially in the high technology industries, hired more educated workers and also spent more on in-house training.

Deteriorating macroeconomic conditions (high inflation and interest rates that discourage investments) and restrictive labor market policies discourage innovation and entrepreneurship (see Chapter 4). East European countries generally have higher education levels than countries with similar levels of income. The region's rigid labor markets and restricted wage differentials have, however, led labor to be allocated inefficiently and investments in skills to be wasted. The established systems for training and education cannot respond to the new demands. In Hungary, apprenticeship training provides narrow occupational training in obsolete skills; people trained in management, commerce, and high technology industrial skills appear to be in short supply.

Greater mobility in the domestic labor market, by increasing the rate of return for the most highly educated and trained technicians and scientists, promotes efficient transfers of technology and skills and reduces the "brain drain." Laws that restricted labor mobility in pre-reform China and the Soviet Union are still in place. Radical market-oriented reforms are urgently needed in both countries. Employers need greater control of salary scales, promotion policies, and hiring and firing. If China's new labor contract system, established in 1986, were extended to permanent workers, it could transform labor relations and productivity. Labor exchanges have placed more than 6 million workers in new enterprises in China since 1988; this will improve labor mobility and lead to better allocation of investments in skills. A national social security system that does not tie workers to a specific place of employment will further encourage mobility.

Investing in people

Development requires a careful balancing of the roles of the government and the private sector across a broad range of policies. In social spending, there are large, and largely unexploited, opportunities for a more successful partnership between public and private providers. But in this area, more than in any other except macroeconomic policy, the state usually is cast in the leading role. Governments need to make a clear commitment to this task, and put it among their highest priorities. The evidence shows that investing heavily in people makes sense not just in human terms, but also in hard-headed economic terms.