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# Education and Inclusive Growth – Korean Experience

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## **Education and Inclusive Growth – Korean Experience**

Sung Joon PAIK (KDI School)

The Korean education system has developed very rapidly in both quantitative and qualitative terms since the 1950s and made considerable contribution to inclusive growth in Korea. **In what ways has the Korean education system played a positive role in approaching the inclusive growth in Korea?** Considering that the fundamental theme of the inclusive growth is to guarantee equal opportunity, this paper analyzes key educational policies and their results in terms of (1) equal access to education, (2) equal educational treatment, and (3) equal educational outcomes. Key questions and findings are as follows: **What policies has Korea adopted to increase access to education and to provide equal educational services?** After the Korean War, Korea adopted sequential educational expansion policies to provide educational opportunities step by step (universalization of primary education → middle school → high school → higher education). **What investment strategies has Korea used to support the implementation of those policies?** In order to support educational expansion policies, the Korean government maintained its commitment to educational investment by shifting its investment priority in the same sequential manner from primary education to higher education. To secure the budget needed the government utilized private contributions from private foundations and parents. **What education policies has Korea used to meet manpower demand?** Korea's sequential education expansion policies were matched with national economic development plans. As a result, education could contribute to supplying manpower needed and school graduates could have get employed, which led to the increase in personal earnings. **What are main results?** Korea's educational development policies resulted in the provision of equal education access irrespective of gender, geographical location and parents' SES, highest PISA scores with smallest variance and lower expenditure, and lower labor earnings inequality.

Key words: inclusive growth, equal access to education, educational expansion, investment strategy, manpower demand, economic development

## **I. Introduction**

The Korean education system has developed rapidly in both quantitative and qualitative terms since the 1950s. By the end of the World War II, most schools had been destroyed and educational facilities and equipment were practically non-existent. Just as the nation began to establish its own education system, the Korean War made the situation even worse. There was, however, a passionate intensity of educational zeal among the Korean people. Having the Confucian culture and acknowledging that education was the only way for social mobility, most Korean parents wanted their children to get educated as much as could be. Since the Korean War ended, thousands of new schools have been built by both the government and the private sector. Facilities and equipment of those schools have been constantly upgraded to improve the quality of education. In 1945, less than 25% of the population received formal education and less than 1% of them were able to get higher education. Today the enrolment rate of primary and secondary schools reaches virtually 100% and that of higher education is among the highest in the world. The development of education system has been able to meet the ever-increasing social demand for education and the manpower demand from the industry as well.

It is generally known that educational expansion strategies in line with economic development plans enabled Korea to provide equal opportunity of education to its people and large number of high quality manpower to industries. In what ways has the Korean education system played a positive role in approaching the inclusive growth in Korea? This paper first identifies and analyzes key educational development policies that have contributed to Korea's social and economic development from the perspective of inclusive growth. Then this paper will attempt to assess the outcomes of the policies in terms of equal access to education, equal educational treatment and equal educational outcome. In conclusion, it will draw meaningful policy implications for developing countries.

## **II. Sequential Educational Expansion**

This chapter provides a descriptive analysis of the key educational development policies in Korea since the 1950s. The key policies to be analyzed include '6-year Plan for Completing Compulsory Education,' adult literacy campaign, sequential educational expansion policies, and educational investment strategies. Along with the analysis, this chapter will point out crucial features of the policies that contributed to inclusive growth.

### **1. Early Commitment to Universalizing Primary Education**

Korea put great emphasis on primary education at a very early stage of its development, prior to its high growth phase. In 1954, the government established the '6-Year Plan for Accomplishing Compulsory Education(6-years of primary education): 1954-1959.'<sup>1</sup> With the target of increasing the enrolment rate up to 96.13% by 1959,<sup>2</sup> this plan included plans for students' enrolment, teacher supply, school facilities, and finance.

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<sup>1</sup> This plan was originally prepared in 1949 but its implementation was delayed due to the outbreak of the Korean War in 1950.

<sup>2</sup> Enrolment rate of primary school in 1951 was 69.8%. Enrolment targets were 88.44%, 91.76%, 93.47%, 95.84%, 96.0%, and 96.13% between 1954 and 1959.

In order to finance the compulsory education, the government introduced the 'Education Tax' as a special purpose tax(1958-1961)<sup>3</sup> and enacted the 'National Grant Law for Financing Compulsory Education'<sup>4</sup> in 1958. Between 1954 and 1959, the ratio of the compulsory education budget to education budget increased from 64.1% to 80.4%. Since then total government share in compulsory education expenditure steadily decreased. The budget share of primary education levelled off from a peak of 81% in 1960 to 54% in 1979. In addition, the Korean government utilized the existing classrooms at their maximum capacity(i.e. large number of students per class), adopted double-shift school system, and established short-term teacher training institutes. Through these policy measures, Korea was able to successfully complete the plan, achieving 96.4% of primary school enrolment rate in 1959.<sup>5</sup>

This type of investment strategy of the early and rapid expansion of primary education (first priority given to primary education) was distinguished from other countries. In 1960, the enrolment rate of primary school in Korea already reached at 96.0%, while the enrolment rate for primary school in Asia (except Arab), Africa(except Arab), and South America were 53.9%, 30.1%, and 58.5%, respectively.

The same investment pattern was found in other advanced Asian economies such as Japan, Singapore, and Taiwan. The effectiveness of this strategy was demonstrated on the basis of the early achievement of high retention rates in schools, high learning achievements, and robust statistical association between the enrolment rate of primary education and subsequent high economic growth.<sup>6</sup>

Despite the successful accomplishment of the 6-year Plan for Accomplishing Compulsory Education, educational environment such as classrooms, facilities and equipment was far behind the desired level. The government included investment plans to improve school conditions in the first 3 5-Year Economic Development Plans(1962-1976).<sup>7</sup>

The early investment in primary education turned out to be effective from both the social and economic perspectives: (i) universal primary education made it possible for people in Korea to share common set of knowledge and beliefs; (ii) this improved communication among people and provided a critical basis for national development; and (iii) in the dynamic context of the economy, universal primary education served as a basis for rapid economic growth by supplying a large number of young people with at least primary education at low wage levels.

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<sup>3</sup> Education tax(1958-1961) was a surtax and levied on such taxes as property tax and house tax.

<sup>4</sup> 11.55% of internal tax revenue was secured for compulsory education.

