

# Chapter 7

## Educational Policy, Development of Education, and Economic Growth in Korea

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### 7.1 Introduction

It is a well-known fact that national development in Korea—especially the rapid economic growth—has taken place largely because of the country’s highly educated, but low-paid, human resources. The scope and objectives of this chapter aim to describe changes in major educational policies in the 60 years since the establishment of the government in 1948; review the quantitative and qualitative development of education; and explore the contribution of educational development to economic progress. The first part of this chapter will overview changes and reforms in educational policies during the past six decades. Next, it will examine the characteristics of Korean education quantitatively and qualitatively. Finally, it will introduce major studies on the contribution of education to productivity and economic growth in Korea.

### 7.2 Changes in the Educational System and Policy

#### 7.2.1 *The Role of Government in Education*

Korean education features a centralized education governance system. The importance of the government’s role in education has always been well-recognized. It can clearly be seen in article 31 of the country’s constitution, which stipulates the responsibilities of the government regarding education:

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- compulsory education shall be free of charge;
- the state shall promote lifelong education; and
- fundamental matters pertaining to the educational system shall be determined by act.

The government has the authority to make decisions about key issues in education, such as staffing, budget, and curriculum. Korea has had a national curriculum since 1949, and the education minister has the exclusive authority to approve textbooks for primary and secondary schools.

The government, by law, also regulates qualifications, promotions, in-service training, and deployment of teachers in public or private schools. In addition, public school teachers are transferred periodically, once every 4 or 5 years, to decrease the gaps in educational conditions among schools.

Private schools in Korea do not have much autonomy, even though they are not public schools. They can hire teachers as they wish, except that the teachers are required to have a national teaching certificate. Private schools also have to comply—like public schools—with the regulatory framework of the national curriculum and textbooks. While the government requires private schools to charge the same amount of tuition as public ones, private schools have structural deficits which the government is to subsidize by comparing the tuition with the national standard cost of education. In keeping with the high school equalization policy (HSEP), adopted in 1974, most private high schools in city areas do not have the right to select their students, and regional education authorities, therefore, assign students to both private and public schools in much the same way.

### ***7.2.2 Policy Changes in Education***

Following the establishment of the Republic of Korea in 1948, an education law was enacted on the basis of democratic principles. The government adopted a 6-3-3-4 school system and declared that 6 years of education at the primary level would be compulsory. In order to eliminate illiteracy, the government also introduced extensive adult education, as well as supplementary in-service training for teachers.

In the midst of the Korean War (1950–1953), efforts were continued to revive education to fulfill the goal of overcoming the national crisis and spearheading reconstruction. Remarkable economic progress—and subsequent drastic changes in politics, society, and culture—brought about a quantitative expansion, which is a feature of Korean education in the 1960s and 1970s. This expansion included an explosive increase in the number of students, teachers, and educational facilities. A rapid growth in the school-age population resulted inevitably in overcrowded classrooms, oversized schools, a shortage of qualified teachers, and educational facilities, with excessive competition in college entrance examinations (Ministry of Education/MOE 2000). Accordingly, reform measures were instituted to restore school education to its normal state. Major policies were employed to:

- reform teacher training;
- upgrade primary school teachers from normal high schools to junior colleges, and standardize the 4-year college education for secondary school teachers;
- abolish entrance examinations to middle school (1968);
- implement the HSEP; and
- carry out preliminary tests for college admission.

In the 1980s, Korea endeavored to control and enhance the quality of its education. The administration of President Chun Doo-hwan clearly established the institutionalization of lifelong education in the country's constitution. In addition, the government set as its top priority the formation of sound character through education, as well as the reform of general education, emphasizing science and lifelong learning. Some of the actions taken during this period helped to:

- launch exclusive education programs through the Educational Broadcasting System (EBS);
- introduce the July 30 Education Reform (1980), with a graduation quota system for colleges and universities;
- initiate an education tax to secure financial resources for educational investment;
- abolish entrance examinations administered by individual colleges, requiring universities to reflect high school achievement in entrance examinations; and
- promulgate the Non-formal Education Act and Kindergarten Education Support Act.

