Households and health

What people do with their lives and those of their children affects their health far more than anything that governments do. But what they can do is determined, to a great extent, by their income and knowledge—factors that are not completely within their control. In every society, moreover, the capabilities, income, and status of women exert a powerful influence on health. Because of these interrelations, government actions, through their effects on the conditions facing households and individuals, can be important to people’s health. Especially in the poorest countries, policies that accelerate income growth and reduce poverty make it possible for people to afford better diets, healthier living conditions, and better health care. Policies to expand educational opportunities, particularly for girls, help households achieve healthier lives by increasing their access to information.

Figure 2.1 Mutually reinforcing cycles: reduction of poverty and development of human resources

Economic growth and investments in human resources interact to improve well-being.
and their ability to make good use of it. The same goes for policies that work to ensure effective and accessible health services for all. When all these policies are combined, they create a virtuous cycle in which reduction of poverty and improvements in health reinforce each other (Figure 2.1).

**Box 2.1 Progress in child health in four countries**

In the 1960s a child born in the developing world had a 77 percent chance of surviving the first five years of life. About thirty years later, the chances of survival have improved to 89 percent. How much did income growth and expansion of schooling contribute to this gain? What was the role of other factors, such as progress in science and medicine? Some answers to these questions emerge from data on child survival from seventy-five industrial and developing countries for the period between 1960 and 1987 (see note to Appendix table A.3). This box reviews the results for four countries with different income levels—Costa Rica, Côte d’Ivoire, Egypt, and Japan (see Box table 2.1 and Box figure 2.1).

In all four countries, part of the gain in child health depends on the initial levels in 1960 of schooling in the population and of income per capita. Because schooling and income per capita produce health benefits that often persist through time, health in a population may be improved simply by maintaining initial levels of schooling and income. In Costa Rica, where in 1960 income per capita was relatively high and schooling was already widespread, initial conditions accounted for 58 percent of the gain in child health between 1960 and 1987. In Côte d’Ivoire and Egypt, where the levels of schooling and income per capita were modest in 1960, initial conditions contributed only about one-fifth to one-quarter of the gains. In Japan, too, these initial conditions contributed a fifth of the gains in child health, but this is not surprising in a country where a baby’s chance of survival was already very good in 1960.

In reality, of course, income and schooling have improved in all these countries, and these improvements contributed to further gains in child survival. In Côte d’Ivoire educational improvements did the most for child health, accounting for 66 percent of the gains between 1960 and 1980. For Egypt, by contrast, the figure was only 21 percent. A comparison between Côte d’Ivoire and Egypt is illuminating. The probability of surviving the first five years of life started at similar levels in both countries and improved at comparable rates. In both, too, the responsiveness of child survival to income per capita and to the schooling of adults was comparable. In Côte d’Ivoire, however, adult schooling started from much lower levels than in Egypt but increased five times faster. Income per capita in Côte d’Ivoire was nearly twice Egypt’s in 1960 but then grew only 60 percent as fast. Thus, improvements in schooling were most significant in Côte d’Ivoire, whereas in Egypt growth in income per capita accounted for fully half of the gain in child health.

Costa Rica and Japan followed the same pattern as Egypt: growth of income per capita contributed substantially more to child health gains than did educational improvements. Technical progress (estimated using the passage of time as a proxy), however, was important in Japan, whereas in Costa Rica and Egypt it mattered less than improvements in education. Except in Japan, where people were already quite well educated in 1960, the analysis probably underestimated the contribution of schooling because it dealt with the schooling of all adults rather than of women alone. Child health is particularly affected by maternal education, and the number of years of schooling received by younger women is likely to have risen much faster between 1960 and 1987 than was the case for the adult population as a whole.

**Box 2.1 Progress in child health in four countries**

**Box table 2.1 Child health, income per capita, and schooling in Costa Rica, Côte d’Ivoire, Egypt, and Japan, 1960–87**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Costa Rica</th>
<th>Côte d’Ivoire</th>
<th>Egypt</th>
<th>Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960 Child survival&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.89</td>
<td>0.72</td>
<td>0.74</td>
<td>0.96</td>
</tr>
<tr>
<td>Income per capita</td>
<td>2,160</td>
<td>1,021</td>
<td>557</td>
<td>2,701</td>
</tr>
<tr>
<td>(1987 international dollars&lt;sup&gt;a&lt;/sup&gt;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average schooling of adults (years)</td>
<td>4.0</td>
<td>0.2</td>
<td>3.0</td>
<td>10.7</td>
</tr>
<tr>
<td>Average annual percentage change, 1960–87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child survival&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.4</td>
<td>0.8</td>
<td>0.6</td>
<td>0.1</td>
</tr>
<tr>
<td>Income per capita</td>
<td>2.3</td>
<td>3.2</td>
<td>5.2</td>
<td>5.3</td>
</tr>
<tr>
<td>Schooling of adult population</td>
<td>2.0</td>
<td>11.8</td>
<td>2.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Elasticity of child survival with respect to:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income per capita&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.04</td>
<td>0.06</td>
<td>0.06</td>
<td>0.02</td>
</tr>
<tr>
<td>Schooling of adult population&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0.03</td>
<td>0.04</td>
<td>0.04</td>
<td>0.02</td>
</tr>
</tbody>
</table>

<sup>a</sup> Data refer to 1960–80.
<sup>b</sup> Child survival refers to the probability of surviving from birth through age 5.
<sup>c</sup> Income is adjusted for differences in purchasing power parity.
<sup>d</sup> Elasticities denote the percentage change in the probability of surviving from birth through age 5 corresponding to a 1 percent change in the indicated variable.

