

Education and Economic Development in Korea

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There are different arguments and evidence to support various views of how education may have contributed to the development of Korea. This paper will ask three major questions : What are the major features of Korean education? How much and in what ways has education contributed to Korea's economic growth? How can we interpret the Korean experience with the contribution of education?

I. Growth and Opportunity of Education

The Korean government has maintained the open-door philosophy in education ever since national independence in 1945. The new government embodied this spirit into at least two conspicuous policies. One was the encouragement of establishing private schools. Due to the financial limits of government, expansion of public schools could not meet the public demand for education. It was inevitable to depend upon the private schools to fill this gap. Furthermore the anticipation of land reform induced many land-owners to invest in the establishment of educational institutions, which seemed to gratify both personal honor and economic interests. The other policy concerned compulsory primary education which was promulgated in the Constitution during the Korean War. Thanks to the Six-Year plan for Compulsory Education, enforced in 1954, 96% of the school-age children were enrolled in elementary schools by 1959.

The rapid expansion of education might be the most conspicuous feature of the 1960s. It might have been caused by both the people's aspirations for upward social

mobility by means of education and the increased income levels owing to accelerated economic growth. There was also the government's efforts to expand educational opportunities. Such expansion was not confined to primary education but encompassed all levels and continued at slower rates until the 1970's, as shown in <Table 1>.

<Table 1> Increases in the number of students by school level

(unit : 1,000 persons)

School Level/Year	1945	1960	1970	1980	1990
Elementary school (Index)	1,3661.0 (100)	3,622.7 (265)	5,749.3 (420)	5,658.0 (414)	4,771.7 (349)
Middle school (Index)	80.8 (100)	528.6 (654)	1,318.8 (1,631)	2,472.0 (3,058)	2,657.7 (3,288)
High school (Index)	*40.3 (100)	273.4 (678)	590.4 (1,466)	1,696.8 (4,213)	2,237.6 (5,556)
Higher education (Index)	7.8 (100)	101.0 (1,290)	201.4 (2,586)	602.0 (7,770)	1,467.4 (18,767)

* The figure is as of 1951.

The rapid increase of students in all levels of schools brought about a deterioration of school conditions: e. g., a shortage of accommodation facilities, unfavorable pupil/teacher ratios, and low per-pupil public expenditures. Though Korean education experienced remarkable expansion not only in enrollments but also in accompanying facilities and teachers, the public financial supports were low in contrast with many other developing countries even till 1970s. Some concluded that the public education system of Korea was more cost-effective and the Korea chose to emphasize quantity rather than quality, especially at the lower levels of the system (McGinn, 1980 : 68~79). Most public resources allocated to education were used for improving the condition of compulsory education until 1960s. High social demand for education at secondary and tertiary levels, coupled with the governmental inability or unwillingness to provide educational resources, resulted in a heavy parental burden to finance public education and in the development of a large private school system.

In Korean education, selection has been conducted mainly through standardized tests. In comparison to other countries, therefore, the selection process results in little discrimination by region, and in a relatively small amount of discrimination by social class.

College education in Korea, however, still has some limitations to the equal opportunity of education (Kim, S. B., 1983). To redress this, the Government has put

into force a series of policies for equalizing educational opportunities in broader sense, especially between Seoul and the provincial areas. For example, the Government has provided special subsidies to foster provincial colleges and universities. In addition, the higher education institutions in metropolitan areas have restrained from increasing their quotas of student enrollment. The Ministry of Education has also supported a professor-exchange program between Seoul and provincial areas. Despite these policies, however, inter-province gaps have existed in terms of the ratio between high school graduates and college entrants. In addition, inter-area and inter-school gaps in educational conditions have not been narrowed down to a satisfactory level. It has resulted in qualitative disparity between schools and extreme competition for entrance to the "first ranking" universities in Seoul. Since the preference of metropolitan universities is also intertwined with other socio-economic factors, we can hardly expect that it will not disappear in a short period of time.

II. Features of Korean Education

There are some unique features of education in Korea. Some of its attributes should contribute to low educational quality (McGinn, 1980 : 61~75). For example, class sizes in Korean schools have been very large; on the average, teachers face about twice as many students as developed-country 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 promotion as a device for reducing inequalities in education, it contradicts to recommendations for ability grouping and special training of the more talented students. Automatic promotion is prevailing in Korea at all levels of the system.