The Korean government has emphasized human education since 1990, which was pursuing to cultivate future citizenship on the basis of upgrading the quality of education in the 1980s. Particular concerns were the pursuit of qualitative development—rather than quantitative growth—and the fulfillment of high public demand for education by extending compulsory education, popularizing secondary education and increasing opportunities for higher education. The ultimate goal of schooling in this period was to contribute to personal self-realization and national development. Consequently, the direction of educational policies was established: attainment of sound character, quest for excellence, realization of equality, and enhancement of hope for a better future (MOE 2000).

In 1995, the government began comprehensive education reform to eradicate chronic educational problems. The underlying principle of the reform was to enable all students to cultivate their capabilities and creativity, and improve the flexibility of the education system. In this way, they could enjoy learning through their own interests at any time and in any place. The school was regarded as the unit of change, and the focus was on changing the culture that existed within primary and secondary schools.

In 1999, the Ministry of Education (MOE) launched a reform project for higher education, known as Brain Korea 21 (BK21). The government invested a total of \$1.2 billion over 7 years to develop world-class graduate schools and local universities, enhancing the graduate schools' research capabilities and building infrastructure for academic research. The government also started a project in 1999

to nurture regional universities that would meet the demand and needs of local industry, with \$285 million invested over a 7-year period (MOE 2000). Education reform was systematically implemented by the government to:

- establish strategic planning for human resources development;
- consolidate primary and secondary schooling to strengthen the nation's basic education;
- enhance the quality of college education to bring it to the level of economically advanced nations;
- encourage lifelong learning and vocational training to develop an ability-oriented society;
- invigorate the teaching profession;
- pursue informationization and globalization of Korean education; and
- set up an educational administration and financial structure for successful education reform.

## 7.3 Quantitative Expansion of Education

### 7.3.1 Educational Opportunity

Korea is one of the few developing countries that has implemented a policy of automatic grade promotion at all levels. Enrollment in primary schools is almost equally distributed across the six grades, and most children are the right age for their grade.

Beginning in 1968, entrance examinations to middle school for pupils from the primary level were eliminated. In effect, students were automatically promoted from the sixth to the seventh grade. Not all applied for entrance to middle school, however, perhaps because of higher fees or greater opportunity costs. But the proportion of students going to middle school was much higher than that found in most developing countries, and was equivalent to transition rates in the more economically advanced countries. Between 1964 and 1971, a total of 75.6 % of males and 55.8 % of females went on to middle school (Kim 1973a, b). By 1974, the figures had risen to 83.0 % and 67.1 %, respectively. These rates are practically

**Table 7.1** School enrollment rate: student/school-age population (in percent)

	Primary school	Middle school	High school	Tertiary education
1951	69.8	n.a.	n.a.	n.a.
1959	96.4	n.a.	n.a.	n.a.
1970	92.0	36.6	20.3	5.4
1980	97.7	73.3	48.8	11.4
1990	100.5	91.6	79.4	23.6
2000	97.2	95.0	89.4	52.5
2010	98.6	97.6	92.4	70.1

Source Korean Educational Development Institute (2010)

**Table 7.2** Advancement rate (in percent)

	Primary school → middle school	Middle school → high school	High school → tertiary education
1970	66.1	70.1	26.9
1980	95.8	84.5	27.2
1990	99.8	95.7	33.2
2000	99.9	99.6	68.0
2010	99.9	99.7	79.0

Source KEDI (2010)

equivalent to automatic promotion, and are consistent with the announced intention of the government to make middle school education compulsory by 1981. Since the 1990s, almost all applicants could enter both middle and high school. The rate of advancement to higher education grew rapidly, especially since the 1990s, and is now among the highest in the world (Tables 7.1 and 7.2).

### 7.3.2 *Facilities and Teachers*

The public cost of education has been lower in Korea than in other comparable countries. In 1970, public expenditure per student at all three levels of education was estimated to be as follows: primary school, \$40; middle school, \$77; and high school \$97. Low costs were realized in two major ways. First, teachers received relatively moderate salaries. Second, class size was very large, thus distributing the cost of instruction over a larger number of students (McGinn et al. 1980).