**Household capacity: income and schooling**

Within the household, health improves rapidly as people escape from poverty and low education (Box 2.1). Beyond the household, every society’s health services are affected by its national income,
and its ability to acquire and apply new scientific knowledge depends on the level of schooling in the population.

The influence of income on health

The higher a country's average income per capita, the more likely its people are to live long and healthy lives. Of course, this effect tapers off as income rises: a doubling of income per capita (adjusted for purchasing power parity) from, say, $1,000 in 1990 corresponds to a gain of eleven years in life expectancy, whereas a doubling from

Box figure 2.1 Gains in child health, 1960–87, and share contributed by various factors

Costa Rica

Côte d'Ivoire

Egypt

Japan

Note: The area of the circle is proportional to the absolute increase, over the period 1960–87, in the probability of surviving to age 5. For Côte d'Ivoire changes for the period are extrapolated from the observed change during 1960–80. Source: Lau and others, background paper.
Within the same city, health status is worse in poorer areas.

**Figure 2.2** Child mortality in rich and poor neighborhoods in selected metropolitan areas, late 1980s

<table>
<thead>
<tr>
<th>Percentage deviation from national mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.50</td>
</tr>
<tr>
<td>-0.25</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>0.25</td>
</tr>
<tr>
<td>0.50</td>
</tr>
</tbody>
</table>

- Cairo, Egypt
- Colombo, Sri Lanka
- Lima, Peru

Note: Child mortality indexes for each neighborhood are calculated by dividing the observed number of deaths among children of women in the sampled households of a neighborhood by the expected number (given the distribution of women by the length of time they have been bearing children and the national average child mortality levels at each duration of childbearing). Percentage deviations from the national average are obtained by subtracting 1 from a neighborhood's index and multiplying the result by 100. Neighborhoods in each city were ranked according to the proportion of houses with concrete floors. Poor neighborhoods were the lowest 25 percent in this ranking; rich neighborhoods were the top 25 percent.

Source: Calculated from data from national Demographic and Health Surveys.

$4,000 is matched by a gain of only four years (see Figure 1.9 in Chapter 1). Income growth has more impact in poor populations because additional resources buy basic necessities, particularly food and shelter, that yield especially large health benefits.

Because poverty has a powerful influence on health, it is not just income per capita that is relevant; the distribution of income and the number of people in poverty matter as well. In industrial countries life expectancy depends much more on income distribution than on income per capita, and it has been rising faster in countries with improving income distribution. Japan and the United Kingdom had similar income distributions and life expectancies in 1970, but they have diverged since then. Japan now has the highest life expectancy in the world and a highly egalitarian income distribution. In the United Kingdom, where income disparity has widened since the mid-1980s, life expectancy is now more than three years shorter than in Japan.

In developing countries the number of people in poverty is an especially important reason for differences in health. One study looked at twenty-two developing countries with comparable data on poverty (defined as the share of the population consuming less than $1 a day at 1985 purchasing power parity prices) and found that variation in the prevalence of poverty and in per capita public spending on health is important in explaining cross-country variation in life expectancy. Differences in income per capita became unimportant once those two factors were taken into account. This does not mean that income growth is irrelevant to increased life expectancy; rather, its main effect lies in how much it reduces poverty and supports public health services. In the twenty-two countries, roughly one-third of the effect of economic growth on life expectancy came through poverty reduction and the remaining two-thirds through increased public spending on health. In Sri Lanka an increase in per capita public spending on health was twenty-two times more effective in reducing infant mortality than was the same increase in average income.

Within countries, too, health correlates strongly with poverty. In India, Indonesia, and Kenya child mortality is higher in states or provinces with larger proportions of poor people. Within cities, there are large differences in child survival between rich and poor neighborhoods (Figure 2.2). And children in poor families are less healthy. In Madurai, the second largest city in India’s Tamil Nadu State, children ages 2-9 in the poorest households were more than twice as likely to suffer from serious physical or mental disabilities as children from slightly better-off families.

Poor people are vulnerable to disease not only because of poor living conditions but often also for work-related reasons. In Adana, Turkey, the risk of malaria is significantly greater among migrant workers than for the local population; the average
number of anopheline mosquito bites per person was five times greater in the tents of these workers than in the houses of village residents. In Sri Lanka one of the commonest causes of pesticide poisoning is leaky knapsack sprayers; surveys show that although farmers are aware of the risks involved, they continue to use broken equipment because they cannot afford to replace or repair it.