Third, educational specialists argue that the most effective education should teach students how, not what. Emphasis on rote memorization and learning of facts rather than principles, are seen as counter-productive and are often cited as typical education in backward countries. Yet these features had also characterized education in Korea.

On the other hand, there are other features of Korean education that would be looked on positively by most education specialists. Most striking is the extent of private spending on schooling. Strong "social demand" for education is a universal feature of low-income societies in the world today. In nearly every developing country there is steady growth in the demand for schooling, first at the primary level and then at progressively higher levels. Thus the government has tremendous pressure to expand enrollment capacity. This demand has been present in Korea, too, but what distinguishes Korea from most other countries was the pattern of educational finance.

In all countries education offers an opportunity to earn a higher income and attain a higher social status. In most countries this is a highly attractive opportunity because it is available at little cost to the students and their families. Most of the cost is borne by the public. Not so in Korea. Korean families have had to carry most of the financial load, paying fees even in public schools and relying heavily on private schooling. The government was slow to expand the capacity of the public schools. It is the willingness of large numbers of Korean families to pay substantially large amount, especially relative to their modest incomes. It may be the most impressive feature of Korean education.

We can ask ourselves why social demand has been so strong in the Korean case. Part of the answer is no doubt cultural—that is, the importance accorded to study and the role of the scholar in Confucian tradition. Korean society is unusually homogeneous in terms of language, race, and culture. These facts have weakened many of the influences that strongly condition social mobility in other countries, leaving education as a uniquely important means of individual advancement. This would explain the observed fierce competition for entering the higher levels of schools. People believe that more schooling is productive than practically any investment in the sense that, they will be successful in gaining access to high-income jobs and enviable social positions.

Associated with this importance of education is the privileged social position of the teacher, which is a cultural heritage from the Chinese and reinforced under the Japanese. In Korea the teacher's social status is relatively high so that it has been possible to attract large numbers of educated people to teach in primary grades, especially before 1970s.

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.

III. Education For Development

The development of education in Korea after 1945 moved from a traditional to a modern emphasis. The school system was expanded and new curricula were tried out. Although objectives were set for the introduction of a vocational/technical emphasis in schools, in fact, not much progress was made toward that goal until the economic takeoff occurred. There had been sharp disparities between stated objectives of education and real learning in schools.

In the 1950s after the Korean War, a pragmatic education policy emphasizing

industrial and technical education under the slogan of "one skill one person" was very appealing in the face of the urgent need to reconstruct the economy. The government frequently adopted "education for economic development" or "nation building through education" as one of the major educational goals in annual policy statements by the President or Minister of Education. Thus the ideology of "development education" began to put into practice with concrete policy measures. This was reflected not only in the designing of the curriculum, but also in the decision regarding student admission quota for colleges and vocational schools. The Ministry of Education was guided by the proposals of the Economic Planning Board specifically on the basis of the manpower development plan.

In reality, however, though the government has promoted education as fundamentally contributing to economic development, major trends have not been toward skill acquisition and development values so much as toward the identification of students with the future of Korea as a corporate state. Korean education seems to have played a greater role in national political integration than in the development of skill and individual creativity(Kim, S. B., 1989 : 63).

Korea seems to have invested relatively small amounts in skill training for workers, through out-of-plant training programs, apprenticeship schemes, or on-the-job training. Industrial training was not either well organized or systematically evaluated. Korea had relied on labor-intensive, low-technology enterprises of fairly modest scale. The skills required of workers were easily learned, given basic literacy and the manual talent.

Perhaps the most important type of out-of-school education in the Korean experience has been the one that directly supports students' performance in the formal school system. It refers to the extensive use of after-hours tutoring in academic subjects for entrance examination.