Class sizes were particularly large after the Korean War, as might be expected. There has been a steady increase in class size in all except primary school, in which enrollment peaked in 1970. An average class of 50–60 included a number of much larger classes. For example, in 1965, 11 % of primary school classrooms held more than 90 students, and another 26 % between 81 and 90 students (McGinn et al. 1980). Though class size and students per teacher have gradually decreased in primary and secondary schools, they have grown remarkably in colleges and universities. The main reason for pupil/teacher ratios in colleges being much higher than those in primary and secondary schools was the shortage of public investment in tertiary education (Tables 7.3 and 7.4).

### 7.3.3 *Financial Support*

The great expansion of education since 1945 could not have been realized if the state had assumed the entire burden of financing it. A number of developing countries today find themselves at an impasse, being unable to enlarge primary educational opportunity to attain universal enrollment because of its expense, which seriously strains the national budget (Kim 1973a, b).

**Table 7.3** Trends in class size (number of students)

	Primary school	Middle school	General high school	Vocational high school
1970	62.5	62.1	60.1	56.1
1980	51.5	62.1	59.9	59.6
1990	41.4	50.2	53.6	51.5
2000	35.8	38.0	44.1	40.3
2010	26.6	33.8	35.5	29.1

Source KEDI (2010)

**Table 7.4** Trends in students per teacher

	Primary school	Middle school	General high school	Vocational high school	Junior college	University
1970	56.9	42.3	32.0	27.5	24.2	22.4
1980	47.5	45.1	33.9	32.6	33.8	34.2
1990	35.6	25.4	25.4	23.4	52.7	41.1
2000	28.7	20.1	20.9	18.2	78.0	39.7
2010	18.7	18.2	16.5	13.1	61.2	36.2

Source KEDI (2010)

**Table 7.5** Share of students in private schools (in percent)

	Primary school	Middle school	General high school	Vocational high school	Junior college	University
1970	1.1	48.6	60.4	48.1	57.0	75.4
1980	1.3	38.8	61.8	56.5	83.7	71.5
1990	1.4	28.6	61.7	61.7	91.7	75.5
2000	1.3	22.1	57.1	50.9	95.9	77.7

Source KEDI (2010)

An explanation for the low public cost of education in Korea is that parents are expected to contribute to the support of schools and teachers, which is over and above their contributions through taxes. Until the 1990s, the Korean government provided fewer subsidies for secondary and higher education than other developing countries. Figures in Table 7.5 reflect the large private contributions to higher levels of education.

In addition to the cost of books and meals, parents have also had to pay for uniforms, transportation, school equipment, and other expenses. The parents' payment of these costs relieved the government of a considerable recurrent burden. The private share of enrollment in middle and high schools rose from 31 and 26 %, respectively in 1953 to 1949 and 55 % in 1970. These increases indicate the extent to which the government had "saved" on education (McGinn et al. 1980). The share of private institutions has been very high in tertiary education, mainly because the government allowed the establishment of private universities to supplement scarce public funds.

As the Korean economy grew rapidly after the 1960s, and the number of students increased, expenditure on education expanded remarkably not only in its

**Table 7.6** Educational expenditure by funding source, as ratio of GDP (in percent)

	Funding source	Korea					OECD average	United States	Japan
		1977	1985	1990	2000	2001	2001	2001	2001
Total		4.60	5.73	4.86	7.10	8.20	5.70	7.40	4.70
	Public	2.44	3.13	2.97	4.30	4.80	5.00	5.10	3.50
	Private	2.16	2.60	1.89	2.80	3.40	0.70	2.30	1.20
Pre-primary		–	0.07	0.09	0.50	0.10	0.40	0.50	0.20
	Public	–	0.02	0.02	n.a.	n.a.	n.a.	n.a.	n.a.
	Private	–	0.05	0.07	n.a.	n.a.	n.a.	n.a.	n.a.
Primary and secondary		3.82	3.98	3.44	4.00	4.60	3.80	4.10	2.90
	Public	2.22	2.59	2.47	3.30	n.a.	n.a.	n.a.	n.a.
	Private	1.60	1.39	0.97	0.70	n.a.	n.a.	n.a.	n.a.
Tertiary		0.78	1.68	1.33	2.50	2.70	1.30	2.70	1.10
	Public	0.22	0.52	0.48	0.60	0.40	1.00	0.90	0.50
	Private	0.56	1.16	0.85	1.90	2.30	0.30	1.80	0.60

Source Lee (2005)

aggregate amount but also in relative ratio to gross domestic product (GDP). The share of total educational expenditure relative to GDP increased from 4.6 % in 1977 to 8.2 % in 2001. Classifying educational expenditure by funding sources, public financing increased to 4.8 % in 2001, which is slightly lower than the average percentage for countries of the Organization for Economic Co-operation and Development (OECD). In contrast, the ratio of private burden to GDP has been much higher than the OECD average, with the result that Korea expended the highest percentage of educational funds relative to GDP among OECD countries.