The distribution of income within households also affects health. Increasing women's access to income can be especially beneficial for the health of children. In Brazil income in the hands of the mother has a bigger effect on family health than income controlled by the father. In Jamaica households headed by women eat more nutritious food than those headed by men; they also spend more of their income on child-centered goods and significantly less on alcohol. In Côte d'Ivoire a doubling of household income under women's control reduces the share of alcohol in the family budget by 26 percent and the share of cigarettes by 14 percent. In Guatemala it takes fifteen times more spending to achieve a given improvement in child nutrition when income is earned by the father than when it is earned by the mother. Although a working mother may breastfeed less and have less time for child care—both of which could be detrimental to her children's health—evidence from numerous developing countries suggests that this harm can be offset by the health benefits that her earnings bring.

Because fewer people live in poverty as average incomes rise, there is generally a strong link between incomes and health status. Across countries, more than 75 percent of the difference in health is associated with income differences. Indeed, this relation is not merely associative but causal and structural: income growth leads directly to better health. In a sample of fifty-eight developing countries, a 10 percent increase in income per capita, all else being equal, reduced infant and child mortality rates by between 2.0 and 3.5 percent and increased life expectancy by a month. This estimate reflects the total impact of income on health; it includes effects working directly through income (such as food consumption), as well as indirectly through factors that are themselves mainly determined by income (access to safe water and sanitation, availability of physicians, and so on). Studies based on individual households corroborate the cross-country results. A 10 percent advantage in income reduces infant mortality by between 1 and 2 percent in Nigeria, Sri Lanka, Thailand, and several Latin American countries and by as much as 4 to 8 percent in Côte d'Ivoire and Ghana.

These findings highlight the costs to health of slow economic growth. Child health has been improving everywhere, but gains are much less rapid in countries with slow income growth (Figure 2.3). During the 1980s the economic performance of developing countries was mixed, with income per capita constant or falling, and in some countries the incidence of poverty rose (Table 2.1). Had economic growth been as fast in the 1980s as in the period between 1960 and 1980, in 1990 alone an estimated 350,000 infant deaths, or 6 percent of total infant deaths, would have been averted in developing countries (excluding India and China). In Africa and Latin America, where average growth was 2.5 percentage points slower during the 1980s, the saving in babies' lives in 1990 would
Table 2.1 Poverty and growth of income per capita by developing region, 1985 and 1990, and long- and medium-term trends

<table>
<thead>
<tr>
<th>Region</th>
<th>Head-count index of poverty</th>
<th>Annual percentage change in income per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>All developing countries</td>
<td>30.5</td>
<td>29.7</td>
</tr>
<tr>
<td>Sub-Saharan</td>
<td>47.6</td>
<td>47.8</td>
</tr>
<tr>
<td>Africa</td>
<td>13.2</td>
<td>13.3</td>
</tr>
<tr>
<td>East Asia</td>
<td>51.8</td>
<td>49.0</td>
</tr>
<tr>
<td>South Asia</td>
<td>7.1</td>
<td>7.1</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>56.7</td>
<td>56.6</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>30.6</td>
<td>33.1</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>22.4</td>
<td>25.2</td>
</tr>
</tbody>
</table>

Note: Regional data on annual change in income per capita refer to unweighted country averages. The regions used in this table are as defined in the World Development Indicators, except for Eastern Europe, which includes Albania, Bulgaria, Hungary, Poland, Romania, the former Czechoslovakia, and the former Socialist Federal Republic of Yugoslavia. Disaggregated data for the last two are not yet available.
a. Estimated share of the population consuming less than $32 per person per month at 1985 purchasing power parity prices.
Source: For poverty index, World Bank 1993c; for change in income per capita, World Bank data.

have been as much as 7 and 12 percent, respectively. Latin America’s recession in 1983 is estimated to have caused 12,000 additional deaths of babies, or 2 percent of all infant deaths in that year. And because slow economic growth hampers poverty reduction and constrains spending on health, schooling, and other services, it is highly likely that the health of the poor suffered disproportionately in the 1980s.

The influence of schooling on health

Households with more education enjoy better health, both for adults and for children. This result is strikingly consistent in a great number of studies, despite differences in research methods, time periods, and population samples.

Maternal schooling and child health. In most households women have the main responsibility for a broad range of activities that affect health. They manage household chores, keep the house clean, process foods and prepare meals, feed and care for young children, and look after the sick. Women’s own health and their efficiency in using available resources have an important bearing on the health of others in the family, particularly children. A study of children under 10 in Bangladesh, for example, found that over a period of two years following the death of a mother, mortality rates, in comparison with those of children with living mothers, were twice as high for boys and three times as high for girls.

Education greatly strengthens women’s ability to perform their vital role in creating healthy households. It increases their ability to benefit from health information and to make good use of health services; it increases their access to income and enables them to live healthier lives. It is not surprising, therefore, that a child’s health is affected much more by the mother’s schooling than by the father’s schooling. Data for thirteen African countries between 1975 and 1985 show that a 10 percent increase in female literacy rates reduced child mortality by 10 percent, whereas changes in male literacy had little influence. Demographic and Health Surveys in twenty-five developing countries show that, all else being equal, even one to three years of maternal schooling reduces child mortality by about 15 percent, whereas a similar level of paternal schooling achieves a 6 percent reduction. The effects increase when mothers have had more education; in Peru, for example, seven or more years of maternal schooling reduces the mortality risks nearly 75 percent, or about 28 percent more than the reduction for the same level of paternal schooling (Figure 2.4). Countries that in 1965 had achieved near-universal enrollment for boys but much less for girls had about twice the infant mortality in 1985 of countries with a smaller boy-girl gap.

