The central objective of secondary education is to provide young people with opportunities to acquire the skills, aptitudes, values, knowledge, and experience needed to continue their education and to be active citizens and productive workers. As a consequence of the accelerating pace of global integration and the accompanying changes in countries’ socioeconomic conditions, objectives that focus on adaptation to the world of the future, with its changing and unpredictable labor markets and increasing labor migration, are receiving greater attention. One of the main challenges for policy makers is to ensure that secondary education is accessible to young people. Secondary schooling is intended to equip students with the education, knowledge, and skills that will prepare them for the constantly changing workplace. Such education would enable them to respond appropriately to emerging changes throughout their lives. Policy makers are, accordingly, striving to design policies and strategies suited to the particular country’s sociocultural context and economic realities.

Depending on specific conditions in developing countries and transition economies, the challenges for secondary education can be broadly grouped into two priority areas: expanding access, and improving relevance and quality. A key policy objective is to ensure that both access and quality are enhanced for those generally excluded by poverty, ethnicity, gender, and other factors. This chapter lays out the magnitude of the challenges involved in this pursuit.

From Elitism to Inclusiveness: Expanding Access to Secondary Education

Despite significant growth in secondary school enrollments in recent years, developing countries face enormous challenges, especially in improving overall educational attainment. The primary reasons are limited access,
low internal efficiency resulting from high repetition and dropout, and low overall quality. Developing countries have made concerted efforts to expand access to secondary education, and many are providing secondary education opportunities at a higher level than developed countries did when their income levels were similar. Yet developing countries continue to fall behind developed countries, for a number of reasons, and most developing countries need to make massive efforts to surmount the problem.

Of immediate importance is that developing countries need to establish a system of mass secondary education that (a) is responsive to countries’ socioeconomic needs and capabilities, (b) can respond effectively to increased and diversified demand by expanding access to secondary education, (c) is able to retain enrolled students in secondary school, and (d) helps students graduate with the knowledge, skills, attitudes, and experiences needed to exercise their choices beyond secondary education.

Over the course of the second half of the 20th century, access to secondary education increased much faster in developing countries than it had in OECD countries between 1900 and 1950. Using 1990 data, Goldin (2002) compared real gross domestic product (GDP) per capita and the gross enrollment rate (GER) in a large number of countries with the evolution of these indicators in the United States beginning in 1900. She found that by 1990 developing countries had achieved higher participation rates than the United States had at the same level of per capita GDP in 1900 and 1920. Figure 3.1 shows that in 1990, even when their GDP per capita was significantly lower, only a few developing countries had GERs below the 1900 U.S. level; indeed, a large number had GERs above the 1920 U.S. GER. Goldin further showed that in 1990 many developing countries had higher secondary school GERs than most European countries had in the mid-1950s, when the latter had comparatively higher GDP per capita.

Nevertheless, the gap in access to secondary education has widened since 1990 because developing countries have not expanded opportunities in secondary education as rapidly as have developed countries. With the exception of Eastern Europe all developing regions are far behind developed countries.

In the 1990s some developing countries made concerted efforts to expand access to secondary education, with dramatic results (see figure 3.2). For example (taking one country in each region), between 1970 and 2000 Zimbabwe’s GER increased from 7.5 to 44.5 percent; Brazil’s rose from 26 to 108 percent; Thailand’s, from 17 to 82 percent; India’s, from 24 to 49 percent; and the Arab Republic of Egypt’s, from 28 to 86 percent. Box 3.1 describes how India, with its large out-of-school population, has worked to extend the reach of secondary education.
During the 1990s many Latin American countries designed and implemented important secondary education reforms in an attempt to improve access, equity, quality, and relevance. The results have been encouraging for access and equity but less so for quality and relevance. This is evident from poor student performance in countries participating in international tests such as the Trends in International Mathematics and Science Study (TIMSS), the Programme on International Student Assessment (PISA), and the International Assessment of Literacy Study (IALS). Regional policy makers have been preoccupied with analyzing the results to determine what “went wrong” and what can be done to achieve success (UNESCO 2002).

Equity Considerations

In many countries, inequities in access to secondary schooling may be a major barrier to human development and therefore to economic growth and poverty reduction. Historically, the initial expansion of access to
Box 3.1 Secondary Education in India: Building on Successes in Primary Schooling

India, a country of more than a billion people and a per capita GDP of over $520, has made remarkable progress in poverty alleviation and education. The 1990s saw a great push to expand and improve schooling. Significant advances were made in extending access to primary education to girls, scheduled castes, and scheduled tribes and in narrowing the gaps between urban and rural areas. Between 1993 and 2001 the GER for primary education (grades 1–5) increased from 82 to 96 percent, the GER for upper primary grades (6–8) increased from 54 to 60 percent, and the GER for secondary education rose from 31 percent to more than 49 percent. About 160 million students were enrolled in elementary education (primary and upper primary), 30 million in secondary education, and 1.5 to 2 million in vocational education and training institutions. By 2001 the efforts had been extended to upper primary education (equivalent to lower secondary education elsewhere).