<sup>5</sup> Kim, Chongchul(1989). Korean Educational Policy Study. Education-Science. pp.96-112.

<sup>6</sup> Mingat, A.(1995). 'Towards Improving Our Understanding of the Strategy of High Performing Asian Economies in the Education Sector.' Presented at the ADB Conference on Financing Human Resources Development In Advanced Asian Countries(Manila, 17-18 Nov. 1995).

<sup>7</sup> Kim, Chongchul(1989). Korean Educational Policy Study. Education-Science. pp.115-117.

<Table 1> Changes in Enrolment Rates by Level of Education

		1960	1970	1980	1990	2000	2010
Korea	Prim.	96.0	104.0	110.0	108.0	99.5	104.3
	Sec.	27.0	41.0	76.0	87.0	100.6	97.2
	Higher.	4.7	7.5	15.8	39.2	72.5	100.0
World Total	Prim.	62.1	68.1	96.0	99.2	98.3	107.1
	Sec.	40.0	48.5	45.3	50.2	58.9	68.0
	Higher.	8.0	14.3	11.0	12.7	18.1	27.0
Asia (Except Arab)	Prim.	53.9	61.3	96.9	105.4	99.0	104.4
	Sec.	25.8	33.2	38.5	45.4	65.3	75.2
	Higher.	3.9	7.4	4.8	6.2	22.4	29.0
Africa (Except Arab)	Prim.	30.1	41.1	81.5	71.2	79.6	101.1
	Sec.	17.4	25.4	17.8	20.5	24.3	36.0
	Higher.	1.4	2.9	1.6	2.5	3.8	6.3
North America	Prim.	79.0	99.3	99.2	103.4	99.8	98.3
	Sec.	73.2	95.5	89.0	94.3	94.1	97.9
	Higher.	29.7	45.4	54.2	77.3	65.9	85.9
South America	Prim.	58.5	72.5	103.5	106.9	122.0	116.9
	Sec.	36.2	49.5	44.7	52.3	81.1	90.7
	Higher.	6.3	13.1	13.5	17.1	21.0	37.0
Europe	Prim.	90.0	95.4	102.8	103.2	103.8	101.0
	Sec.	62.4	74.2	85.7	92.4	98.7	98.3
	Higher.	12.5	20.6	22.0	28.6	42.8	61.7
Oceania	Prim.	89.2	88.9	110.2	108.9	93.8	90.6
	Sec.	61.2	71.0	66.4	72.9	110.3	95.5
	Higher.	8.3	12.0	21.8	29.8	46.5	57.2
Developed	Prim.	90.8	92.8	101.2	102.4	102.1	101.5
	Sec.	73.0	81.8	85.6	92.5	99.6	100.4
	Higher.	15.1	26.4	29.4	39.9	55.0	69.8
Developing	Prim.	46.8	57.8	94.8	98.5	97.7	108.0
	Sec.	21.6	31.7	35.7	41.9	51.6	63.2
	Higher.	3.6	7.2	5.1	6.9	11.2	20.0

Source: UNESCO(1976:1960~75 ; 1994:1980~90; 2010:1995~2010). Statistical Yearbook.

## 2. Adult Literacy Campaign in the 1950s

In 1945 when the Korean peninsula was liberated from the Japanese colonial rule under which the Korean language was prohibited, 78.2% of the Korean people were illiterate. Thus the most urgent task was to eliminate illiteracy and enhance basic competencies and civic virtues of people. The ‘Committee for Adult Education,’ established in 1945, initiated education activities to train adult education leaders and provide specific programs to teach the Korean language. Large number of religious and social organizations participated in the

movement. This joint effort of the government and civil society resulted in the sharp reduction of adult illiteracy rate from 78% in 1945 to 42% in 1948.<sup>8</sup>

Together with the policy strategy to expand primary education, the Korean government launched and implemented a massive campaign to eliminate adult illiteracy between 1954 and 1958 through policies to provide education programs by which illiterate adults could learn how to read and write the Korean in the civic schools, factories, military units, and prisons. Main contents of the literacy campaign programs for adults were to equip people with (i) capacity of reading comprehension equivalent to 2<sup>nd</sup> grade elementary school student, (ii) ability of arithmetic calculation needed for normal daily life, and (iii) civic virtues. These policy efforts resulted in continuous decreases in the adult illiteracy rate from 42% in 1948 to 4.1% in 1958.<sup>9</sup>

### **3. Sequential Educational Expansion from Primary to Secondary and Higher Education**

#### **3.1. Expansion of Secondary Education**

After accomplishing the universal primary education, the government shifted its investment emphasis to secondary education in the 1960s and 1970s. Since the 1960s, social demand for secondary education rose due to universal attendance in primary education. Demand for skilled manpower also soared as the industrial structure changed to heavy and chemical industry. The Korean government had to increase budget for secondary education to construct more school buildings and hire more teachers. In the 1970s and 1980s, as the number of high school graduates increased and the average income of households rose, the social demand for higher education skyrocketed. With the advent of the information era, the government needed to invest more in higher education to strengthen national competitiveness.

The full-scale expansion of secondary education was achieved with the abolition of the middle school entrance examination in 1968 and the introduction of ‘High School Equalization Policy’ in 1974. As primary education became universalized the competition for middle school entrance examination got severe, causing several social problems like parents’ heavy financial burden for excessive private tutoring and impediment in children’s mental and physical development due to students’ stress. The intense competition was caused not only by the limited supply of secondary schools but by the excessive demand for elite schools. The government was confronted with urgent need to solve the acute social pressure as well as to meet the increasing demand for skilled manpower from rapid economic growth. The government took reformative steps. It eliminated middle school entrance barriers and increased secondary schools through inducing private sector’s money.

Abolishing the middle school entrance examination in 1968, the government allowed elementary school graduates to continue their study in middle schools and allocated them to

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<sup>8</sup> Kim, Chongchul(1989). Korean Educational Policy Study. Education-Science. pp.335-336; Ministry of Education(1998). 50 Years of Education History in Korea. P.603.

