



# 7

## Education

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Capital is a stock of wealth used to produce goods and **services**. Most often, by capital people mean physical capital: buildings, machines, technical equipment, stocks of raw materials, and goods. But “human capital”—people’s knowledge and skills—is at least as important for production, and at least as valuable to people who have it. The importance of the “human factor” in modern production is reflected in the distribution of income among people who own physical capital and people who “own” knowledge and skills. For example, in the United States in the 1980s the income received on knowledge and skills (through wages and salaries) was about 14 times that received on physical capital (through dividends and undistributed corporate profits). This phenomenon led economists to acknowledge the existence of **human capital**.

### Education and Human Capital

Most human capital is built up through education or training that increases a person’s economic productivity—that is, enables him or her to earn a higher income. Governments, workers, and employers invest in human capital by

devoting money and time to education and training (to accumulating knowledge and skills). Like any other investment, these investments in human capital require sacrifices. People agree to make these sacrifices if they expect to be rewarded with additional income in the future.

Governments spend public funds on education because they believe that a better-educated population will contribute to faster development. Employers pay for employee training because they expect to cover their costs and gain additional profits from increased **productivity**. And individuals are often prepared to spend time and money to get education and training, since in most countries people with better education and skills earn more. Educated and skilled people are usually able to deliver more output or output that is more valuable in the marketplace, and their employers tend to recognize that fact with higher wages.

Economic returns to education are not always the same, however. Returns to education may be lower if:

- The quality of education is low or knowledge and skills acquired at

school do not match market demand. In this case investments in human capital were not efficient enough, resulting in less human capital and lower returns to individuals and society.

- There is insufficient demand for human capital because of slow economic growth. In this case workers' human capital may be underused and underrewarded.
- Workers with lower and higher education and skills are deliberately paid similar wages to preserve a relative equality of earnings—as used to happen in centrally planned economies, *including Russia*. These distortions in relative wages are being eliminated as part of these countries' transition to market economies.

The national stock of human capital and its rate of increase are critical to a country's level and rate of economic development, primarily because human capital is the most important determinant of a country's ability to produce and adopt technological innovations. But investing in human capital, although extremely important, is not sufficient for rapid economic growth. Such investment must be accompanied by the right development strategy.

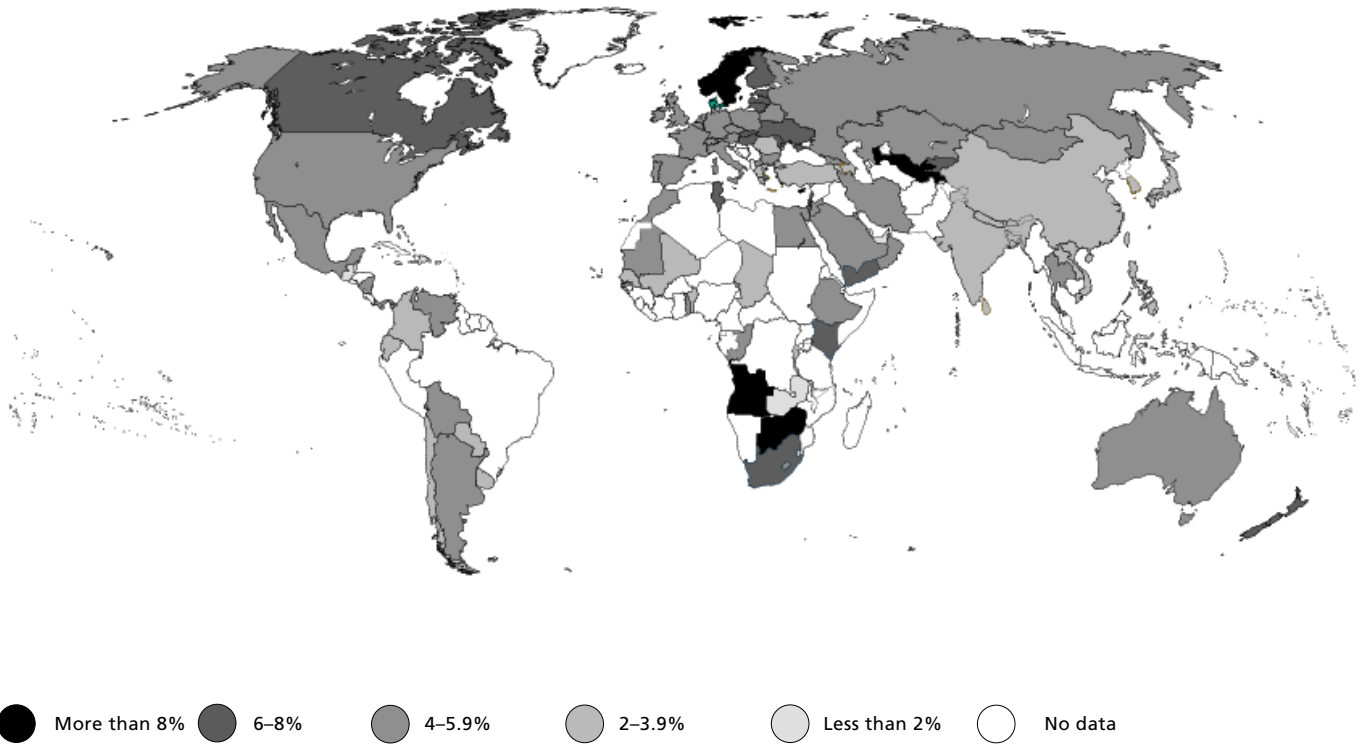
Consider the Philippines and Vietnam. In both countries adult literacy is higher than in most other Southeast Asian countries (see Data Table 2).