(Continued)
Box 3.1 Continued

In 2002 the constitution was amended to make eight years of elementary education a fundamental right of every child. The government of India launched the National Program for Universal Elementary Education, which aims at ensuring that all children between ages 6 and 14 complete eight years of education of satisfactory quality by 2010. Since the states have primary responsibility for providing and financing education, the Elementary Education Program provides for fiscal transfers from the union government to state governments to support their efforts, in a cost-sharing arrangement in which 75 percent from the center is to be matched by 25 percent from the states. This would provide additional resources of about 9 percent over the existing operating expenditure on elementary education.

Although the National Program for Universal Elementary Education began only a few years ago, preliminary results show a dramatic reduction in the number of out-of-school children—from 25 million in 2003 to fewer than 10 million in 2005. This outcome is the fruit of intense social mobilization and concerted efforts at all levels of government. Dropout has also been reduced modestly, as a consequence of some improvement in school quality. It can be expected that the demand for secondary education (grades 9 and 10), senior secondary education (grades 11 and 12), and vocational education and training (VET) will increase manyfold within a few years. By 2010 it is envisaged that an additional 10 million primary school graduates will be seeking admission to secondary school. A few years later, this demand will spread to tertiary education.

For the vast majority of youths, secondary education or VET is the last stage of formal schooling. Fewer than 10 percent of secondary graduates go on to the tertiary system, while most of the remainder seek to enter the labor market. An effective school-to-work transition for these youths, made possible by enhancing the quality of secondary education and VET, will improve their employment prospects and lifetime earnings. At the same time, India needs to maintain very high quality secondary and higher education to keep its cutting edge in the information technology and business services sectors. But India’s secondary education and VET systems face numerous challenges, including those of access, quality, and relevance. Recognizing this, the government has devised strategies that include increasing private sector participation; providing financial assistance for girls to encourage them to enroll in secondary school; revising and updating the curriculum, with a focus on mathematics and science; and improving teacher quality. The government plans to proceed with greater vocationalization of secondary education and upgrading of vocational training institutions and facilities to make them more responsive to labor market demand.

secondary education has not equally benefited boys and girls. As expansion reaches an initial threshold, gender differences begin to emerge. Cultural factors that favor sending boys to school while keeping girls at home to look after younger siblings, combined with low expectations that girls will enter the job market, are often cited as the primary reasons for gender differentials in secondary school enrollments.

Close analysis of the gender parity index (GPI) in figure 3.3 reveals that in all regions disparity in access between boys and girls has been decreasing over time, to an extent that in most regions it is almost indiscernible. Still, in South Asia 52 percent of boys but only 33 percent of girls are enrolled in secondary school. In the Middle East and North Africa the figures are 64 percent for boys and 55 percent for girls, and in African countries, 28 percent for boys and 22 percent for girls (UNESCO 2004b). And although the gender gap in enrollments has narrowed, intraregional and intercountry differences persist. In regions where access is still low, policies to improve coverage might result in gender differentials unless accompanied by appropriate policies to address equity issues.

Figure 3.3 Gender Parity Index in Secondary Education by Region, Selected Years, 1970–2000


Note: The gender parity index (GPI) is the ratio of female to male gross enrollment rates in secondary education. A GPI of 1 indicates parity; a value between 0 and 1 indicates disparity in favor of boys; and a value greater than 1 indicates disparity in favor of girls.
Use of the Cohen-Soto dataset developed by Bloom (2003) shows that the encouraging history observed in the evolution of access to primary education has not been duplicated for secondary education. Worldwide improvements in secondary education enrollment hide wide interregional and intraregional disparities. GERs in East Asia and the Pacific, Latin America and the Caribbean, and the Middle East and North Africa were around 42 percent in 1980. By 1996 they had risen to 69, 52, and 64 percent for the respective regions. In South Asia between 1980 and 1996, GERs rose from 27 to 48 percent, and in Sub-Saharan Africa, from 15 to 27 percent (World Development Indicators, 1998, 1999). Figure 3.4 reveals widening gaps across regions between those who have at least some secondary education and those who do not.

Intraregional comparisons show similar disparities. In Africa, for example, GERs in secondary education in Burkina Faso, Chad, Guinea, Mozambique, and Niger are still below 13 percent, whereas South Africa has a GER of 87 percent.