Though the Ministry of Education has tried to expand the resource input to education, sometimes by suggesting and supporting educational plans or reforms, its efforts have seldom had a satisfactory effect. The Compulsory Education Accomplishment Plan(1954-59), which was the first formal and energetic rehabilitation program after the Korean War, secured only 38 percent of the requested amount of funds(Paek, 1968, p. 37). The Five Year Educational Reconstruction Plan(1962-66) and successive mid-term plans in the education sector generated remarkable enrollment increases in excess of the targets, but it was not followed by corresponding increases in teachers and facilities. The long-term Comprehensive Education Plan(1972-86) fell to the same fate as many other previous plans(Kim J. C., 1971, p. 5). In short, inadequate financial support from the budgeting authorities has been the single most serious constraint to implementing educational policies as well as plans(McGinn, 1980, p. 39).

IV. Educational Finance

The total amount of educational investment including direct and indirect costs was estimated to be 14.9% of GNP in 1994. Direct cost, which consists of public and private educational expenditures, was 85.2% of the total educational investment and 11.8% of GNP in 1994. Public and private educational expenditures in direct cost were in the ratio 49:51. 68.8% of direct cost was borne by students and their parents(KEDI, 1994).

Public educational expenditure was composed of the budgets of the Ministry of Education(11,053 billion won), 15 Provincial Offices of Education(10,675 billion won)and private schools(4,726 billion won), and school supporting fees(2,086 billion won). The net amount of public educational expenditure on schooling was estimated to be 16,758 billion won(5.79% of GNP), after excluding overlapped portion and the costs of educational administration and services. The rate of educational expenditure borne by students and parents to total public educational expenditure was 15.4% for public schools and 66.7% for private schools, indicating that public schools receive more support from the Government. 69.6% of public educational expenditure was allocated for personnel expenses, 16.7% for operational expenses, and 13.7% for capital outlay.

The total amount of private educational expenditure is estimated to be 17,464 billion won, which was 6.3% of GNP. Private educational expenditure in this paper means educational costs, borne by students and their parents in addition to regular school tuition and fees, for textbooks, instructional materials, supplies, extra-curricular activities, private tutoring, school uniform, room & board, transportation, and others. Cost for private tutoring in elementary and secondary schools was estimated to be 45% of total private educational expenditure in the same school levels. Private educational expenditure has increased over time in terms of both total amount and per student expenditure, mainly due to the increase of private tutoring costs.

The amount of opportunity cost which refers to earnings foregone was estimated to be 3.1% of GNP. The higher the schooling levels, the higher the opportunity cost per student. Regardless of school levels, the opportunity cost of female student has been estimated to be higher than that of male student.

The amount of educational expenditures and their funding sources have been changed over time as shown in <Table 2>. At first, the ratio of total educational expenditures over GNP remarkably increased from 7.1% in 1977 to 13.7% in 1985, decreased to 12.1% in 1990, and again modestly increased to 14.9% in 1994. This trend appeared similarly in the change of direct expenditures, while the weight of public funds among direct expenditures had continuously shrunked, the ratio of private burden had risen during 1977~85 and fallen since then(KEDI, 1994)

〈Table 2〉 Trend of Total Educational Expenditures

(unit : billion won, current price)

	1977	1982	1985	1990	1994
GNP(A)	17,806.6	52,182.3	78,068.4	171,488.1	289,500.0
Total Expen.(B)	1,257.4	6,946.4	10,726.4	20,818.0	43,101.6
Direct Expen.(C)	1,257.4	5,640.0	9,355.9	18,124.3	34,086.9
Public Expen.(D)	846.1	3,502.3	4,659.9	8,697.2	16,649.4
Private Expen.	411.3	2,137.6	4,696.0	9,427.1	17,437.6
Opportunity Cost.	-	1,306.4	1,370.5	2,693.7	9,014.7
Private burden(E)	790.8	3,736.5	6,812.9	12,813.8	23,462.5
B/A (%)	7.1	13.3	13.7	12.1	14.9
C/A (%)	7.1	10.8	12.0	10.6	11.8
C/B (%)	-	81.2	87.2	87.1	79.1
D/C (%)	67.3	62.1	49.8	48.0	48.8
E/C (%)	62.9	66.3	72.8	70.7	68.8

Source : KEDI (1994), p. 136.