<sup>9</sup> Ministry of Education(1998). 50 Years of Education History in Korea. pp.44-46 and 603-604. The illiteracy rate of 4.1% in 1958, which was on the government document, needs to be verified.

middle schools located nearby their residence by a lottery system. The new system can be regarded as equitable because student placement was decided based on residence (proximity to a school) rather than test scores that would have reflected parents' socioeconomic status. In order to achieve another aspect of the new system's purpose - 'equal educational treatment,' the government needed to provide more seats in middle schools and make all middle schools comparable in terms of school infra like facilities and teachers. Together with the private schools' active response to expand their capacity to provide education, the new policy promoted rapid expansion of middle school education. The number of middle schools increased rapidly from 1,208 in 1965 to 2,371 in 1985, while the number of private middle schools grew from 513 in 1965 to 730 in 1985. The enrolment rate of middle school increased from 41.4%(30.5% for female) in 1965 to 100.1%(99.6% for female) in 1985.

As the number of middle school students soared rapidly since 1969<sup>10</sup>, the high school entrance examination became competitive and similar social problems like heavy financial burden of parents and students' stress, that Korea had experienced when the competition for the middle school entrance examination had become severe, occurred. Thus, as mentioned above, the government introduced a policy known as 'High School Equalization Policy' in 1974, the main objectives of which were to equalize school infra such as education facilities & equipment, class size, and education expenditures across schools to provide equal educational treatment and to give students equal educational opportunities.

The government allocated middle school graduates who passed the standardized achievement test administered by local offices of education to high schools located nearby students' residence by a lottery system. In order to secure sufficient number of seats, the government expanded the enrolment quota by establishing new schools and encouraging private foundations to build schools. The number of high schools increased from 889 in 1970 to 1,830 in 1995, while the number of private schools grew from 418 in 1970 to 910 in 1995. The enrolment rate of high school rose from 28.1%(21.6% for female) in 1970 to 91.8%(91.3% for female) in 1995. Entrance rate of middle school graduates to high school increased from 70.1%(68.8% for female) in 1970 to 84.5% (80.8% for female) in 1980, 95.7% (95.0% for female) in 1990, and 98.5% (98.4% for female) in 1995.

What was important in implementing these two policies was to make education conditions equal across schools in terms of school infra. The school infra were refurbished to meet the standards set by the government. To achieve this purpose by reducing the disparity of financial capacity between public and private schools, the government began to subsidize private middle and high schools from 1971 and 1979, respectively.

Korea first achieved universal primary education in the early 1960s and then for the next two decades expanded middle and high school education rapidly. Higher education began to expand in the early 1980s, after the high school enrolment rate reached about 75-80%. This sequential movement of school enrolment is well described in [Figure 1].<sup>11</sup>

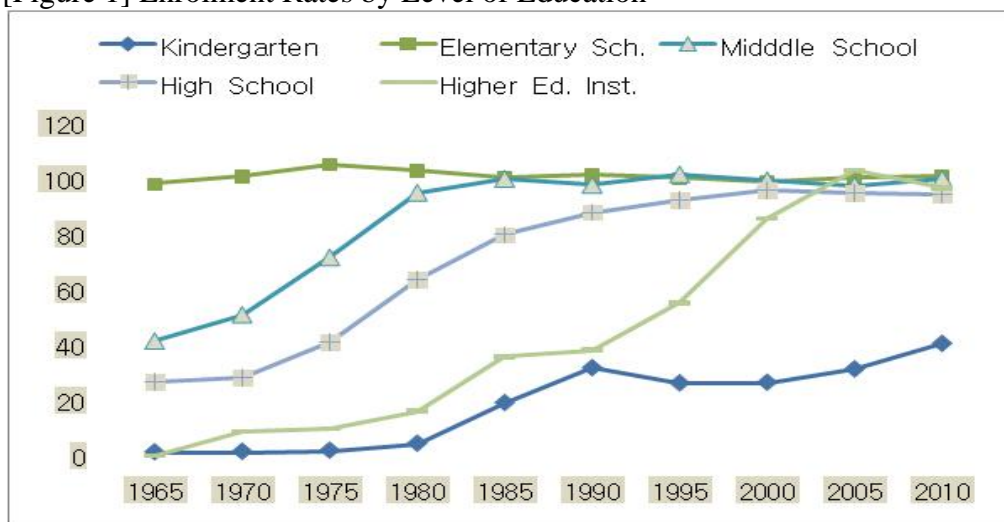
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<sup>10</sup> 751,341 in 1965 → 1,318,808 in 1970 → 2,026,823 in 1975 → 2,471,997 in 1980 → 2,782,173 in 1985

<sup>11</sup> For detailed data, refer to <Table 1> in Appendix.



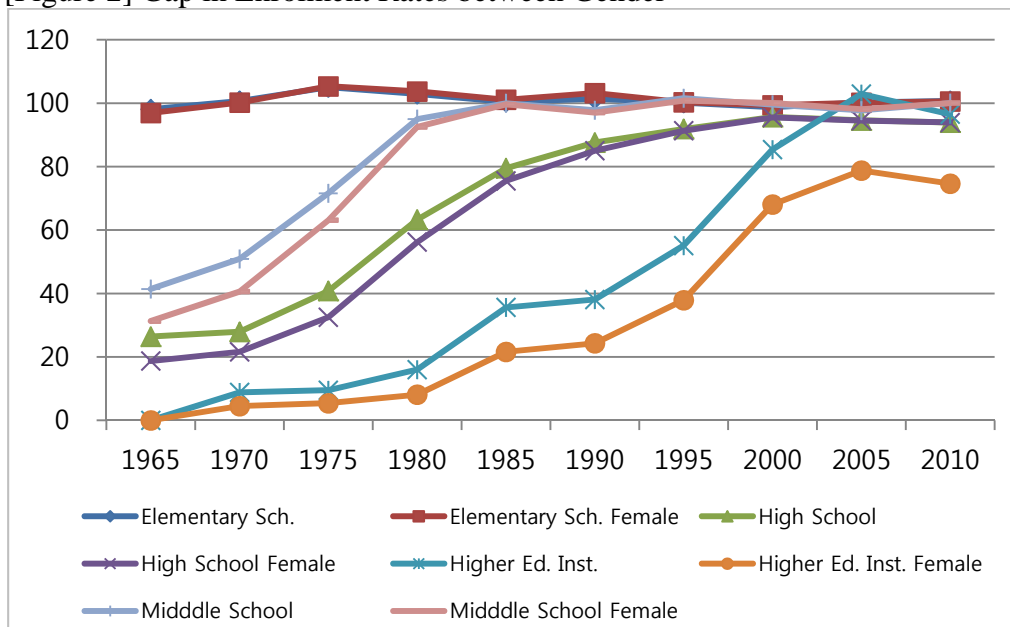
[Figure 1] Enrolment Rates by Level of Education



Source : Statistical Yearbook of Education(each year)

As [Figure 2] depicts<sup>12</sup>, the differences in the enrolment rates between male and female students by schooling level in general appear to be relatively small and disappeared except for higher education. The first investment priority given to primary education contributed to equalizing educational opportunities to both male and female students in primary education, thereby eventually in higher levels of education as well.