Figure 3.4 Share of Population with at Least Some Secondary Education by Region, 1960–2000 and Projected to 2010

Demand-Side Interventions

Affordability is a principal reason children either do not go to school or drop out early. The primary constraint is household income forgone because of the loss of the school-going child’s earnings. Under these circumstances, supply-side initiatives such as improving schools, augmenting teachers’ salaries, and reforming the ministry of education are not likely to have significant effects. Demand-side interventions such as conditional transfers for education may be more effective because they go directly toward achieving program objectives—higher school enrollment and retention levels.

Until recently, little was known about the role of targeted education subsidies in improving educational outcomes in developing countries, although these programs have taken root rapidly, especially in Latin America (Morley and Coady 2003). Examples of targeted subsidies include cash-for-education programs such as Brazil’s Bolsa Escola (Scholarship Fund), Chile’s SUF (Unitary Family Subsidy), Honduras’s PRAF (Family Allowance Program), Mexico’s Progresa (Education, Health, and Nutrition Program), and Nicaragua’s RPS (Social Safety Net), as well as the food-for-education program in Bangladesh, which has now been monetized. These programs represent, on average, a commitment of between 0.1 and 0.2 percent of gross national income. Of particular interest is the size of the programs in relation to what governments spend on education. In Latin America governments are committing about 2.5 to 5 percent of total education spending to these programs, which have contributed significantly to increasing school enrollments (Morley and Coady 2003). Providing demand-side financing to secondary school students can thus have significant direct and indirect benefits. Mexico’s cash-for-education program (box 3.2) is a good illustration.

Low Retention and Completion in Secondary Education

Not only are developing countries having problems with providing opportunities to attend secondary education; they are also doing a poor job at keeping and graduating those who enter secondary school. The situation is worse for the poor and for girls.

Using 1995–96 household data from 41 countries, Filmer (2000) studied the interactions of gender, wealth, and educational attainment and showed considerable within-country inequalities in educational attainment. Filmer’s findings reveal a significant gap in completion rates among young adults from poor, middle-income, and rich households. For example, in Egypt among males age 15–19, 99 percent of those from rich households had completed grade 1 or higher, 94 percent had completed grade 5 or higher, and
81 percent had completed grade 9 or higher. Among young males from middle-income families, the respective proportions were 96, 83, and 64 percent. Young males from poor families had considerably lower attainment: 87 percent for grade 1 or higher, 74 percent for grade 5 or higher, and 47 percent for grade 9 or higher. This type of scenario is observed in other parts of the world as well, as demonstrated by the figures in appendix B and by the data results in appendix C. The countries included in the study experienced a significant decrease in enrollments during transition from primary to secondary education, and the decline was more dramatic in rural than in urban areas. One positive outcome was that most rural students who reached secondary education remained in the system until graduation.

The income and gender differentials manifest themselves in significant variations between urban and rural areas. A study of four countries that

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**Box 3.2 Progresa, Mexico’s Cash-for-Education Program**

Progresa, which serves students enrolled in secondary education as well as primary school, began in 1992 as a pilot project of the Ministry of Social Development and was scaled up in rural areas countrywide in 1997. In 1999 monthly benefits started at 80 pesos ($8.37) in grade 3 of primary school and increased with each grade. This approach was adopted because enrollment levels decline with age, especially after primary school, partly as a consequence of the rising opportunity costs associated with forgone income and travel costs. In junior secondary school (grades 7–9), benefits are higher for females, with the aim of reducing the gender gap in educational outcomes, especially in secondary education.

The Progresa program interacts with supply-side government expenditures on schools. Progresa works closely with the Ministry of Education to ensure that extra schools, teachers, and materials are made available in areas that experience increased enrollments. As a result, higher enrollments have not led to higher student-teacher ratios. Furthermore, because new schools have been built in program areas, the distance to secondary school has been reduced by about 10 percent.

The effect of Progresa on educational outcomes is greatest during the transition year between primary and junior secondary school, where there has been a 20 percent increase in enrollment for girls and 10 percent for boys. A child in the program receives, on average, 0.66 extra years of education—from an average level of 6.8 years of education before the program to 7.46 years. Providing demand-side financing to secondary school students thus has had significant direct and indirect benefits.

are representative of the reality in most of Latin America shows large differences in graduation rates between students from rural and urban communities. Figure 3.5 illustrates how in the early 1990s in Peru, of the original cohort of rural students enrolled in grade 1, 70 percent reached grade 6, less than 40 percent entered grade 7, and only 20 percent entered grade 11. A large proportion of students from rural families do not continue to secondary education, although the few who do are quite successful. Students in urban schools did better: close to 98 percent entered grade 6, 95 percent entered grade 7, and 75 percent reached grade 11.