V. Educational Contribution to the Economic Development

Since early 1960s when the "Economics of Education" was born as a separate academic field, many researchers have tried to analyze the economic returns of educational investment. As a result of these efforts, various approaches were developed to identify the relationship between the education and economic development. According to these approaches the educational contributions to the economic development were measured in many studies. These studies so far conducted, however, did not convert the various approaches into a uniform framework and the conclusion obtained from them were diverse according to their assumptions and methods.

Major streams of viewpoint concerned with relationship between education and economic development can be classified into human capital theory and dependency theory.

In view of human capital theory, Schultz and Denison insisted on the importance of

human capital formation and development. According to their contention, educational cost is not a consumption but an investment to increase economic productivity. Hansen estimated internal rate-of-return on educational investment in the U.S(Hansen, 1971). Psacharopoulos compared the results of the rate of return on educational investment in many countries(Psacharopoulos, 1985). Based upon the results of these studies, they found that there is a close relationship between the educational investment and economic growth. In relation to this, Harbison and Myers conducted inter-country comparison study on the relationship between the educational enrollment and economic growth(Harbison & Myers, 1964). The human capital theory, which is similar to modernization theory, had a great impact on establishing the development strategies in the developing countries in 1950s and 1960s.

In 1970s human capital theory was challenged by the Third World who failed to accomplish a successful economic development in spite of the their expanding the educational opportunities according to the development model of advanced countries. An objection to the human capital theory was formulated into the dependency theory in the developing countries and to the status conflict theory in the advanced countries. The dependency theorists insisted that expansion of educational opportunity in the developing countries does not accelerate their economic growth, but economic growth accelerates educational development.

Adopting the human capital theory, the joint research between KDI(Korea Development Institute) and Harvard University in 1980 estimated the contribution of education to economic growth(McGinn, 1980). Education's contribution to growth was calculated by multiplying the annual average growth rate of the education quality index by the share of labor earnings in the total value added of Korea(assumed to be 60 percent). The growth contributions attributable to increases in fixed capital formation and employment were also estimated, so that their values could be compared with the contribution of education to the annual growth rate. Table 3 shows the annual growth rates of these inputs and their estimated contribution to economic growth.

During the period 1960-1974, GNP grew by an average rate of 9.07 percent per annum, while fixed capital, employment, and the quality of labor due to education increased by 7.19 percent, 3.55 percent, and 1.18 percent, respectively. The increase in capital was estimated to have contributed 2.88 percentage points, or 31.8 percent, to the GNP growth rate, and the increase in labor 2.13 percentage points, or 23.5 percent. Of the remaining 4.06 points, 0.71 percentage points, or 7.8 percent of the GNP growth rate, was explained by the quality improvement of labor due to education.

The contribution of education to growth appeared to have been more significant in the period 1960 - 1966 than in the later periods. Compared with the accelerating trend

<Table 3> Growth Rates of Factor Inputs and Their Contribution to Economic Growth

	1960 - 1974	1960 - 1966	1966 - 1970	1970 - 1974
Growth of inputs and output (annual percentages)				
GNP	9.07	7.25	10.78	10.14
Capital	7.19	3.75	10.43	9.27
Labor	3.55	2.11	6.26	3.06
Education	1.18	1.72	0.82	0.73
Percentage contribution of factor inputs to output growth rate				
Capital	2.88	1.50	4.17	3.71
Labor	2.13	1.27	3.76	1.84
Education	0.71	1.03	0.49	0.44
Others	3.35	3.45	2.36	4.15
Contribution of factor inputs to output growth rate(GNP growth=100)				
Capital	31.8	20.7	37.8	36.6
Labor	23.5	17.5	34.9	18.1
Education	7.8	14.2	4.5	4.3
Others	36.9	47.6	21.9	40.9

Source : McGinn (1980), p. 123.

of per capita GNP growth, the increase in utilization of educated manpower had been rather slow since 1966. The estimated percentage that education contributed to output growth in Korea exceeds those estimated by Denison for the United States and European countries.

In 1985 a research team of KEDI(Korean Education Development Institute) estimated educational contribution to economic growth by using Denison's approach(KEDI, 1985). According to the estimation, the real national income in Korea increased at an average annual rate of 8.85 percent during 1963-1981 and composition change in educational level contributed 0.49 percent point to the growth rate of real national income. It means that education accounted for 5.0% of national economic growth per year in Korea during 1963-1981. In addition, advancement of knowledge and residual factor contributed 14.1% to the real national product in the same period.