The government expanded public financing of education and placed a high priority on budget allocation. Private burden also climbed during the same period, especially for tertiary education. It is noteworthy that the ratio of public financing of higher education to GDP is relatively small compared to other countries of the OECD (Table 7.6).

### 7.3.4 Government Strategies

The sustained expansion of educational opportunities brought about universal school enrollment in Korea. Accepting the criteria of universal access to education as the achievement of 90 % enrollment, or a 90 % entrance rate to the next school level, primary school education was universalized in 1957, middle school education in 1979, and high school education in 1985. Since 1995, the entrance rate from high school to tertiary institutions began to exceed 50 %. The average number of years spent in the education system rose from five in 1965 to 10.6 in 2001 (Song 2003). This quantitative expansion of Korean education was helped by some government strategies that sought to:

- achieve universal access to primary school education at an early stage of educational expansion;
- employ a sequential, bottom-up approach to widen opportunities for primary education, followed by middle school and high school education;
- apply a low-cost approach to encourage access to education at the expense of the quality of classroom conditions;
- use private schools to extend access to secondary education to achieve targeted enrollment;
- procure legal provision to secure funding for education. The Law on Government Grants for Local Education Financing helped facilitate educational access as well as it set aside 12.98 % of total domestic tax revenue for elementary and secondary education; and
- commit to an egalitarian approach to expand access to education. This approach was encouraged by legislative action, such as the abolition of entrance examinations to middle school, and the adoption of the HSEP (Lee et al. 2010).

### *7.3.5 Unique Attributes*

Korean education has grown rapidly, in terms of school enrollment, facilities, and teachers. This growth has occurred at all levels, including in primary and middle schools, academic and vocational secondary schools, as well as in higher education. The rate of growth was as high as—or higher than—that in most countries at all levels of schooling.

A number of unique attributes of education in Korea may have contributed to the system's capacity for rapid expansion after 1945, despite the low levels of national income. They all turn on a very high social demand for education, best explained by the centuries-old tradition of respect for the educated man, combined with a recognition that social and economic positions in modern Korea were closely linked to levels of educational attainment.

One can ask why social demand has been so strong in the Korean case. Part of the answer is no doubt cultural—that is, the recognized importance of study and respect for the scholar in the Confucian tradition. Moreover, the country's traditional system of social class was all but destroyed in the upheavals created by foreign military occupation, the Korean War, and the national partition of the South and North. These histories might well have weakened many of the influences that would strongly condition social mobility in other countries, leaving education as a uniquely important means of personal advancement. This would also explain the fierce competition for places at the higher levels of the school system, which may do little to actually make people more productive, but play an important role in their success in gaining access to high income jobs and enviable social positions (McGinn et al. 1980).

Associated with this importance of education is the privileged social position of the teacher, a cultural heritage from the Chinese, reinforced under the Japanese. In Korea, the teacher's social status has been high, and it has been possible to attract



large numbers of educated people to teach even in primary schools (Kim 1996). Similar situations can be found in relatively few other countries.

This attribute goes hand-in-hand with the ability of Korean teachers to command absolute respect from their students. While teachers in many other parts of the world may spend much of their class hours on problems of discipline rather than instruction, the Korean teacher can expect that students will discipline themselves.

Some of the unique features of education in Korea should, in terms of conventional wisdom, contribute to insufficient educational conditions. For example, class size in Korean schools is very large, and on an average, teachers face about twice as many students as the standard which educational specialists claim is desirable. Classes are large not only in primary schools but also in secondary and technical/vocational schools. Second, although many educators favor automatic grade promotion as a device to reduce inequality—introduced by “streaming” and “screening” in education—it runs counter to recommendations for “ability grouping” and “special training” for the more talented students. Automatic grade promotion has now been applied in Korea at all levels of the system. Third, educational specialists argue that the most effective education is to teach students how to think, rather than what to think. The emphasis on rote memorization, learning of facts rather than principles, encyclopedic curricula—all of these are seen as counterproductive, and are often cited as typical of education in backward areas (McGinn et al. 1980). These criticisms have been made against school education in Korea.