In a large country such as Mexico the difference in primary school completion between rural and urban areas is not nearly as dramatic; there, almost 75 percent of rural students and 85 percent of urban students enter
grade 6. In secondary education there is a stark difference, with fewer than 50 percent of rural students going on to secondary education and only 40 percent graduating from lower secondary education (grade 9), whereas 68 percent of students from urban families continue to secondary education and 64 percent graduate from grade 9.

The two main factors responsible for the low levels of participation in secondary education in Latin American countries are loss of interest on the part of parents and students because of high repetition levels, and the perception that the quality and relevance of education are low. Mexico has been addressing this problem through a special distance education program, Telesecundaria, that targets rural areas. Telesecundaria began over 30 years ago as a television-based educational program. In its initial phase it used microwave and later moved to broadcast satellite programming. Telesecundaria provides rural teachers and students with a complete package to support teaching and learning, together with a comprehensive instructional model, enabling schools to deliver a full junior secondary curriculum at costs comparable to those in more populated urban areas (Calderoni 1998).

In East Asia, China has made great strides in expanding access to secondary education in a very short period of time, as described in box 3.3.

Incorporating Adults into the Secondary Education System

Although the focus of this paper is on school-age youths, it is important to note that in many developing countries adult education, training, and retraining are inadequate for the challenges of a knowledge society. Using average years of schooling of the population older than age 25 as an indicator of adult educational attainment helps highlight the magnitude of this problem. In South Asia in 1990 the figure was 3.3 years, and in Sub-Saharan Africa it was only 2.5, but in OECD countries it was, on average, 9.4 (Barro and Lee 1996). In recognition that secondary education is an important vehicle for national skills formation, countries in recent years have expanded second-chance education for the adult population in both formal and non-formal educational settings.

Most countries tend to rely on distance education to give adults opportunities to complete general secondary education. For example, the National Open School of India serves as an alternative to formal secondary education and reaches out to learners of all ages in the country with its flexible educational programs. Vocational upper secondary education, which may offer supplementary courses for secondary school students, has also been used to provide continuing education for adults. Finland has a noteworthy adult education program: except for basic university education, adults can participate in all levels of certificate-oriented and non-certificate-oriented education in courses designed specifically for adults (World Bank 2003c).
## Box 3.3 Policies for Expansion of Secondary Education in China

In China a drive to expand secondary education led to a dramatic increase in lower secondary enrollment between 1990 and 2002. During those years the GER increased from 66.7 to 90.0 percent as a result of the implementation of three intertwined policies in support of expansion:

- **Education legislation to promote enrollment.** In 1986 the Chinese government promulgated the Compulsory Education Law (CEL), which established rights and obligations of individuals and governments with respect to compulsory education. The CEL contained two main provisions for promoting enrollment in lower secondary education: (a) all children reaching age six had to enroll in school and receive nine years of compulsory education—that is, lower secondary education became mandatory; and (b) local authorities were given the responsibility for compulsory education, including operating funds, capital investment, and teachers’ salaries. The central government was responsible for increasing per-pupil expenditures at a faster rate than the increase in regular state expenditure on education.

- **Mobilization of resources in rural areas.** In the early 1990s, as the income of farmers in wealthy areas increased rapidly, the central government introduced a 2 percent education tax in rural areas. This tax, together with other types of parental contribution, yielded RMB 100 billion ($12.5 billion), which was added to the budgetary resources of local governments for the development of nine-year compulsory education.

- **Increased government expenditure for rural education.** Since the mid-1990s government spending on basic education has increased, in terms both of regular budgetary expenditures and of special funds for rural areas. As a result, between 1996 and 2001 recurrent expenditures for lower secondary education grew at a rate of 151 percent. The national government began allocating about RMB 5 billion–10 billion annually to rural areas for construction, renovation, and Internet education. This central special fund is provided as a cofinancing contribution to participating local governments.

Incorporating the adult population into the education system requires strategic thinking on many policy and education issues. The significant differences in learning styles and needs between young and adult learners have to be taken into account. A country that has a large number of adults with limited education and wants to increase investment in more technologically advanced industries would need to analyze how to respond to the training needs of individuals who have only primary education and who are mainly employed in the informal sector. Important questions for policy makers arise in this context: What role should secondary education play? Should adults be streamed into formal secondary schools? Should adult programs embrace education and training that lead to secondary school certificates or some other form of recognition?

**Secondary Education Attainment**

Educational attainment has improved steadily over the past 40 years in all regions of the world (see the data on selected countries in appendix C). But despite the progress, many developing countries still lag behind. Although the average number of years of schooling has increased steadily in all regions, the rate of growth shows significant variation (figure 3.6). Sub-Saharan

**Figure 3.6 Average Years of Schooling, Population Age Five and Older, by Region, 1960, 1980, and 2000**

![Graph showing average years of schooling by region from 1960 to 2000](image)

*Source: Barro and Lee 2000.*
Africa has fallen alarmingly behind in spite of tremendous efforts and some achievements in the past decade.