Nevertheless, until recently both countries were growing relatively slowly, largely because of development strategies that prevented them from taking full advantage of their stock of human capital. In Vietnam central planning stood in the way, and in the Philippines economic isolation from the global market was to blame. In recent years, however, both countries have realized a return on their investments in human capital—Vietnam by adopting a more market-based approach to development and radically improving its growth rate, and the Philippines by “exporting” many of its educated workers and “importing” their foreign exchange earnings.

Most governments are playing an increasingly active role in providing education (Map 7.1 and Data Table 2). Differences in public spending on education (relative to GDP) across countries reflect differences in government efforts to increase national stocks of human capital. Governments of developing countries devote a larger share of their GDP to education today than they did in 1980. But this share is still smaller than that in developed countries: 3.4 percent of GDP in low-income countries and 4.4 percent in middle-income countries compared with 5.6 percent in high-income countries. Using Data Tables 1 and 2, you can calculate the absolute gap between per capita public spending on education in developed and developing

Map 7.1

Public expenditure on education, percent of GDP, 1995



countries. This gap is an important manifestation of the vicious circle of poverty described in Chapter 6: low per capita income inhibits investment in human (as well as physical) capital, slows productivity growth, and so prevents per capita income from increasing significantly.

Data on public education spending does not, however, paint a complete picture of investment in human capital because in many countries private spending on education is considerable. Around the world, the difference between public and

private spending on education varies enormously and does not seem to be correlated with a country's average income. Among low-income countries, for example, the share of private spending on education ranges from about 20 percent in Sri Lanka to 60 percent in Uganda and Vietnam, while among high-income countries it ranges from 5 percent in Austria to 50 percent in Switzerland.

There are, however, certain patterns in the balance between public and private spending on different levels of educa-

tion. Most governments are committed to providing free primary and often secondary education because it is believed that not just individuals but the entire country benefits significantly when most of its citizens can read, write, and fully participate in social and economic life. At the same time, tertiary education institutions, both private and public, usually charge tuition, because more of the benefits from this level of education are believed to accrue to graduates (in the form of much higher future earnings) rather than to society at large.

In vocational education, employers often play an important role in providing on-the-job training for employees and in financing training in vocational schools. Governments try to encourage employers' involvement in order to save public funds and to link vocational education to the needs of the labor market. Specific work skills are best developed through training during employment, especially in jobs involving substantial technological change.

Public financing of vocational training is generally considered justified when employer training capacity is weak (as in small and medium-size firms) or absent (as with retraining for unemployed workers). High-quality general pre-employment education is the best guarantee of an individual's ability to learn new skills throughout a career and of