Besides, the research team tried to consider the linkage effect of educational industry. Educational industry induces to increase the production activities in other

industries. The production inducing coefficients of educational industry were estimated to be 1.49 in 1970 and 1.52 in 1980. It means that indirect contribution of education to economic growth corresponded to half of direct contribution of education to economic growth. Therefore, educational industry had been contributed 2.3 percent point of Korean economic growth during the two decades.

In Korea, as in all other countries, people with more education tend to earn higher incomes than people with less education. Rate-of-return studies, based on the human-capital theory, attempt to compare lifetime earning differentials between different levels of schooling, with additional costs of education.

<Table 4> shows the estimates of the social and private rates of return to education by school levels and sex. The rates of return to high school tend to be higher than those to junior college and 4-years college & university from both social and private points of view in 1994. Oversupply of college graduates and decrease in wage gap between high school and college graduates since 1980s resulted in lower rates of return to college education. Rates of return to secondary education had been lower than those to higher education over time until 1980s, suggesting that the demand for graduates of lower schooling levels is declining and for graduates of higher levels is increasing as the structure of economy has changed(KEDI, 1994 : 201).

In Korea, as elsewhere, there is a positive rate of return to education. But the rates of return in Korea are lower than rates of return to physical capital. This is a finding unlike other countries. Besides, the rate of return to higher education is lower than that of return to secondary education.

What most influences the rate of return would be income differentials between persons with different levels of educational attainment. In Korea those differentials are less than in other countries. In other words, there is a more equitable distribution of

<Table 4> Rates of return to Education in Korea(1994)

(unit : %)

School Level	Social Rates of Return		Private Rates of Return	
	Male	Female	Male	Female
High School	7.3	6.8	8.1	11.6
Junior College	5.5	9.4	5.1	9.4
College & Univ.	7.2	6.8	6.9	7.0

Source : KEDI (1994), p. 201.

income in Korea than in most developing countries. The equal opportunity of access to education contributes to equity in income distribution and mobility between social classes.

VI. A Critical Interpretation

Education expanded much more rapidly than the economy prior to 1960s to such an extent that educated unemployment was regarded as a serious problem. For many years the number of graduates, even in certain technical fields, exceeded the manpower requirements of the economy. It was the pool of available talent that made possible the economic takeoff of Korea. However, this pool might be a necessary condition, but it could not be sufficient.

Korean educational system has many praiseworthy features. Even though the rote learning tradition and heavy reliance on paper test seem to hinder creativity and productivity, the system has been relatively open to students from varying social backgrounds (much more so than in other developing countries). And there is no doubt that the students learned much in Korean schools.

There is little evidence, however, to conclude that the formal education imparted by Korean schools, from the 1st grade through the university, was directly functional for the kind of industrial employment associated with economic growth. Korean schools teach a great deal, but not what workers need to learn in agricultural and industrial employment.

Korean education, though recent progress is no doubt remarkable in quality, has not improved according to conventional indicators of educational quality. Class sizes had remained almost same until 1980s and unit costs had not grown proportionate to the national income.

Although the national government has exercised tight control over both public and private education, this control does not seem to have been intended to insure high quality. Plans have not been followed and in some cases were not financed. There is no systematic evaluation of the outputs of education. Private education has grown, proportionately, more than public education. The contribution of education to the economy in Korea cannot be claimed as a result of careful planning and public investment.

The relationship between economic development and education system in Korea can be summarized as follows. Both the expansion of education and the growth of the economy are unique events in the history of development. There is a significant relationship between the two phenomena, but it is not a simple cause-and-effect linkage. The evidence is not consistent with a conclusion that education generated

growth, through some transformation of individuals from traditional to productive men or through the formation of "human capital." Education in Korea does not appear to have expanded as a response to technological improvements in the economy requiring higher levels of ability among workers. Nor is there an evidence that increases in the number of educated people anticipated the economic boom of the 1960s in some causal way. The latter statement does not deny, of course, the reality that the availability of large numbers of literate and educated workers facilitated the growth of the economy.

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