However, there are other features of Korean education that would be looked upon positively by most education specialists. The most striking feature is the extent of private spending on schooling. Korean families have had to carry most of the financial load, paying fees even in public schools and relying heavily on private schooling when the government was slow to expand public school capacity. It is the willingness of large numbers of Korean families to pay these substantial amounts, which are large, especially relative to their modest incomes.

## 7.4 Qualitative Development of Education

### 7.4.1 *Content and Quality of Teaching Until the 1980s*

The most distinctive content and method of instruction in Korean schools, from that found in many other developing countries, may be that the curriculum tends to reinforce social integration rather than weaken it, as all students are treated equally. While students are in school, they enjoy or suffer the same destiny. Less clear is to what extent students in Korea learned the contents that were considered important for economic development. It has been recognized as a label of Korean education that a curriculum based on the lecture method of instruction and rote memorization by students, combined with preparation for an eventual examination, enhances the legitimacy of the teacher, and facilitates the handling of large classes. Classes of 50–60 students would be impossible in primary schools if

teachers were obliged to work with each student individually, or if students were encouraged to pursue their own interests and to challenge the teacher as the sole source of knowledge (McGinn et al. 1980).

Although objectives were set for the introduction of a vocational/technical emphasis in schools, not much progress had been made toward these objectives until the country's economic takeoff. The emphasis on individualism and productivity in the curriculum of the 1950s was replaced by greater emphasis on collectivity and conformity in the 1960s. There were—and apparently still are—considerable disparities between objectives held by the national executive and those held by administrators and teachers (and parents) at the local level, where education takes place. What distinguished the curriculum in Korean schools from that of countries whose attempts at development had failed was not its emphasis on science and technology until the 1970s. With a growing demand for skilled workers since the 1970s, however, the government began to lay stress on vocational education, followed by financial support to modernize school equipment and facilities by means of the national budget or overseas loans (McGinn et al. 1980).

Korea made significant investment in the 1960s in family planning education. The effects of that campaign, in terms of reduced birth rates and declining population growth rates, began to appear after the economy took off. Also, the New Community Movement—*Saemaul Undong*—made a notable contribution to the use of nonformal education in an integrated campaign for total community development in the 1970s.

In sum, the expansion of education in Korea could occur at the lower levels of per capita income because the quality of education was commensurate with the economic levels of society. That is, in contrast with many other countries, Korea chose a policy of adaptation, rather than providing sufficient conditions during the decades from the 1950s to the 1980s. Korean education has not improved according to conventional indicators of educational quality, although the general quality is doubtlessly high. Class sizes have been relatively big and unit costs have not grown, if they are compared to the national economy and income levels of the people until the 1990s.

#### ***7.4.2 Government Efforts to Improve Quality of Education***

During the 1980s–1990s, the Korean government expanded its investment in education and established various administrative reforms and regulations in order to improve the quality of education. As shown earlier (Sects. 7.3.3 and 7.3.4), an increase in the education budget has brought about a striking improvement in school conditions, including facilities and teaching staff. As part of its institutional reform policy, the government upgraded junior colleges of education to 4-year colleges to train primary school teachers, and augmented teachers' salaries, making the teaching profession more attractive. The colleges of education responsible for instructing secondary school teachers have produced three times as many graduates with teaching certificates than the number of teaching jobs available. As a result, there has been intense competition for recruitment as teachers.

Since the latter half of the 1990s, information and communications technology has been widely used in school management and the development of instructional programs. The government launched a website, known as EDUNET, to deliver educational materials to the classroom and to provide educational information network services that are a major source of academic information for research purposes.

The EBS was established in the 1980s to broadcast educational programs that linked directly to classrooms in primary and secondary schools. As private tutoring was seen as a serious social problem, the EBS began to impart low-cost supplementary tutoring programs on television as an alternative to private coaching.