The advantages that a mother’s schooling confers on her children’s health are felt even before birth. In developing countries better-educated women marry and start their families later, diminishing the risk to child health associated with early pregnancies. Educated women also tend to make greater use of prenatal care and delivery assistance. In a study in Lima that controlled for service availability and socioeconomic status, 82 percent of women with six or more years of education sought prenatal care, compared with only 62 percent for women with no education.

Following birth, the children of educated mothers continue to enjoy other health-enhancing advantages: better domestic hygiene, which reduces the risk of infection; better food and more immunization, both of which reduce susceptibility to infection; and wiser use of medical services. A study of women in Bangladesh documented how educated women kept their homes and children tidier and cleaner than uneducated women and...
expressed a preference for water from tanks or tubewells at home rather than from canals or rivers. In Brazil, India, and Nigeria better-educated households are willing to pay 6 to 50 percent more than other households for improved water supplies.

Educated mothers are also better at getting information on health and acting on it. In Brazil the child health benefits of a father’s education work mostly through his income, whereas almost all the effect of maternal education comes from learning about health through newspapers, television, and radio. In Thailand mothers with primary education were 30 percent more likely than mothers with no education to treat childhood diarrhea with oral rehydration therapy or a homemade solution of salt and sugar; this figure rose to 90 percent for mothers with secondary or higher education. Similar results have been reported in countries as diverse as Burundi, Colombia, Ghana, Morocco, and Nigeria. And well-educated mothers often manage to reduce the damage that poverty does to health. Among poor rural households in Côte d’Ivoire, for example, 24 percent of the children of mothers with no education were stunted, compared with only 11 percent of children of mothers with some elementary schooling. Educated women are an important part of the reason for the impressive health achievements of China, Costa Rica, India’s Kerala State, and Sri Lanka, despite relatively low incomes.

**Schooling and adult health.** Personal habits and life-style choices affect adult health enormously. Because educated people tend to make choices that are better for their health, there is often a strong relation between schooling and health. A study of U.S. life expectancy at age 25 found that between the highest and the lowest levels of education, the difference was about six years for white men and about five years for white women. These differences—which may partly reflect differences in income associated with education—have persisted since the 1960s.

The same pattern occurs in developing countries. Surveys in Côte d’Ivoire, Ghana, Pakistan,
Schooling reduces the risk of adult ill health.

Figure 2.5 Schooling and risk factors for adult health in Porto Alegre, Brazil, 1987

<table>
<thead>
<tr>
<th>Prevalence of risk (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
</tr>
<tr>
<td>80</td>
</tr>
<tr>
<td>60</td>
</tr>
<tr>
<td>40</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

- Hypertension
- Obesity
- Smoking
- Alcohol
- Lack of exercise

No schooling
Postsecondary schooling

Source: Achutti and others 1988.

and Peru show that respondents whose parents were educated were more likely to have living parents than those with uneducated parents. In Peru 72 percent of the educated fathers of respondents ages 25–29 were still alive at the time of the survey, compared with only 55 percent of the uneducated fathers. In Jamaica education had a bigger influence on adult health than did income, particularly before age 50. Death rates for specific diseases also show educational differentials. In Russia death from coronary heart disease was two to three times more common for the poorly educated than for those with higher education. In Brazil those who were illiterate or who had only primary schooling were about five times more likely to have high blood pressure than those with postsecondary schooling. The first group was also substantially more inclined to obesity, alcohol and tobacco consumption, and lack of exercise (Figure 2.5).

The advantages of education continue to show up when new types of health risk appear. For example, when the AIDS epidemic began, infection was initially concentrated among well-educated elites, but these same groups were the first to change their lifestyles as information became available about the disease and its prevention. In Brazil between 1982 and 1985, 79 percent of those infected had completed postsecondary education; by the late 1980s this group’s share of cases had fallen to 33 percent. Even more striking is the way that well-educated people have changed their behavior on smoking. In the United Kingdom the proportion of smokers among adults declined between 1958 and 1975 by 50 percent among the most educated but hardly changed among the least educated. In the United States between 1974 and 1987 the smoking habit declined nine times faster in the highest education group than in the lowest. The corresponding difference was twofold in Canada and threefold in Norway.

Policies to strengthen household capacity

Because people’s ability to improve their own health depends so much on income and education, the policy conclusions are clear: governments should work to boost economic growth, reduce poverty, expand schooling (particularly for girls), and help strengthen women’s ability to care for their families. This section deals with each of these points in turn.