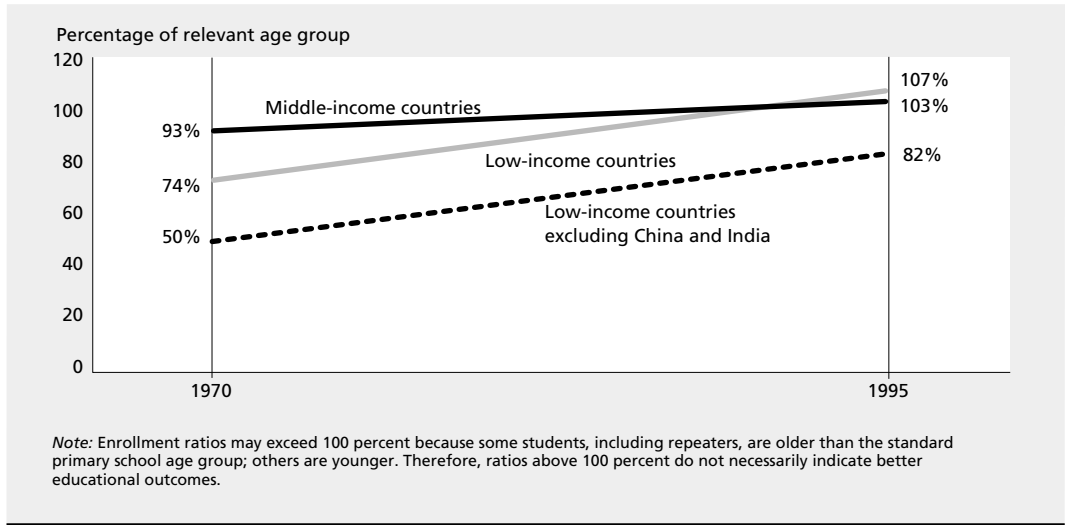
employers' willingness to invest in that individual's professional training. Most important, employees must be able to communicate clearly in writing and to use mathematics and science skills to diagnose and solve problems.

### **Primary Education and Literacy**

Attending primary school helps children acquire basic literacy and numeracy as well as other knowledge and skills needed for their future education. In low-income countries primary education in itself often improves the welfare of the poor by making them more productive workers, enabling them to learn new skills throughout their working lives, and reducing the risk of unemployment. In addition, primary education—especially for girls and women—leads to healthier and smaller families and fewer infant deaths.

Despite rapid growth in the number of children of primary school age, since 1970 developing countries have succeeded in sharply increasing the percentage of children enrolled in primary school (Figure 7.1). But universal primary education, a goal being pursued by most governments of developing countries, is still far from being achieved in many of them (see Data Table 2). Low enrollments in many low-income countries may signal inadequacies in education system capacity as well as social

**Figure 7.1 Primary school enrollment, 1970 and 1995**



conditions that prevent children from enrolling.

Because economic and social returns to society are known to be higher for primary education than for other levels of study, most governments are committed to providing free access to primary school to all children. But in low-income countries the public funds available for this purpose are often insufficient to meet the increasing demand of rapidly growing populations. These funds also tend to be allocated inequitably, with better education opportunities often provided to urban children relative to rural children, to well-off children relative to poor children, and to boys relative to girls. In some countries public financing of education favors the higher levels of study, benefiting mostly older, better-off children and thus exacerbating social inequity.

Even when primary education is accessible, poor children may be unable to benefit from it. Many of these children must work rather than attend school.

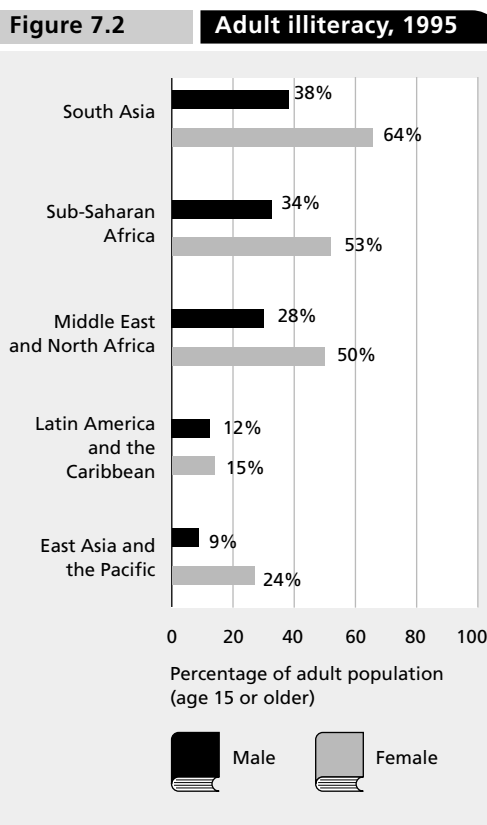
Premature and extensive involvement in work damages their health and impedes development of their social skills, decreasing their future earning power as adults and perpetuating the vicious circle of poverty.

In addition, primary school enrollments are generally lower for girls than for boys. This gender gap is widest in South Asia, the Middle East, and Sub-Saharan Africa. The gap reflects cultural norms, early child-bearing, limited employment opportunities for women, and traditional expectations of girls' larger contribution to household work. As a result, of the 900 million adults in developing countries who are illiterate (nearly one in three), almost two-thirds are women (Figure 7.2).