Korean education has witnessed the determining impact of college entrance examinations on the content and mode of teaching and learning in public education. The competitiveness of the entrance examinations has encouraged private tutoring. As the assessment of student achievement scores in high schools provides universities with data for selecting applicants, the government appealed to all universities to give greater weight to these scores, and to the performance of students in a variety of fields, rather than rely simply on the results of written college entrance tests (Lee et al. 2010).

Besides the internal assessment conducted by schools, external institutes are also used to conduct assessments of student achievement. Teachers' organizations are opposed to revealing details of student achievement, especially where there is disparity among classes, schools, or regions. Since the 1990s, various kinds of evaluation models have been applied to education programs. The administrative authorities have evaluated universities, provincial boards of education, and primary and secondary schools.

The first priority of the government in the early 2000s was to reform higher education to enhance its relevance to societal needs and the international competitiveness of the country's universities. BK21 (see Sect. 7.2.2) was a new project to support research-oriented graduate programs in select universities. The New University for Regional Innovation program, meanwhile, was designed to support universities in their effort to develop human resources in regional communities (Ministry of Education and Human Resources Development 2001).

The MOE has promoted specific policy measures to foster lifelong education within the context of the formal education system. Universities have begun to play a more important role in providing lifelong learning programs. The number of primary and secondary schools which participate in extracurricular activities has increased as well. In addition, corporations have been encouraged—and supported—in their provision of educational services through corporate college programs.

### ***7.4.3 Quality and Equity of Student Achievement After the 1990s***

The first results of the Program for International Student Assessment (PISA) 2000 were published in 2001, showing how well 15-year-olds in the OECD and other

countries could apply their knowledge and skills in key subject areas. The results revealed wide differences, not just among countries, but also among schools and students within countries.

In Finland and Korea, only around 5 % of students performed at the lowest level, and <2 % below it, but these two countries were exceptions. In all of the other countries, 10 % or more of students performed at, or below, the lowest level. However, the overall results of PISA 2000 were encouraging. The performance of countries, such as Finland and Korea, showed that excellence in schooling is attainable at reasonable cost. For example, Ireland and Korea were among the best performing countries, but spent <\$35,000 per student up to the age of 15 years, well below the OECD average of \$45,000 (OECD 2002).

Korea, Canada, Finland, Iceland, Japan, and Sweden displayed above-average levels of student performance in reading literacy and, at the same time, demonstrated a below-average impact of economic, social, and cultural status on the way students performed (OECD 2002).

In Korea, most of the variation was within schools but, more importantly, both within-and between-school variations were only around half of the OECD average. Korea, thus, not only achieved high average proficiency in reading and low overall disparity among students, but did so with relatively little variation in performance among schools. The three best performing countries—Finland, Japan, and Korea—showed a very moderate degree of institutional differentiation, combined with a consistently high level of student performance across schools and among students from different family backgrounds (OECD 2002).

The results achieved by students in Korea, along with Finland, Canada, and Japan, indicate that it is possible to combine high performance standards with an equitable distribution of learning outcomes. Quality and equity do not have to be seen as competing policy objectives.

The results of PISA 2006 also reveal rankings similar to PISA 2003, as shown in Table 7.7. The ranking of the upper 5 % of students has improved, especially in reading, but has dropped considerably in science. A striking outcome for Korea in PISA 2003 was that the country was ranked first in problem solving, despite a style of education that has been criticized for its lecture method of teaching and rote memorization by students.

**Table 7.7** Korean student achievement rankings, based on PISA's triennial assessments

Years	Group	Reading	Math	Science	Problem solving
2009	Total	2-4	3-6	4-7	n.a.
	Upper 5 %	6	5	18	n.a.
2006	Total	1	3	10	n.a.
	Upper 5 %	1	1	7	n.a.
2003	Total	2	3	4	1
	Upper 5 %	7	3	2	3
2000	Total	6	2	1	No test
	Upper 5 %	20	5	5	

Source OECD, PISA Reports, (2000, 2003, 2006, 2009)

## **7.5 Contribution of Education to Productivity and Economic Growth**

At the close of World War II, Korea was a poor and backward nation, just emerging from a history of colonial repression. But, despite limited resources, it had built in a relatively short period of time an exceedingly sound educational system, in terms of provision of educational access to children, usually found in countries with much larger resources and higher levels of national income.