Average years of schooling is commonly used as an indicator of educational attainment. It is incorrect, however, to assume that the more years of schooling, the better will be the quality and depth of the knowledge acquired.

Compared with advances in primary education, increases in the share of the population achieving secondary education have been rather slow. Low provision of secondary education has been the bottleneck to increased educational attainment in most developing countries. As figure 3.7 shows, Sub-Saharan African countries have lagged in providing secondary education, in part because of neglect in the 1970s, and the trend continues. In 1960 the proportion attaining the secondary education level in Sub-Saharan Africa was larger than in South Asia and in the Middle East and North Africa, but by 2000 the proportion of its population with some secondary education was significantly lower than in other regions. A similar trend can be observed when comparing East Asia and Latin America: in East Asia the population

Figure 3.7 Educational Level of Population Age 15 and Older by Region, 1960 and 2000

with secondary education expanded significantly, but Latin America made only modest gains. Most countries in these regions will need to continue making significant and concerted efforts in the next 10 to 20 years to reduce the current schooling gap. Both transition and advanced economies showed dramatic improvements, with nearly full enrollment of primary-school-age children and, at the same time, an increase in the student population attaining at least secondary education.

Can the secondary education gap among regions be reduced? The experiences of, for example, Finland, Hong Kong (China), the Republic of Korea, Malaysia, Singapore, and Taiwan (China) demonstrate not only that it is possible but also that the gap can be reduced in a relatively short time. Between 1960 and 2000 these economies increased their average years of schooling by more than 4.5 years (World Bank 2003a). Finland and Korea achieved this by taking strong measures to reduce the fraction of the adult population that had only primary education while increasing the opportunities for all to attend secondary education.

Over the past 40 years, both Finland and Korea have implemented active education policies that have led to a large increase in the number of adults with at least a secondary school education (figure 3.8, panel A). The education transition in Korea is illustrated by the change from an education pyramid with a large base, implying a large number of adults with less than primary education, to one that is larger in the middle (representing adults with some secondary schooling) than at the base. Korea’s policies took only 20 years to achieve this result, whereas the same process took 40 years in Finland. (See box 3.4 for a fuller discussion of Korea’s success.) Educational upgrading in the East Asian “tigers” and in Finland and other Nordic countries began with improvements at the bottom of the pyramid, through strong and sustained efforts to provide secondary education. The education policies of these countries resulted in a widening of the middle section of the pyramid and a considerable reduction of the base, initially leaving the top (adults with some tertiary education) almost unchanged.

By contrast, the education transitions of most countries in Africa, South Asia, and East Asia show very slow or almost no progress over the past 40 years (see the examples in figure 3.8, panels B–C). South Africa has advanced significantly during the past 20 years after a period of stagnation. The Philippines experienced a considerable expansion of the populations with secondary and with tertiary education (panel D). Its relatively equal efforts toward expanding tertiary and secondary education have been impressive.

Overall, the expansion of secondary education in Latin America has been weak. In most countries a large fraction of the population still has primary education or less. Latin America is distinctive in that it has invested heavily in increasing access to tertiary education. Costa Rica presents an extreme
Figure 3.8 Distribution of the Population over Age 15 by Educational Attainment, Selected Countries

### A. Finland and Republic of Korea

<table>
<thead>
<tr>
<th>Year</th>
<th>Finland</th>
<th>Republic of Korea</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>1980</td>
<td>11%</td>
<td>9%</td>
</tr>
<tr>
<td>2000</td>
<td>22%</td>
<td>26%</td>
</tr>
</tbody>
</table>

### B. South Africa and Kenya

<table>
<thead>
<tr>
<th>Year</th>
<th>South Africa</th>
<th>Kenya</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>18%</td>
<td>1%</td>
</tr>
<tr>
<td>1980</td>
<td>16%</td>
<td>0.5%</td>
</tr>
<tr>
<td>2000</td>
<td>7%</td>
<td>1%</td>
</tr>
</tbody>
</table>

### C. Bangladesh and Indonesia

<table>
<thead>
<tr>
<th>Year</th>
<th>Bangladesh</th>
<th>Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>5%</td>
<td>0.6%</td>
</tr>
<tr>
<td>1980</td>
<td>10%</td>
<td>0.6%</td>
</tr>
<tr>
<td>2000</td>
<td>27%</td>
<td>5%</td>
</tr>
</tbody>
</table>