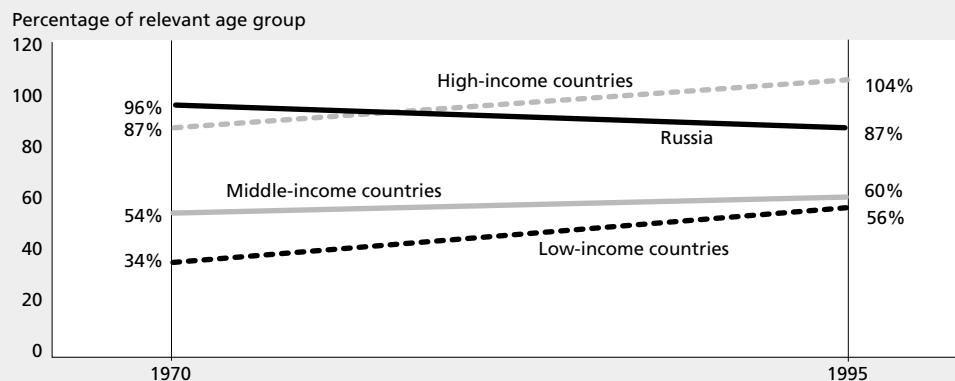
Note that child labor is known to be a poverty issue—that is, its incidence declines as per capita income rises. That means that further economic growth will tend to remove this obstacle to universal primary education. By contrast, gender disparities in school enrollments are not correlated with overall living standards, so countries do not just “grow out of them.” Narrowing the gender gap requires supportive national policies, such as reducing the direct and indirect costs of girls’ schooling for their parents and building more schools for girls in education systems that are segregated by sex.

## Issues in Secondary and Tertiary Education

In most developing countries enrollment in secondary schools is much lower than in primary schools (see Data Table 2). Although the situation has been improving over the past few decades, on average less than 60 percent of children of secondary school age in low- and middle-income countries are enrolled, while in high-income countries secondary education has become almost universal (Figure 7.3). *Figure 7.3 also shows that in 1980 secondary school enrollment in Russia was considerably higher than the average for high-income countries. But by 1995 Russia’s secondary enrollment had dropped, although it remained much higher than the average for middle-income countries.*



Among the world regions, Sub-Saharan Africa has the largest share of children not enrolled in secondary school. Check Data Table 2 for the indicator of child labor incidence—that is, the percentage of children ages 10–14 who work. Note that this indicator is highest in Sub-Saharan Africa too. Child labor remains the most formidable obstacle to education for children in low-income countries. According to available data, almost one-third of children 10–14 are in the labor force in low-income countries (excluding China and India), while in many Sub-Saharan countries this proportion is one-half. In fact, the situation may be even worse—in many countries

**Figure 7.3** Secondary school enrollment, 1980 and 1995

Note: Enrollment ratios may exceed 100 percent because some students, including repeaters, are older than the standard secondary school age group; others are younger. Therefore, ratios above 100 percent do not necessarily indicate better educational outcomes.

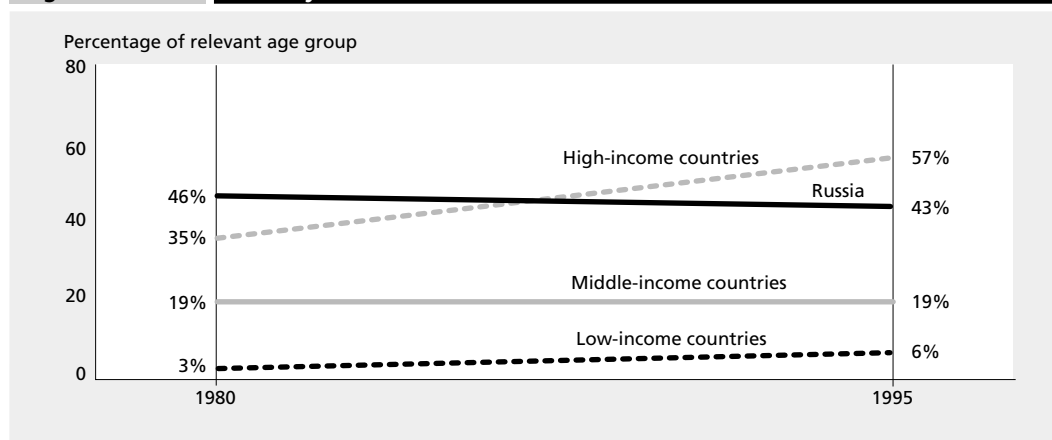
data on child labor are underreported or not reported at all because officially the problem is presumed not to exist.