[Figure 2] Gap in Enrolment Rates between Gender



Source: KEDI Education Statistics Service

<sup>12</sup> For detailed data, refer to <Table 1> in Appendix.

As <Table 2> shows, in comparison with other developing countries, the female enrolment rate in Korea was much higher in all levels of education. Due to the high enrolment and completion rates of female students in primary education, Korea was able to supply quality manual workers needed in light industry like textile, footwear, and wigs.

<Table 2> Female Enrolment Rates by Level of Education

		1960	1970	1980	1990	2000	2010
Korea	Prim.	96.9		103.7	103.2	99.3	103.4
	Sec.	25.7		74.2	90.7	100.0	95.3
	Higher.			8.1	24.3	53.1	81.5
World Total	Prim.	60.3	64.0	88.4	93.3	94.2	105.1
	Sec.	41.2	45.7	39.8	45.4	56.1	66.8
	Higher.	9.2	13.4	9.7	11.6	17.9	28.1
Asia (Except Arab)	Prim.	49.3	53.8	86.7	97.6	95.4	102.1
	Sec.	23.7	27.6	30.8	38.3	65.5	76.7
	Higher.	3.1	4.9	3.1	4.6	22.1	29.3
Africa (Except Arab)	Prim.	29.3	42.5	72.0	64.1	72.9	96.7
	Sec.	15.0	23.7	13.0	16.9	21.9	31.7
	Higher.	0.9	1.9	0.7	1.2	3.0	4.8
North America	Prim.	99.5	99.3	98.8	103.1	100.6	98.5
	Sec.	94.4	95.2	90.2	94.1	-	97.7
	Higher.	34.8	45.0	56.4	86.0	75.3	100.6
South America	Prim.	64.7	78.2	102.1	105.1	120.0	114.8
	Sec.	40.2	54.4	45.1	54.5	84.0	94.4
	Higher.	7.4	17.5	11.7	16.1	23.0	42.2
Europe	Prim.	92.2	95.7	103.7	103.6	103.2	100.8
	Sec.	65.5	79.5	87.1	95.1	99.6	98.4
	Higher.	12.8	21.6	21.1	28.6	46.8	71.0
Oceania	Prim.	88.3	86.7	108.1	107.1	92.3	89.2
	Sec.	63.7	70.8	67.4	74.0	110.1	93.6
	Higher.	6.2	13.6	19.7	31.5	51.6	65.6
Developed	Prim.	91.6	93.5	101.6	102.6	102.4	101.5
	Sec.	78.5	85.0	87.0	94.5	100.3	100.4
	Higher.	20.1	26.9	29.4	39.9	59.8	78.8
Developing	Prim.	45.4	53.5	85.4	91.2	93.0	105.7
	Sec.	20.2	28.3	28.6	35.8	48.2	61.8
	Higher.	3.1	6.3	3.6	5.3	10.1	19.7

Source: UNESCO(1976:1960~75 ; 1994:1980~90; 2010:1995~2010). Statistical Yearbook.

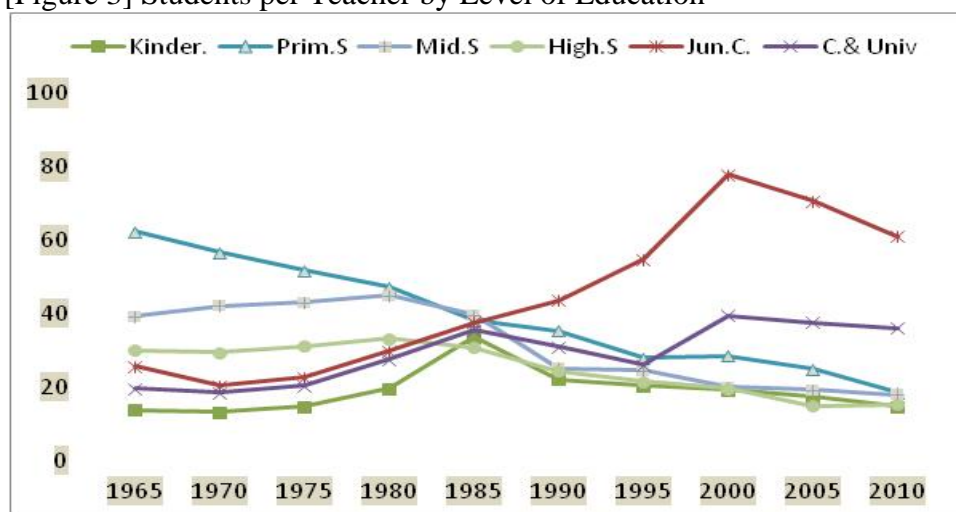
The same pattern of shifting investment priority from primary education to higher levels of education was found in other advanced Asian economies mentioned before. There appears to be sequencing relationship between education investment priorities and the successive stages of economic growth. Once achieving the universal coverage of primary education and a minimum threshold of per capita income, these economies shifted their emphasis to secondary education and consequently higher education.<sup>13</sup> This sequential education

<sup>13</sup> Mingat, A., *ibid.*

expansion was made possible thanks to the high degree of financial contributions from students & parents and private foundations which established private schools.

Although the rapid quantitative expansion has satisfied the increasing social demand for education, general educational conditions have not improved enough to guarantee effective teaching and learning. For example, as [Figure 3]<sup>14</sup> and <Table 3> shows, the number of students per teacher and per class for all levels of education, except primary school, increased until 1980-85, and then decreased (except junior college), but was high, compared to other developed countries. As the rise in the aggregate educational expenditures has lagged far behind the hike in its cost, schools in all levels of education have faced serious financial difficulties. The financial plight has had a negative effect on overall educational conditions and led to a shortage of teachers, classrooms, and other educational resources. The overall situation seems to have improved since 1985 except for junior college.