### D. Philippines and Poland

<table>
<thead>
<tr>
<th>Year</th>
<th>Philippines</th>
<th>Poland</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>1980</td>
<td>16%</td>
<td>5%</td>
</tr>
<tr>
<td>2000</td>
<td>23%</td>
<td>10%</td>
</tr>
</tbody>
</table>

### E. Colombia and Costa Rica

<table>
<thead>
<tr>
<th>Year</th>
<th>Colombia</th>
<th>Costa Rica</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>1980</td>
<td>4%</td>
<td>8%</td>
</tr>
<tr>
<td>2000</td>
<td>10%</td>
<td>18%</td>
</tr>
</tbody>
</table>

Legend:
- Gray: Percentage of population over age 15 with tertiary education or higher
- Light gray: Percentage of population over age 15 with secondary education
- Dark gray: Percentage of population over age 15 with primary education or no schooling

Source: Authors’ compilation.
Box 3.4 The Drive for Universal Primary and Secondary Education in Korea

Emerging from a bitter war in the early 1950s, the Republic of Korea, at that time one of the world’s poorest countries, achieved nearly 100 percent coverage in primary and secondary education in just four decades. Korea now has a tertiary education sector comparable to that in developed countries. Average years of schooling almost doubled between 1970 and 1995, from 5.74 years to 10.25 years. The illiteracy rate fell dramatically, from 13 percent in 1970 to 2 percent in 1999. Results from the most recent PISA and TIMSS studies (1995 and 1999) show that Korean students are among the top performers in both mathematics and science in OECD member countries. It is no coincidence that Korea has become the world’s 12th largest economy.

The rapid expansion of education is attributable to a number of factors:

1. In the late 1950s the government embarked on a comprehensive development plan that included a strengthened and broadened education system. In the 1960s the plan emphasized universal primary education as a top priority; in the 1970s policy emphasis shifted to secondary education, and in the 1980s, to the tertiary level.

2. Equity considerations were important for a balanced expansion of the education system. In 1968 the government abolished the entrance examination for middle schools and introduced a lottery system for student placement. The lottery was perceived as fair because placement was based mainly on residence rather than on test scores, which may be influenced by economic means or other socioeconomic factors. The new system, which virtually eliminated all elite middle schools, was well accepted by students, parents, and other stakeholders without much controversy. In 1974 the government introduced the similar but more controversial High School Equalization Policy (HSEP), which was intended to equalize or level school inputs such as operating expenditures, student intake, class size, and education facilities across schools. The HSEP contributed to the expansion of upper secondary education. Thanks to the subsidy and to other measures under the equalization policy, there is no discernible quality difference across public schools or between private and public schools.

3. Government spending increased substantially to finance the expansion. Between 1954 and 1959 government spending on education rose threefold. By 1960 four-fifths of the education budget was focused on primary education. The education budget has increased steadily, from 14.3 percent of the total government budget in 1963 to 17.5 percent in 2003. Education expenditure as a percentage of GDP increased from 2.9 percent in 1970 to 4.97 percent in 2003.

(continued)
4. Private participation has been significant in sustaining the expansion. As of 2000, the enrollment shares of the private sector were 20 percent for middle schools, 55 percent for high schools, and 78 percent for four-year colleges and universities. Private providers of secondary and tertiary education were supported largely by government tax incentives (for example, property tax exemptions), fees, family contributions, and foreign aid until growing government revenues could be reinvested in education. The government started to provide direct financial assistance to private providers following the introduction of school-leveling policies.

The significant social and economic demand for education was pivotal in helping Korea achieve its education goals. The Korean case demonstrates that political commitment at the inception of a national education development plan and throughout its implementation is critical in pushing the education frontier from the lower to the upper levels of the system and that access and equity can be achieved simultaneously if the government resolutely addresses potential trade-offs between the two goals in the planning and implementation stages.

Source: Authors’ compilation.

example of this situation, with a larger proportion of adults having tertiary education than secondary education (figure 3.8, panel E). Additional examples of education pyramids are presented in appendix D.

Low Quality and Relevance

We have seen that developing countries today have higher levels of access to secondary education than did developed countries when the latter were at similar levels of per capita income. What can be said about the quality of secondary education in developing countries? How do country averages and within-country distribution compare with those in developed countries? Is there evidence that countries that have expanded access to secondary education very quickly have education of lower quality than others?

Cognitive performance can be considered a reasonable proxy for quality. In recent years there has been an attempt to assess cognitive performance through international assessments such as TIMSS and PISA. It is widely acknowledged that more developed than developing countries
participate in comparative international assessments. Among those countries that do participate, the test results indicate that developing countries do relatively poorly compared with developed countries and that middle-income countries do relatively less well than high-income countries. Since the poorest countries do not typically participate in comparative international assessments, it is difficult to come to objective conclusions as to how they fare in the comparison. Notwithstanding low overall performance, the variance in scores between high and low performers within developing countries is much higher than that observed for developed countries.