The gap between developed and developing countries is particularly wide in tertiary education. In high-income countries tertiary enrollments have increased rapidly since 1980, but in low- and middle-income countries they have improved only slightly (Figure 7.4 and Data Table 2). *Note that in 1980 enrollment in both secondary and tertiary education was higher in Russia than in most high-income countries (except Canada and the United States). By 1995, however, enrollment had fallen in Russia but increased considerably in high-income countries.*

*Secondary and tertiary enrollments in Russia fell for a number of reasons. Among the most important is declining public*

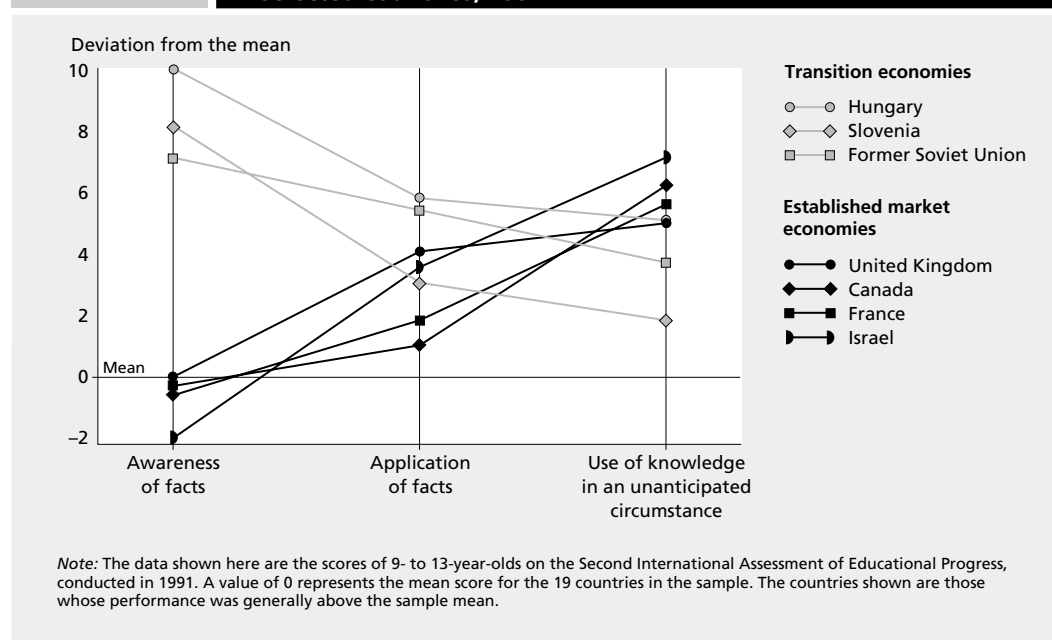
*spending on education, which dropped from about 7.0 percent of GDP in the early 1970s to 3.4 percent in 1992. This indicator recovered to 4.1 percent in 1995, but because GDP had decreased dramatically due to the transition crisis, in absolute terms the decline continued. Another important reason for lower enrollments in Russia is the decline in student demand for technical training in vocational schools and for engineering education at the higher levels. At the same time, there was an increase in student demand for classes in the humanities, economics, finance, languages, and other skills needed for new labor markets. However, many education institutions in Russia are not adapting fast enough to these changes in demand.*

The number of students enrolled at a level of study does not indicate the quality of their education and thus provides

**Figure 7.4** Tertiary education enrollment, 1980 and 1995

only a rough idea of a country's educational achievements. To generate economic returns, education and training have to meet the ever-changing demands of the labor market—that is, they have to equip graduates with the knowledge and skills needed at each stage of a country's economic development. For example,

countries moving from planned to market economies usually need more people trained in economics and business management to work in emerging private sectors as well as in reformed public sectors. Today's information revolution requires more people with computer skills, and globalization (see Chapters 13 and 14)

**Figure 7.5** Science and mathematics test performance of children in selected countries, 1991

has increased the demand for foreign language skills. Overall, innovative people are needed everywhere, and an education system that fails to develop this quality in its graduates can hardly be considered fully effective.

Figure 7.5 illustrates *both the strength of the old education system in transition countries as well as the need for change there*. Relative to their counterparts in Canada, France, Israel, and the United Kingdom, children in Hungary, Slovenia, and the former Soviet Union were better at demonstrating their knowledge of facts but worse at using that knowledge in new and different cir-

cumstances. In a competitive market economy, graduates who lack innovation and problem-solving skills run a higher risk of becoming unemployed and poor.

Investing in education is not only an important way to build a nation's human capital and to improve its prospects for economic growth and higher **living standards**. It also has a value in its own right because education broadens people's horizons and helps them to live healthier, more financially secure, and more fulfilling lives. This is why experts use data on literacy, for example, as an important indicators of the **quality of life** in a country.