[Figure 3] Students per Teacher by Level of Education



<Table 3> Students per Class by Level of Education

Year	Kinder.	Prim. S.	Mid. S.	High. S.
1965	30.8	65.4	60.7	54.1
1970	34.1	62.1	62.1	56.2
1975	36.5	56.7	64.5	57.6
1980	38.4	51.5	62.1	59.8
1985	34.5	44.7	61.7	55.9
1990	28.6	41.4	50.2	51.8
1993	29.1	38.8	48.6	47.7
1995	28.5	36.4	48.2	47.9
2000	26.3	35.8	38.0	42.7
2005	24.2	31.8	35.3	32.8
2010	21.0	26.6	33.8	33.7

Source: Ministry of Education(each year). Statistical Yearbook of Education.

<sup>14</sup> For detailed data, refer to <Table 3> in Appendix.

### 3.2. Massification of Higher Education

Until the 1950s, the Korean government maintained ‘Laissez-Faire Policy,’ which means that the government did not control the enrolment quota of colleges and universities. During the 1960s, however, the government tightly controlled the enrolment quota because of the problems of the oversupply and high unemployment rates of college and university graduates. In the 1970s, the government selectively allowed the expansion of enrolment quota in restricted fields like engineering, natural sciences, business and foreign languages. Due to this policy, the higher education enrolment increased moderately until the late 1970s.

In 1980 the government expanded the university enrolment quota by about 30% with the adoption of ‘Graduation Enrolment Quota System,’ the main objectives of which were to meet ever-increasing demand for higher education and to remedy problems associated with severe competition for college entrance. Under the new system, the government allowed junior colleges and universities to admit 15% and 30% more students, respectively, under the condition that they had to expel 15% and 30% of students before graduation. This was to make students study harder while in colleges or universities.

As a result of this policy, the enrolment rate of higher education in Korea increased very rapidly in the first half of the 1980s, from 16.0% (8.1% for female) in 1980 to 35.6% (21.6% for female) in 1985. However, this policy resulted in serious issues such as the deterioration of higher education quality and the increase in unemployment of graduates. Colleges and universities failed to expel low-performing students and consequently all students admitted could graduate. Hence the government abandoned the new system and re-adopted its original ‘Admission Enrolment Quota System’ in 1988. The entrance rate of high school graduates to higher education institutions increased from 23.7% (22.5% for female) in 1980 to 36.4% (34.1% for female) in 1985, but after changing to ‘Admission Enrolment Quota System’ the rate decreased to 33.2% (32.4% for female) in 1990.

In 1995, the government changed its policy for the establishment of higher education institutions from the ‘permission’ system to the ‘standard criterion’ system in 1995, in which any private foundation that satisfies the standards for establishing and operating a college or university was allowed to open a higher education institution. After this new policy was implemented, the enrolment rate of higher education once again increased from 55.1% (37.9% for female) in 1995 to 85.4% (68.1% for female) in 2000.

## 4. Educational Investment Strategies

### 4.1. Sequential Investment

As explained above, Korea had expanded education in sequential manner with the priority first given to primary education and then secondary and higher education. Accordingly the government allocated large part of the education budget to primary education during the 1950s-1970s as demonstrated in <Table 4>. Since 1975, the proportion of educational expenditure for primary education began to decrease while that of educational expenditure of secondary education started to rise. Countries like Hong Kong and Singapore followed similar pattern of educational investment trends, whereas countries in Latin America and

Africa appeared to have invested much larger proportion of the education budget in secondary and higher education.

<Table 4> Percentage Distribution of Educational Expenditures of Developing Countries by Level of Education

		1965	1975	1985	1995	2000	2005	2010
Korea	Prim.	66.4	62.4	47.0	44.5	43.5	35.1	32.2
	Sec.	22.2	25.5	36.9	36.6	38.3	41.1	36.6
	Higher.	11.2	7.3	11.0	8.0	10.4	14.4	18.6
Hong Kong	Prim.	57.4	48.7	32.9	22.0	22.4	23.1	21.3
	Sec.	25.0	26.3	39.7	36.0	34.2	35.7	38.7
	Higher.	12.1	20.6	26.3	38.2	33.1	32.1	26.0
Singapore	Prim.	57.7	38.1	28.7	25.9	25.2	-	20.2
	Sec.	24.6	34.3	36.5	34.8	29.8	-	24.3
	Higher.	13.1	17.6	30.7	34.7	19.4	-	36.0
Chile	Prim.	35.7	34.9	51.0	55.2	43.5	37.1	37.1
	Sec.	17.9	13.5	19.5	16.6	34.8	38.7	35.8
	Higher.	25.6	25.2	20.3	18.6	12.9	14.7	-
Columbia	Prim.	39.6	44.2	39.7	36.9	-	47.9	38.4
	Sec.	18.1	21.5	31.2	31.4	-	35.9	35.0
	Higher.	24.5	10.5	22.5	19.2	-	13.5	19.6
India	Prim.	23.3	40.0	39.5	40.0	-	35.8	-
	Sec.	42.1	26.6	27.0	27.3	-	42.9	-
	Higher.	23.1	12.1	16.7	14.8	-	19.3	-
Ethiopia	Prim.	41.7	47.9	49.3	51.2	-	-	64.8
	Sec.	28.4	50.7	28.7	26.3	-	-	10.5
	Higher.	16.9	*	15.3	15.0	-	-	3.3
Ghana	Prim.	35.9	24.5	26.8	-	41.6	34.4	34.8
	Sec.	23.6	37.0	31.9	-	39.5	37.4	35.1
	Higher.	26.6	16.8	18.2	-	14.2	18.0	22.9
Kenya	Prim.	54.4	65.4	59.6	-	68.3	-	-
	Sec.	29.5	8.8	18.1	-	17.6	-	-
	Higher.	13.1	11.0	12.7	-	11.8	-	-
Malawi	Prim.	58.3	44.6	41.7	44.4	57.0	54.7	36.0
	Sec.	28.8	23.2	15.9	12.5	13.9	22.8	21.2
	Higher.	7.3	22.8	27.7	27.6	18.7	15.7	31.3
Zambia	Prim.	43.0 ('67)	45.3	-	-	-	-	53.2
	Sec.	37.0	33.9	-	-	-	-	25.8
	Higher.	6.9	7.8	-	-	-	-	21.0

Source: UNESCO(1976:1965~75 ; 1994:1980~90; 2010:1995~2010). Statistical Yearbook.