Korea's economic growth had been so rapid that in the space of no more than a few years it has moved up from the ranks of the very poor into the range of middle-income countries in terms of income level, industrialization, and urbanization. The country has overcome not merely the results of a colonial legacy, but also the results of a bloody and destructive war in which most of its stock of human and physical resources was lost. Growth of education and expansion of the economy have been possible, despite the heavy burden of military expenditure associated with the Cold War, in the aftermath of the 1950s conflict.

### ***7.5.1 Education, Human Resources Development, and Productivity***

Prior to 1960, education expanded much more rapidly than the economy, to the extent that the educated unemployed were regarded as a serious problem. For several years, the number of graduates, especially in certain technical fields, exceeded the manpower requirements of the economy (Kim 1996). The situation has never been fully corrected, and has resulted from heavy expenditure on education. But some claim that it was the pool of available talent that made possible the economic takeoff in Korea. The remarkable and rapid economic growth has been based to a large degree on human capital, and education has assisted in the production of a literate and industrious people (United Nations Educational, Scientific and Cultural Organization 1974). The accumulation of educated manpower helped lay the foundation for rapid economic growth, which occurred after 1962. The export-oriented pattern of economic development during this period increased the demand for skilled laborers, technicians, engineers, managers, and entrepreneurs. Educational expansion, especially at the secondary and higher levels, had made these workers available. Accelerated economic growth effectively absorbed this educated workforce. Effective use of human resources was reflected in a decline in the unemployment rate and rise in value added per worker, at an average rate of 6.0 % per annum during the period 1963–1975.

Enrollment in vocational high schools has risen since 1965, matching the rise in gross national product (GNP). It has been the government's intention since 1965 to emphasize vocational over academic education at the secondary level, striving for a 60–40 (or 70–30) split in enrollment favoring vocational training. In an effort to

**Table 7.8** Rates of return measured by different researchers (in percent)

	Base year	Middle school	High school	College or university
Kwang-Suk Kim	1967	12.0	9.0	5.0
Florida State University	1969	20.0	11.0	9.5
Chang-Yong Chung	1971	8.2	14.6	9.4
Jong-Kun Bae	1977	2.8	9.9	13.8
Se-II Park	1980	2.0	8.1	11.7
Korean Educationa	1982	9.5	12.3	13.0
Development Institutel	1994	–	7.3	7.2

Source Korean Association of Educational Administration (2003)

overcome traditional resistance to vocational studies, the MOE had offered special incentives to students, including attractive and promising programs of scholarships and employment (Paik 1969). After the 1980s, Korea invested large amounts in skill training for workers, through out-of-factory training programs, apprenticeship schemes, or on-the-job training. Training there must have been, as hundreds of thousands of workers left rural areas to enter the nation's industries.

It is assumed that the value added through the process of education is recognized by the market. Therefore, one can look to the economic value of education as evidence of its contribution to productivity. This value is recognized in various ways. Those who are more highly educated are paid more than those who are less educated. People want education because they know that it contributes to their advancement.

In Korea, as elsewhere, there is a positive rate of return to education. However, the rates of return in Korea are lower than the rates of return to physical capital, unlike in other countries (Jeong 1977). Second, until the 1960s, the rate of return to higher education was lower than that to secondary education, but was reversed after the late 1970s. Finally, it was possible for individuals to have high rates of return to their investment in education without any equivalent increase in GNP, as can be seen in a number of countries with very low growth rates and high returns to education. What influences the rates of return for the most part are income differentials among people with varying levels of educational attainment (Table 7.8)?

### 7.5.2 *Contribution of Education to Economic Growth*

Although there are not enough data points to be certain, it would appear that the rate of growth of primary enrollment between 1945 and 1950 was greater than at any period after that time. From 1955 until about 1966–1967, enrollment grew at an almost constant rate, and several times faster than the population growth rate. The rate of growth of enrollment in middle school varied until 1964, bearing no apparent relationship to the development of the economy. Between 1964 and 1970–1971, middle school enrollment grew at the same rate as GNP. Again, it

seems reasonable to explain this association on the basis of access to school being determined by the success of the economy. Once the government had provided capacity for all children in primary schools, it began to spend more on middle school construction. When the entrance examination to middle school was eliminated in 1968, enrollment grew faster than GNP, perhaps because changes in the occupational structure of the economy had—by this time—made primary school education insufficient for urban or modern sector employment.