The results of the PISA study on access to quality education show that in general, students from high-income countries tend to perform better than those from low- and middle-income countries (see figure 3.9). The wealth of a nation, however, is not always a good predictor of test achievement. For example, high-income Italy has a mean performance in reading that is almost 40 points lower than Korea’s. Thailand, with half Argentina’s GDP per capita, scores slightly higher than that country. What appears to matter most is how a country’s education system deploys and uses resources in order to provide good learning opportunities.

Figure 3.10 shows the percentage of students at each proficiency level on the PISA reading literacy scale. In OECD countries 60 percent of 15-year-olds can perform reading tasks of at least moderate complexity, such as locating multiple pieces of information, making links between different

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**Figure 3.9 Student Performance and GDP per Capita, Selected Economies, PISA 2000, Reading**

![Graph showing student performance and GDP per capita](image)

*Source: OECD 2003b.*

*Note: GDP, gross domestic product; PISA, Programme on International Student Assessment; PPP, purchasing power parity. Italics indicate countries that are statistically significantly above the OECD average.*
Figure 3.10 Percentage of Students Age 15 at Each Level of Proficiency on the PISA Reading Literacy Scale, Selected Economies, 2000

Source: OECD 2003b, table 2.

Note: PISA, Programme on International Student Assessment. Students who score below level 1 are considered to lack the most basic skills that PISA assesses. Students proficient at level 3 on the combined reading literacy scale are able to perform reading tasks of moderate complexity, such as locating multiple pieces of information, making links between different parts of a text, and relating text to familiar, everyday knowledge; 60 percent of the students in the OECD average are at or above level 3.
parts of a text, and relating text to familiar everyday knowledge (that is, they are either at or above level 3 in the PISA study). In most participating developing countries 15-year-olds do not show this capacity. Ten low-income and middle-income countries—five in Latin America, plus Albania, Bulgaria, Indonesia, the former Yugoslav Republic of Macedonia, and Thailand—have the largest percentages of students below level 3.

Comparison of average scores provides a good overview of a country’s performance relative to others, but it masks variance in student performance within a country. Here again, developing countries perform poorly. The variance between low and high performers in developing countries is significantly higher than in high-income countries. Developing countries face the challenge of raising the average level of performance while at the same time reducing the disparity between high and low achievers. Policy makers need to design and implement targeted interventions with the overall objective of improving the quality of secondary education and reducing the quality and relevance gap.

The three top scorers in the PISA study—Finland, Hong Kong (China), and Korea—exhibit relatively low variance between high and low performers. This signals that their education systems have had considerable success in eliminating socioeconomic segregation and have provided high-quality learning opportunities to all. As discussed earlier, over the span of the 40 years 1960 to 2000, these countries significantly increased average years of schooling by improving secondary education attainment while at the same time providing high-quality education for all.

Panel A of figure 3.11 presents the cumulative frequency of student achievement by proficiency level on the PISA test. The figure shows that in poorer countries few students perform at the OECD average. In Peru and Indonesia, for example, even students at their country’s 95th percentile are below the OECD average. Panel A also shows that not all middle-income countries are the same. In particular, of the examples chosen, Mexico and Thailand are clearly “better” at improving quality at the left-hand end of the distribution. Children who are poor performers compared with their own top performers and with the OECD average are fewer in number in these countries, whereas in Peru (in particular), Brazil, and Indonesia very large numbers of students are at the lowest level of proficiency. Panel B of figure 3.11, which shows the simple frequency distributions by level of proficiency, illustrates these dynamics even more dramatically.

Taking Peru, Indonesia, Brazil, Mexico, Thailand, and the OECD total as being in a sort of spectrum, it can clearly be seen that as countries improve in quality, the most dramatic changes are seen at the left-hand end of the distribution. In Peru more than 50 percent of children are below level 1 on the PISA scale, but in Mexico the figure is only about 15 percent and in Thailand, about 10 percent. Not by coincidence, in a recent compendium of good
practices in education (de Andraca 2003), Mexico is listed as having several programs oriented toward improving the educational performance of the poor—programs such as Progresa, which provides conditional cash transfers for attendance, and Telesecundaria, which is aimed at improving quality among the poor through distance education.

**Figure 3.11. PISA Achievement, OECD Average and Selected Developing Countries, 2000**

A. Cumulative percentage of learners

B. Percentage of learners

*Source:* Based on data in Mullis et al. (2001), table 2.3.a.