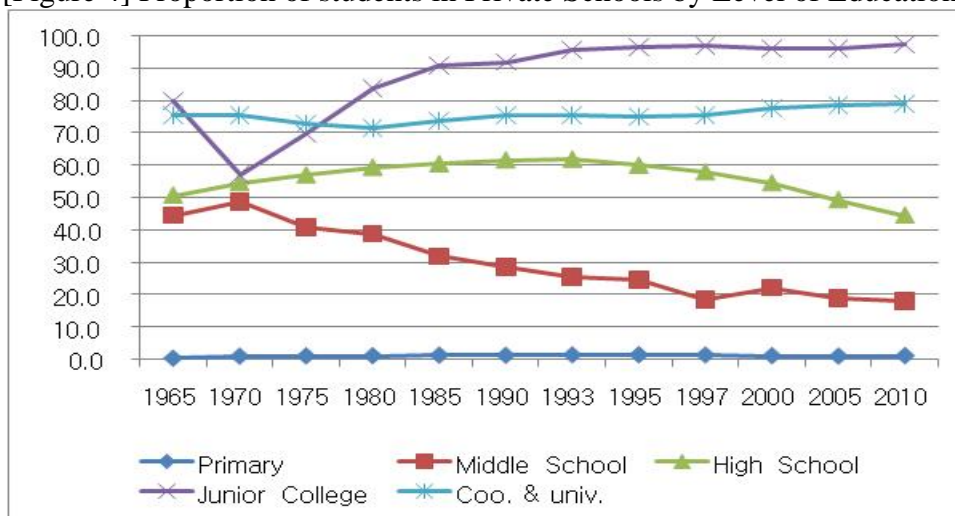
#### 4.2. Reliance on Private Sector in Funding Education

Primary education in Korea has been treated as a public good with large externalities and been the main target of public funding although there were contributions from households.<sup>15</sup>

<sup>15</sup> School fees were charged for textbook and other school items until 1979.

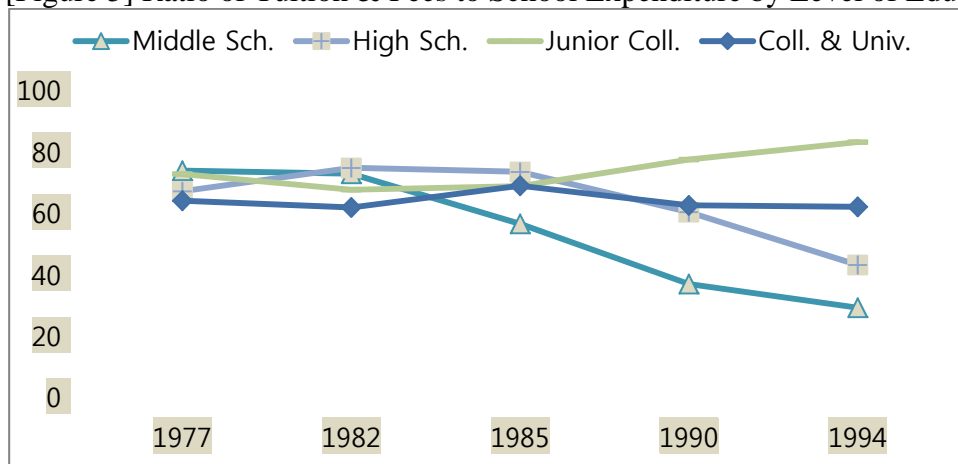
For secondary and higher education, on the contrary, a substantial amount of funding came from the private sector such as households(parents) and private foundations. Due to the budget constraints, the government encouraged the private foundations(private legal entity-school corporations) to establish secondary schools and higher education institutions. [Figure 4] indicates that private schools have made great contribution to expanding educational opportunities, especially high school, junior college and university, in Korea. Expenses for school operation were funded through user charges(tuition & fees) and government subsidies. The government has subsidized a part of operating expenditures for private primary and secondary schools, but not for colleges & universities. As [Figure 5] shows<sup>16</sup>, private financing accounted for more than two-thirds of total direct expenditures on education in Korea.

[Figure 4] Proportion of students in Private Schools by Level of Education



Source: Ministry of Education(each year). Statistical Yearbook of Education.

[Figure 5] Ratio of Tuition & Fees to School Expenditure by Level of Education



Source: Kong, E.B. & S.J. Paik(1994). Educational Investment and Rates of Return to Education in Korea, KEDI.

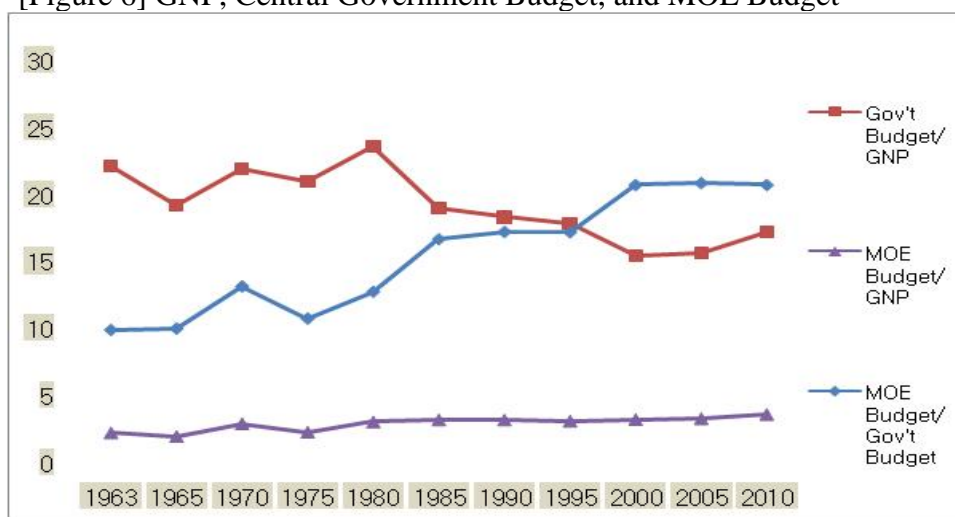
<sup>16</sup> For detailed data, refer to <Table 4> in Appendix.