Promoting growth and reducing poverty

During the 1980s the pattern of economic growth in developing countries was very uneven. Income per capita grew at more than 6 percent a year in East Asia but remained constant or fell in many other countries. The disappointing record reflected the impact of adverse external shocks as well as poor domestic policies. Nonetheless, some economies grew rapidly despite the external shocks, showing that a great deal can be done by developing countries themselves. Because it is difficult to reduce poverty without economic growth, establishing sound economic policies for growth is one of the most valuable things a government can do. Development strategies also need to emphasize broadly based growth to give the poor better income-earning opportunities and better access to a range of social services. To protect the most vulnerable members of society, it is appropriate for governments to make transfers and other special arrangements.
POLICY REFORM AND ADJUSTMENT LENDING. As a consequence of the economic crisis of the early 1980s, many developing countries changed their economic policies. They adopted macroeconomic reforms intended to achieve price stability and sustainable internal and external monetary balance and made microeconomic and institutional reforms to promote the efficient use of resources and faster economic growth. These changes typically involved cuts in public spending, the opening of the economy to competition, liberalization of prices, measures to improve the efficiency of public expenditure, and the development of a sound financial system and other institutions needed in a well-functioning market economy.

To support these reforms, the World Bank and the International Monetary Fund have extended adjustment lending. The purpose of this lending is to cushion an economy during the transitional phase to its new growth path. Adjustment lending is therefore essentially an investment in a more productive future. It has been central to the reforms in Latin America and Sub-Saharan Africa and important in other regions as well. Its role will continue in the 1990s: it is already a major channel of assistance for the formerly socialist economies; it is being used for the first time in India; and it has both old and new clients in other parts of the world.

Nonetheless, adjustment lending remains controversial. Does it really raise long-term growth? Do the poor suffer as a consequence of such adjustment policies as cuts in public spending and liberalization of food and other prices? How is health affected? The answers to these questions are complicated because adjustment lending is neither necessary nor sufficient for policy reform. Some of the most dramatic "adjustment" reforms took place without adjustment lending (as in Chile and Viet Nam), and some countries that received adjustment loans did little or nothing to pursue reforms (for example, Tanzania and Zambia). In addition, because a country's economic performance is affected by many factors, it is hard to isolate the part played by adjustment lending.

Despite these difficulties, World Bank studies on the impact of adjustment lending are revealing. The research looked at countries in the "intensive adjustment lending" group (which includes countries that received at least two structural adjustment loans or three sectoral adjustment loans by 1990, with the first loan started by mid-1986) and found that in general they did achieve faster growth than in other countries. All else being equal, middle-income countries in the "intensive" group boosted their growth rates during 1986–90 by an estimated average of about 4 percentage points a year over what would probably otherwise have occurred. The low-income countries, especially in Sub-Saharan Africa, did less well; for them, the benefit was 2 percentage points.

Since health is helped by economic recovery and faster long-term growth, adjustment lending, by facilitating economic progress, benefits health in the long run. When a government has to adjust—in response to economic shocks or to rectify mistaken past policies—the whole society, poor and nonpoor, may suffer short-run reductions in employment and wages. But the resulting fall in income is caused not so much by policies associated with adjustment lending as by the necessity for the country to curb its consumption; without adjustment loans, even greater decreases in consumption would probably have been necessary. Nonetheless, adjustment lending can take five or more years to bear fruit, and the transition can be painful because incomes may fall in the short run. Evidence from Sub-Saharan Africa and Latin America suggests that economic downturns are associated with less favorable child mortality outcomes than would be predicted from long-term trends. In countries where child mortality rates are declining over time, for example, adjustment lending would be associated, in the short run, with a slower rate of decline. To minimize such adverse effects, some countries have begun to use resources, including adjustment loans, to support nutrition programs for vulnerable children, as well as basic health and other social services targeted to the poor.

ADJUSTMENT LENDING AND PUBLIC EXPENDITURE ON HEALTH. Because cuts in government spending are usually central to an adjustment program, health spending is likely to be reduced. In many countries early cuts were indiscriminate and failed to preserve those elements of the health system with the strongest long-term benefits for health. Drugs were often cut more heavily than personnel because it is difficult to lay off public employees. Côte d'Ivoire's experience illustrates the mistakes that occurred in some early programs of economic adjustment. With real income per capita falling 19 percent between 1980 and 1984, the government cut public spending, among other measures. Health expenditure dropped in real terms by 12 percent between 1981 and 1984. But personnel costs were not cut; instead public expenditures on medicines and materials absorbed the reduction,
shrinking in real terms by more than one-third during the first half of the 1980s. In rural clinics, already precarious supplies of basic consumables became even scarcer.

The implications for child health looked grim. Cross-sectional data show that the nutritional status of Ivorian children is strongly related to the availability of drugs in the community. All else being the same, the difference in height-for-age (a measure of long-run nutritional status) of children in communities lacking basic medicines and those in well-supplied communities was equivalent to more than one-third of the difference between the average child in Côte d'Ivoire and in the United States. The health of children from poor families suffers even more when drugs are unavailable. Since 1990 the government has begun putting more resources into nonwage health inputs: their share of the health budget rose from 20 percent in 1991 to 24 percent in 1993. Health services, particularly in rural areas, have been improving as a result.