*Note:* PISA, Programme on International Student Assessment. For PISA proficiency levels, see the note to figure 3.10.
Figure 3.12 Relative Performance of High-Income Countries and Selected Middle-Income Countries (South Africa, Morocco, and Chile) on the TIMSS-R

Sources: Based on data in OECD and UIS (2003), exhibit D.1; and on World Bank classification of countries by income group.

Note: TIMSS-R, Trends in International Mathematics and Science Study, repeat data set. The numerals above the bars represent the average score for each country.

Figure 3.12 makes the same point, using data from TIMSS and a somewhat different approach. Three countries—Chile, Morocco, and South Africa—are selected as representative of a spectrum among middle-income countries. The figure shows relative performance of high-income countries and the selected country at the 5th and 95th percentiles, as well as the average performance of each country. As countries’ average performance improves, the ratio of high-income country performance to each country’s performance drops, as one would expect. But the important thing to note is that the ratio of high-income performance to selected country performance falls much faster for performance at the 5th percentile. As countries improve their averages, it is the gap between their worst performers and the worst performers in the OECD countries that narrows the most. Indeed, using TIMSS data, for middle-income countries, the ratio between high-income and selected country performance decreases seven times faster at the 5th than at the 95th percentile, as average performance improves.

Figure 3.13 shows that income, access, and quality go together; that is, higher income, greater access, and higher achievement tend to be correlated. Furthermore, the lower the income level, the higher is the correlation between access and achievement, and the steeper the relationship. (The central
tendency lines flatten and show lower correlation coefficients as income increases.) This result is to some degree an artifact of the data: high-income countries have very high quality and access, both of which tend to have natural upper limits (either because of the measurement approach or by definition), and so the relationship between the two becomes less significant.

The correlation between access and achievement should not be taken to mean that access automatically leads to higher achievement. Excessive expansion would generally be expected to lead to decreased quality, if nothing active is done to maintain quality. The data do, however, suggest that as access has expanded, countries and international organizations have in fact generally taken steps to focus on quality and achievement issues more or less in tandem. These steps, as noted above, generally include conscious schema and management systems that improve quality and performance at the lower end of the performance distribution. Such efforts clearly need to continue, and in countries such as Peru or Brazil they need to improve. Figure 3.13 also makes it clear that both access and quality are improved by a third factor—income per capita. Again, this improvement

**Figure 3.13 Access, Learning, and Income by Country Income Group**

Sources: EdStats; elaborations by the authors using World Bank classification of countries by income group.

Note: PISA, Programme on International Student Assessment; TIMSS, Trends in International Mathematics and Science Study. The combined PISA, TIMSS99, and TIMSS95 index was crafted as follows. The correlation between the average of all three PISA areas and TIMSS99 performance in mathematics and science was 0.85, and that between TIMSS99 and TIMSS95 (grade 8) was 0.92. A simple regression was used to create TIMSS99-equivalent scores for countries reporting PISA but not TIMSS99 data, and similarly with TIMSS95.
is not automatic: better-off countries have put in place the right processes and systems to improve quality, particularly of the poorer performers in their own societies.

**Conclusion**

Depending on specific country conditions, the principal challenges in secondary education in developing countries and transition economies can be grouped into four, not mutually exclusive, priority areas: (a) expanding access for all, paying special attention to issues relating to gender- and ethnicity-related exclusion; (b) increasing retention and graduation; (c) improving efficiency; and (d) improving relevance and quality. Countries have to address these issues in resource-constrained environments, within hard budget constraints. The reality is that either developing countries and transition economies lack the capacity to raise the additional resources necessary to address most of these priorities, or the fresh new resources they can raise are simply not sufficient. Another crucial aspect is that available resources could be utilized more efficiently. The challenge is to find ways of increasing efficiency and effectiveness in resource allocation and utilization. Tailored solutions are required to address the particular needs, capacities, and conditions of each country. Greater capacity for policy formulation, planning, and performance assessment is required in order to develop and implement feasible options through programs that are sectorwide in scope but at the same time are focused on clear, achievable outcomes. Chapter 4 describes how developing countries and transition economies worldwide face similar challenges but differing realities.

**Note**

1. The OECD, through PISA, conducted an assessment on reading, mathematics, and science in 2000 and 2002 (PISA+). PISA assesses 15-year-old students’ ability to apply acquired knowledge to real-life situations; it does not assess levels of knowledge and skills as specified in the national curriculum of the participating countries. It has six levels of reading proficiency, from below level 1 to level 5. Students who score below level 1 are considered to lack the most basic skills that PISA assesses. Students proficient at level 3 on the combined reading literacy scale are able to perform reading tasks of moderate complexity, such as locating multiple pieces of information, making links between different parts of a text, and relating the text to familiar, everyday knowledge.