By leaving higher levels of education to the private sector and targeting public resources for primary education, Korea was able to address one of the main equity issues - basic education for all. In addition, this heavy reliance on private funding in secondary and higher education has significantly contributed to expanding educational opportunities. This type of investment strategy has important policy implications for utilizing the limited amount of available government budget. If there would be a substantial level of demand for secondary and higher education, the introduction of the private providers to education market and user charges could contribute to enhancing efficiency of budget utilization and providing more equal educational opportunities in other countries where a considerable amount of educational expenditure on secondary and higher education are publicly funded. However, the private funding policy may raise serious issues of unequal access to higher level of education for the underprivileged. Policies for reducing the education cost of the underprivileged such as scholarships and student loan schemes need to be implemented.

#### 4.3. Steady Increase in Government Budget for Education

To meet the increasing social and economic demand for education, the Korean government has continued to increase the education budget. The emphasis on education in the central government budget has grown steadily as [Figure 6] illustrates<sup>17</sup>. The share of the Ministry of Education(MOE) budget to government budget continuously increased from 9.8% in 1963 to 17.1% in 1995 and 20.7% in 2010. The MOE budget as a percentage of the GDP also constantly increased from 2.2% in 1963 to 3.1% in 1995 and 3.5% in 2010. This trend reflects the government’s strong financial commitment to expanding education system.

[Figure 6] GNP, Central Government Budget, and MOE Budget



- Sources: 1) National Statistical Office, Major Statistics of Korean Economy, 2012.  
 2) Economic Planning Board, Major Statistics of Korean Economy, 2012.  
 3) Korea Development Institute, 40-year History of Public Finance in Korea, 1991.  
 4) Economic Planning Board, Government Budget Summary, 2012.

<sup>17</sup> For detailed data, refer to <Table 5> in Appendix.

Education expansion for primary and secondary schooling has been secured by the two major laws: the Local Education Grant Act(1971)<sup>18</sup> and the Education Tax Act(1958-1961 and 1981). Based on the former Act, the government earmarked a certain proportion of the internal tax revenue for the teacher salaries and recurrent expenditures of primary and secondary education.<sup>19</sup> Besides, the government has collected the education tax<sup>20</sup> to finance the improvement of educational conditions of primary and secondary schools like facilities and equipment, classroom and restroom. The central government allocated the revenue from the two sources to 16 local education authorities in the form of lump-sum grants, which have accounted for about 3/4 of the MOE budget. Until the foreign currency crisis in 1997, this finance system of securing public resources for education worked relatively well thanks to the steady increase in the tax revenue resulting from continuous economic growth. During the economic downturn between 1997 and 1999 when the tax base was shrinking, special measures such as deficit budgeting financed from public loans and treasury loans were taken to make up for the loss of education budget.<sup>21</sup>

#### 4.4. Efficient Use of Available Resources

As observed in [Figure 3] and <Table 3>, the pupils-to-class and pupils-to-teacher ratios were very large especially at the early stage of economic development until 1980. Similar pattern was found in other advanced Asian economies like Japan, Singapore, and Taiwan. Only when these economies including Korea became much richer, did the pupils-to-class/teacher ratios begin to gradually decrease to levels which are already achieved in other Asian developing countries even though the latter have much lower levels of per capita income.<sup>22</sup>

The interesting point is that despite the larger class size, pupils' achievement levels have been relatively high, compared to those of students in other countries. This is due to the high salary of teachers. As <Table 5> indicates, teachers in Korea have enjoyed much higher socioeconomic status than people in other occupations, especially during the development periods, and presumably this has been reflected in the higher quality of teachers. Thus, teachers have been able to provide high quality education despite larger class. This strategy, combined with other efficiency promoting strategies like larger class size, utilization of private funding sources, and double shifts, made a considerable contribution to effectively resolving the conflict between the urgent need for educational expansion and the scarce resources.

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<sup>18</sup> 'National Grant Law for Financing Compulsory Education'(1958) was transformed into 'Local Education Grant Act' in 1971.

<sup>19</sup> 11.8% until 2000, 13.0%(2001-2004), 19.4%(2005-2007), 20.0%(2008-2009), 20.27%(2010- )

<sup>20</sup> Education tax is collected as a surtax from a number of national and local taxes including property tax, special consumption tax, tobacco tax, alcohol tax, and gasoline tax.

<sup>21</sup> Kim, Gwang-Jo(2001.7). 'The Expansion of The Education System in Korea.'

<sup>22</sup> Mundle, Sudipto(1995). 'Financing Human Resource Development in Advanced Asian Countries: A Report,' presented in the ADB Conference on Financing Human Resource Development in Advanced Asian Countries(Manila, 17-18 Nov.)



<Table 5> Ratio of Annual Teacher Salaries to Personal Income(Per Capita GDP)

Year	Elementary Sch.		Secondary Sch.	
	Beginning	Average	Beginning	Average
1965	2.68	3.86	2.93	4.86
1975	2.02	3.34	2.43	3.71
1985	2.32	3.57	2.37	3.75
1995	1.86	2.85	1.86	2.85
2000	-	2.17	-	2.17
2009	-	1.96	-	1.95

Sources: OECD(2011). Education at a Glance.

Ministry of Education(each year). Statistical Yearbook of Education.

### III. Education and Manpower Supply

This chapter will explain how Korea's education system has contributed to supplying manpower needed for economic development in Korea with focus on the development period 1960s-1990s. After introducing six 5-year economic development plans in the first part, this chapter will explore into how sequential educational development policies have been connected with manpower supply needed to implement the national economic development plans.

#### 1. Economic Development Plans

The Korean government introduced its first national economic development plan in 1962 and since then successfully implemented 6 5-year economic development plans consecutively. <Table 6> summarizes 6 consecutive 5-year economic development plans in terms of strategies and major areas. The government focused on preparing the basis of industrialization in the first plan, and moved its focus from light industry to heavy and chemical industries and to technology-intensive industries.

Since the 1960s, Korea has experienced a phenomenal growth in its economy and radical changes in its industrial structure. Through a series of 5-year economic development plans since 1962, Korea had advanced onto the stage of economic growth with a record of success in terms of GDP. The annual economic growth rate averaged 8.3% during the first 5-year plan period. Since then the average of annual growth rate has hovered around 7.3% in the 1970s, 6.9% in the 1980s, and 7.1% in the first half of the 1990s. After the foreign currency crisis, however, as [Figure 7] shows, it fell down around 4-5%.