Various studies have assessed the effect of adjustment programs on public spending on health. Most have found that central government expenditure on health in countries with adjustment lending programs did not suffer more than elsewhere; this result, however, is not definitive because state and local governments are often responsible for a substantial share of public spending on health. More comprehensive data available for twenty countries during 1980-90 show that in both countries with and without adjustment loans, public spending on health as a percentage of total country income declined in the early 1980s in relation to the average for the decade. In 1985-90, however, health spending recovered much faster in countries with adjustment programs. Similarly, per capita public spending on health also recovered faster in such countries (Fig-
Unfortunately, the data are not good enough to allow any judgment on whether adjustment programs directly helped to ensure that public spending on health was efficient. (And, as this Report will show, not all health spending deserves to be protected; some of it is inefficient and regressive.)

**Expanding and improving schooling**

In general, developing countries have made much progress in expanding schooling since the 1960s, but the trends conceal some shortcomings. In the poorest countries, especially in Africa, many children never go to school at all. In Mali, for example, fully 77 percent of all school-age children never go to school—a figure that has remained largely unchanged since 1980. Of those who do go to school, many often enroll late—thus missing the benefits of early learning opportunities—and leave before they complete even the first few years of basic education. Fewer than 60 percent of first-graders in the lowest-income countries and about 70 percent of those in the lower-middle-income countries reach the last year of primary school.

Enrollments are particularly low in isolated rural areas, for lower socioeconomic groups, and for girls. In developing countries as a group, about 10 percent of boys ages 6–11 do not enroll; for girls in the same age group the figure is 40 percent. Especially in poor countries, the gaps can be substantial, as Figure 2.7 illustrates for India. But Sri Lanka’s experience shows that this gender gap is not an inevitable consequence of poverty.

Leaving aside the gaps in enrollment, education in many countries is inadequate. Even children who complete primary school fail to acquire basic literacy and numeracy skills and scientific understanding. These weaknesses in the education system reduce the potential impact of schooling on

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**Substantial male-female gaps in schooling persist in some low-income countries.**

**Figure 2.7 Enrollment ratios in India, by grade, about 1980**

<table>
<thead>
<tr>
<th>Enrollment ratio (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
</tr>
<tr>
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**Note:** The enrollment ratio is the share of children in the age group corresponding to a given grade who are enrolled in that grade.

**Source:** Tan and Mingat 1992.
Box 2.2  Teaching schoolchildren about health: radio instruction in Bolivia

Many personal habits and life-style choices that have important consequences for health are formed early in life. Health education in schools can help young people make informed choices and so reinforce the effect of schooling on health.

Bolivia has had success with health education through radio lessons. Radio instruction was first introduced in 1987 for teaching mathematics and proved to be both inexpensive (with costs per pupil averaging less than $1 a year) and effective. In 1989 the health and education ministries began to try out the use of radio for teaching disease prevention to schoolchildren, starting with a module on diarrhea prevention and oral rehydration. Children ages 8–13 were targeted because they often take care of younger siblings and perform household chores involving food preparation and sanitation. They thus have a strong influence on their own health and that of younger siblings. The radio health program emphasizes actions that a child can do for himself or herself or can do for or teach to a younger sibling. It rests on the belief that children who learn basic health concepts and practices at a young age are more likely to maintain them as parents.

It is still too early to assess the long-term health impact of teaching health lessons through radio. Nonetheless, pupils already show significant gains in several areas, including ability to recognize symptoms of dehydration and knowledge of the proper mixture and application of homemade oral rehydration solution. There is also evidence of increased hand-washing, and more households are using simple water filters.

The radio program is now being expanded. In 1993 more than 1,000 third- and fourth-grade classrooms will receive broadcasts of a new curriculum that includes lessons on cholera, personal and dental hygiene, acute respiratory infections, immunizations, infectious diseases, and accident prevention. Nutrition, environmental health, and self-esteem are to be added in 1994. In response to parents' requests, a complementary community-based radio program is also being developed and tested.

health. More important, they also reduce parents' willingness to enroll their children, thus perpetuating a vicious cycle of poor schooling and poor health. In India, for example, more than 40 percent of parents in a nationwide survey cited either "not interested in education/further study" or "failure" as the main reason for not sending their children to school.

Much more needs to be done to extend education in developing countries. Government support for schooling at the lower levels and for girls is especially justified: the benefits for society are large, and poor families in low-income countries typically undervalue the benefits of sending children to school or are unaware of them. In addition, for such families the opportunity costs of sending children to school are often high. A policy priority is to ensure that every child receives a minimum quantity of schooling—say, 5,000 hours, or roughly six full years of schooling. This would be consistent with the aims of the 1990 World Conference on Education for All, sponsored by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), UNICEF, the UNDP, and the World Bank. Most pupils in developing countries currently receive much less than 5,000 hours of schooling in the primary grades (because of pupil and teacher absences caused by sickness, among other factors). In India no more than a third of girls reach this level, and in China and Latin America only 60 percent do. Achieving 5,000 hours of schooling for all children will thus require significant and sustained policy effort in large parts of the world. To reinforce the effects of school expansion on health, it may be useful to include health topics in school curricula (see Box 2.2).