Enrollment in academic secondary schools increased at essentially the same rate as GNP between 1955 and 1965, but has slowed since then. The enlargement of college and university enrollment was highly changeable until 1967. There is no obvious relationship between GNP growth and enrollment fluctuation. Enrollment in higher education has been progressing at a quicker rate than GNP, and the quickest rise in enrollment was prior to 1957.

The educational growth rate reached its highest point more than 10 years before economic takeoff, and the delay was longer than would normally have been expected. A more plausible explanation is that social demand for education outstripped economic need in the early 1950s, resulting in a period of unemployment for the educated workforce. Only when the economy began to heat up, and require larger numbers of workers, was it possible to achieve some balance between GNP growth and growth in education.

Several attempts have been made to measure education's contribution to economic growth in Korea. These have provided different estimates of the magnitude of the contribution made by education, but they are consistent with the view that an important—although perhaps declining—proportion of economic growth after 1960 is attributable to the growth in education.

McGinn et al. conducted a comprehensive and systematic analysis of the contribution of education to development, especially to economic growth from 1945 to 1975. During the period from 1960 to 1974, according to the analysis, GNP grew by an average of 9.07 % per annum, while fixed capital, employment, and quality of labor due to education increased by 7.19 %, 3.55 %, and 1.18 %, respectively. The increase in capital is estimated to have contributed 2.88 % points to the GNP growth rate, and the increase in labor 2.13 % points. Of the remaining 4.06 points, a total of 0.71 % points of GNP growth rate were explained by the qualitative improvement of labor through education (McGinn et al. 1980).

Other research has measured the contribution of education to economic growth during the period from 1966 to 1994, as shown in Table 7.9. It concluded that the quantitative contribution of the labor force was low, but its qualitative contribution because of education and training was relatively high, compared to the period from 1966 to 1975 (Choi 1997).

The estimated percentages of the contribution of education to output growth in Korea exceed those evaluated by Denison for the United States and Europe (Denison 1966). But they are lower than the appraisals carried out in the 1960s by previous researchers. Part of the difference can be explained by an extension of the period in which the estimate is based, since the apparent contribution of education has been relatively minor in recent years.

## 7.6 Summary and Conclusion

Korea has maintained a centralized governance system in educational administration. The government has exercised strong control not only over national and public schools, but also over private schools. Educational policies and reforms in Korea have focused on expanding educational conditions and mitigating the intensely competitive entrance examinations, in response to an abnormally high demand for education. Typical examples include the 6-3-3-4 unitary school system introduced in 1948; the 6-year compulsory education plan from 1954 to 1959; abolition of middle school entrance examinations in 1968; setting up of the HSEP in 1974 and the graduation quota system for colleges in 1980; and relaxing regulations on establishing new colleges in 1995.

Some of the unique features in relation to the growth and development of Korean education would be the high aspiration and social demand for education, the respect for teachers, overcrowded classrooms, bad educational conditions, fast-growing advancement rates among students, a large number of private schools requiring private funding, and so on.

Educational conditions—including classrooms, teachers, and unit costs—have improved considerably in primary and secondary schools, even though they are inferior to those in advanced countries. Since the latter half of the 1990s, the ratio of public educational expenditure to GDP rose sharply, approaching the average ratios in OECD countries, and the share of private burden for education has been far greater than that in developed countries, maintaining Korea's prime position in the world.

Korean education has not been able to avoid the criticism that it has pursued quantitative expansion at the cost of qualitative deterioration. But the PISA analyses conducted by OECD reveal that Korea has been ranked at the top in educational performance in recent years.

Though the country's high level of education has not been a sufficient condition for economic growth, the growth of education in Korea has provided its economy with an important necessary condition for producing a sufficient and high quality workforce.

According to empirical studies, Korean educational growth was a response to social demand rather than manpower requirements, and approximately 0.7 % of annual GDP growth rate could be ascribed to the contribution of education since the 1960s, as shown in Table 7.9.

**Table 7.9** Contribution of labor to economic growth (in percent)

Year	Quantitative contribution	Qualitative contribution	Total
1966–1970	3.13	0.71	3.84
1970–1975	2.68	0.68	3.36
1980–1994	1.70	0.79	2.49

Source Choi (1997)



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