Incomplete enrollments reflect the combined influence of weak demand for education (which is partly caused by low achievement) and inadequate schooling opportunities. To overcome these obstacles requires a combination of policies. Governments can do more to ensure that lower levels of schooling receive priority in the allocation of public spending. In some countries, current levels of resources for primary schooling are insufficient to support even minimal conditions for instruction. In India public spending per primary pupil in relation to income per capita averages only one-third that in Korea, basically because much more of India's public expenditure on education goes to higher education. In Burkina Faso, Mali, Mauritania, and Niger one-quarter of the education budget is for higher education, and between 60 and 80 percent of that quarter is devoted to scholarships and other forms of student aid. This, it can be argued, is inefficient, and it is also extremely regressive because most of the benefits of higher ed-
ucation are captured privately in the form of increased earnings and because students tend to come from higher-income families.

On its own, spending more resources for primary schools is not enough. Whatever is spent must also be used efficiently.

Although the health and nutrition of school-age children are not normally thought of as education issues, in fact they do affect a child's school attendance and performance. Allocating resources to address health problems in this population can often be an efficient way to improve schooling. (Specific interventions are discussed in Chapter 4.) Teachers and pedagogical materials are the main school inputs at lower levels of schooling (with teacher salaries absorbing the bulk of spending). Efficient use of these inputs is thus crucial, particularly in countries where rapid population growth threatens to reverse progress in expanding enrollments. In Mauritania, for example, if spending per pupil and the share of primary schooling in total government expenditure remain constant, the enrollment ratio in primary schools is projected to drop from 51 percent in 1988 to 45 percent by 2000. To forestall such regress, maximizing the learning gain per unit cost and making the correct tradeoffs between unit costs and coverage are of particular importance. A recent World Bank-sponsored review found expenditures on nonsalary inputs such as textbooks and interactive radio instruction to be most cost-effective in improving learning outcomes.

In some circumstances it may also be right to spend more to lower the barriers to schooling for girls and other disadvantaged groups. This can be done in many ways: through scholarships (used in Bangladesh to encourage girls to go to secondary school); by offering free textbooks or fee-exemptions; or by siting schools close to pupils' homes so that parents are less worried about their daughters' safety. In Pakistan, for example, girls are as likely to enroll as boys when there is a school in the village but are 10 percent less likely to do so when the school is nearby but not in the village. In several African countries distance education—whereby radio and correspondence materials replace classroom teachers as the principal medium of instruction—has sometimes helped to overcome the physical barriers to schooling for girls.

**Empowering women**

In addition to education, other policies can enhance women's capacity to improve their health and that of their families. Removing discrimination—in the labor market, in access to credit, in property law, and so on—can boost women's earnings and financial security, which (as an earlier section has shown) can promote family health. And women need to be healthy themselves to fulfill their roles as mothers and household managers. They have specific health needs, including protection against violence. More than one-third of the global burden of disease for women ages 15–44, and over one-fifth of that for women ages 45–59, is caused by conditions that afflict women exclusively (maternal mortality and morbidity and cervical cancer) or predominantly (anemia, sexually transmitted diseases, osteoarthritis, and breast cancer). Most of these problems can be addressed cost-effectively, but health services in many developing countries have typically focused narrowly on women as mothers.

What is lacking is a strategy for engaging women in health care from adolescence onward. Often this failing occurs because health services are insensitive to the cultural needs of women: in many Middle Eastern countries, for example, most physicians are men, but there is a strong belief that women should not be seen after puberty by men who are not part of their family. Inconvenience is another deterrent; in many countries individual health services (for example, prenatal care and immunizations) are offered on different days, meaning that women have to return repeatedly with their children. The solution is often as feasible as it is clear: to provide child health services, prenatal care, treatment of sexually transmitted diseases, and family planning services jointly at convenient times. The Bangladesh Women's Health Coalition and the Chilean Institute of Reproductive Medicine, for example, offer integrated family planning services at the same time as child health services, and Thailand is experimenting with mobile health clinics to reach women in their homes.

The design of health services must also be sensitive to the stigmas surrounding certain diseases, especially any that are sexually transmitted or physically disfiguring. Women are more likely to seek treatment for sexually transmitted diseases if health centers offer multiple services, with privacy in consultations, so that it is not obvious why a person is visiting the center. Diseases that damage the skin (such as leprosy, onchocerciasis, and leishmaniasis) have severe psychological implications for girls and women, reduce their marriage prospects, and may lead to marital separation. In Colombia and India women tend to seek treatment
Box 2.3 Violence against women as a health issue

Data from many industrial and developing countries reveal that anywhere between one-fifth and more than half of women surveyed say they have been beaten by their partners. Often, this abuse is systematic and devastating. In Papua New Guinea, for example, 18 percent of all urban wives surveyed had sought hospital treatment for injuries inflicted by their husbands. In the United States domestic violence is the leading cause of injury among women of reproductive age; between 22 and 35 percent of women who visit emergency rooms are there for that reason.

Research has shown that battered women run twice the risk of miscarriage and four times the risk of having a baby that is below average weight. In some places violence also accounts for a sizable portion of maternal deaths. In Matlab Thana, Bangladesh, for example, intentional injury during pregnancy—motivated by dowry disputes or shame over a rape or a pregnancy outside wedlock—caused 6 percent of all maternal deaths between 1976 and 1986. Research from the United States indicates that battered women are four to five times as likely to require psychiatric treatment as nonbattered women and are five times as likely to attempt suicide. They are also more prone to alcohol abuse, drug dependence, chronic pain, and depression.

Rape and sexual abuse also damage women's health and are widespread in all regions, classes, and cultures. In Seoul 17 percent of women report being victims of attempted or actual rape. In one study of U.S. women a history of rape or assault was a stronger predictor of how many times women sought medical help and of the severity of their health problems than was a woman's age or unhealthy habits (such as smoking). In addition to physical injury and emotional trauma, rape victims run the risk of becoming pregnant or contracting sexually transmitted diseases, including AIDS. A rape crisis center in Bangkok reports that 10 percent of its clients contract STDs as a result of rape and 15 to 18 percent become pregnant, a figure consistent with data from Korea and Mexico. In countries where abortion is restricted or illegal, rape victims often resort to unsafe abortions, greatly increasing the danger of infertility or even death.

Another form of violence against women and girls is female genital mutilation, popularly known as female circumcision. An estimated 85 million to 114 million women in the world today have experienced genital mutilation. The practice is reported in twenty-six African countries, among minorities in India, Malaysia, and Yemen, and among some immigrant populations in Western countries. If current trends continue, more than 2 million girls will be at risk of genital mutilation every year.

Clitoridectomies account for 80 to 85 percent of cases worldwide. Infibulation, which involves removal of more tissue, is more common in eastern Africa. These initiation rituals pose a health risk to girls and women and are a threat to their psychological, sexual, and reproductive well-being. The consequences of both procedures can include hemorrhage, tetanus, infection, urine retention, and shock. Infibulation carries the added risk of long-term complications because of the repeated cutting and stitching at marriage and with each childbirth, and it can limit a woman's choice of contraceptive method.

for leprosy later than men do, when patches have already reached the face and hands; they are reluctant to ask for help when the first patches appear, on the buttocks. Again, sensitivity is needed to encourage women to come forward.

The same is true of another category of danger to women's health: domestic violence and rape. Violence against women is widespread in all countries in which it has been studied (see Box 2.3). Although this has only recently been viewed as a public health issue, it is a significant cause of female morbidity and mortality, leading to psychological trauma and depression, injuries, sexually transmitted diseases, suicide, and murder. Rape and domestic violence cause a substantial and roughly comparable level of disease burden per capita to women in developing and industrial countries. These problems account for about 5 percent of the total disease burden among women ages 15-44 in developing countries, where the burden from maternal and communicable causes still overwhelms that from other conditions. In industrial countries, where the total disease burden is much smaller, this share rises to 19 percent. By damaging a woman's physical, mental and emotional capacity to care for her family, domestic violence and rape also hurt the health of other family members, particularly young children.

This is an issue with complex economic, cultural, and legal roots, and it is therefore not easily dealt with by public policies. Prevention will require a coordinated response on many fronts. In the short to medium term, the right measures include training health workers to recognize abuse, expanding treatment and counseling services, and enacting and enforcing laws against battering and
Rape. In the long term, much depends on changing cultural beliefs and attitudes toward violence against women. In Africa women's groups have worked to break the practice of female circumcision, partly by informing people of its severe consequences for health. In the United States the American Medical Association launched a major campaign in 1991 to educate the public and physicians about family violence. Research shows that even health professionals often fail to identify cases of battering. Recently, the U.S. Joint Commission on Hospital Accreditation issued new standards requiring all hospitals to develop protocols and train their staffs to respond to different forms of abuse. In Colombia the Ministry of Health has begun to document the scale of the problem in its most recent Demographic and Health Survey. These efforts come on the heels of almost two decades of organizing efforts by women around the world; in Latin America alone there are now nearly 400 separate organizations working to reduce violence against women.

What can be done?

Around the world, much has already been done to enable people to live longer, healthier lives. The achievements of the past point to the requirements of the future—above all, to economic growth and the expansion of schooling and health services. According to World Bank projections, income per capita in Sub-Saharan African countries will grow by only 0.8 percent a year over the next ten years. Even this modest increase will bring about a decline in the infant mortality rate of between 2 and 4 percent. In South Asia, where faster growth—3.3 percent a year—is projected, infant mortality declines of 15 percent can be expected.

These benefits can be powerfully reinforced by better education and health services. In Africa increasing female literacy rates by 10 percent is likely to lower the infant mortality rate by an estimated 10 percent. In India and Kenya two maternal deaths and about forty-five infant deaths would be averted for every 1,000 girls provided with one extra year of primary schooling. Even in poor countries governments can enhance people's ability to improve their own health by expanding schooling opportunities for all children—with special efforts to encourage parents to enroll their daughters—and by widening access to health services, particularly for women and children. Such investments pay off in better health and provide a foundation for future economic growth.