With the implementation of a series of 5-year economic development plans, the structure of industry has changed. As <Table 7> indicates, the composition ratio of employees in agriculture, forestry, and fishery has decreased sharply from 58.6% in 1965 to 10.6% in 2000 and 6.6% in 2010. For mining and manufacturing, the ratio increased from 10.4% in 1965 to 27.6% in 1990 and then has decreased to 20.4% in 2000 and 17.0% in 2010. As for services and others, the ratio has increased from 31.0% in 1965 to 69.0% in 2000 and 76.4% in 2010.

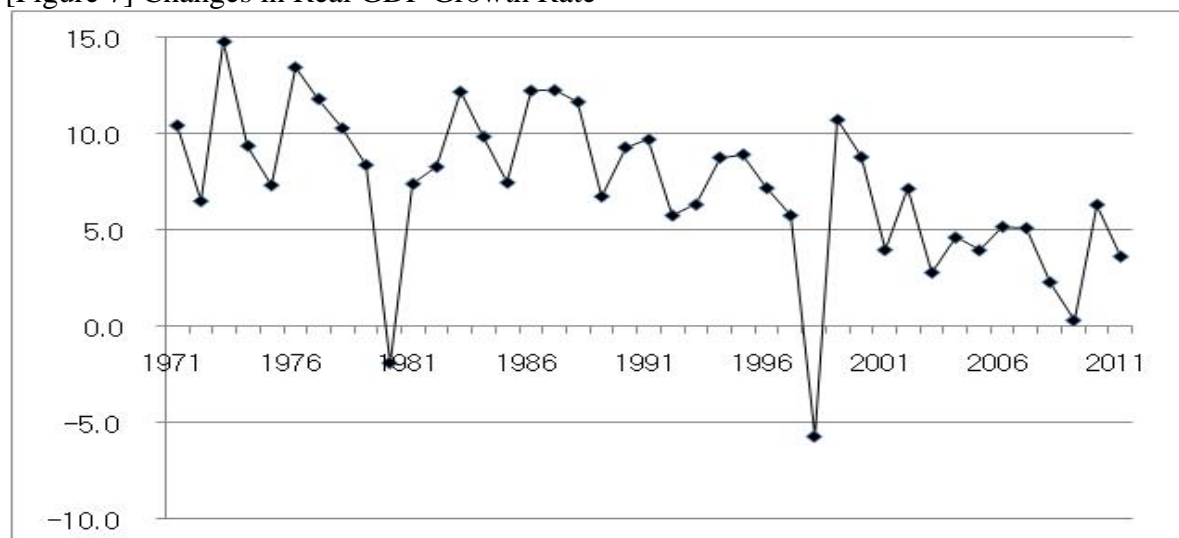
<Table 6> 5-year Economic Development Plans

	Strategies	Major Areas
<b>First Plan (1962–1966)</b>	Fostering basic industries & SOC	Electricity, fertilizer, oil refinery, synthetic fiber, cement, PVC
<b>Second Plan (1967–1971)</b>	Import–substitution of capital equipment & promoting export of light industry products	Synthetic, fiber, petroleum industry, electrical machinery
<b>Third Plan (1972–1976)</b>	Developing heavy and chemical industries	Steel manufacturing, transportation equipment, electronic machinery for home, ship building, petroleum industry
<b>Fourth Plan (1977–1981)</b>	Changing industrial structure & improving competitiveness	Steel manufacturing, industrial machinery, electronic machinery, ship building
<b>Fifth Plan (1982–1986)</b>	Developing knowledge/ information-intensive industries	Precision instrument, electronic industry, knowledge/information industry
<b>Sixth Plan (1987–1991)</b>	Rearranging industrial structure and improving national competitiveness	Machinery, electronics, transportation equipment, precision chemistry
<b>Seventh Plan (1992–1996)</b> <sup>23</sup>	Innovating technology and reinforcing S.O.C.	Electronic industry, knowledge/information industry

Sources: The Federation of Korean Industries, 40-Year History of the Korean Economy, 1985.

Korean government, The 6th Five-Year Economic Development Plan, 1987-1991, 1987; The 7th Five-Year Economic and Social Development Plan, 1992-1996. 1992.

[Figure 7] Changes in Real GDP Growth Rate



Source: Bank of Korea

<sup>23</sup> The 7th plan was revised to the 'Five-Year Plan for the New Economy' by the Kim Young-Sam administration in 1993.

<Table 7> Composition Ratio of Employed Persons by Industry, 1965-2010

(unit: thousand person, %)

	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010
<b>Total</b>	8,206	9,617	11,961	13,683	14,970	18,085	20,414	21,156	22,856	23,829
<b>Agriculture, forestry &amp; fisheries</b>	58.6	50.4	44.6	34	24.9	17.9	11.8	10.6	7.9	6.6
<b>Mining &amp; manufacturing</b>	10.4	14.3	18.7	22.5	24.4	27.6	23.7	20.4	18.6	17.0
<b>Service &amp; others</b>	31.0	35.3	34.4	43.5	50.6	54.5	64.5	69	73.5	76.4

Source: Korea National Statistical Office

Korea's economic development has influenced the changes in the occupational structure of the labor force. As demonstrated in <Table 8>, the ratio of managers, professionals and technicians has increased dramatically from 2.8% in 1965 to 18.6% in 2000 and 21.5% in 2010, which indicates that as the industrial structure has changed from light industry to heavy & chemical industry and to technology/information-intensive industry, occupations that require professional knowledge and new technology have increased. The proportion of clerical workers also increased from 4.0% to 11.9% and 15.7%, respectively for the same period. On the contrary, that of farmers and fishermen has decreased sharply and steadily from 58.5% in 1965 to 10.0% in 2000 and 6.0% in 2010.

<Table 8> Composition Ratio of Employed Persons by Occupation, 1965-2010

(unit: %)

	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010
<b>Managers, professionals &amp; technician</b>	2.8	4.8	3.6	5.3	7.3	8.7	16.4	18.6	20.9	21.5
<b>Clerks</b>	4	6	6.4	9.3	11.5	13	12.6	11.9	14.3	15.7
<b>Sales &amp; Service Workers</b>	18.4	18.8	20.1	22.4	26.3	25.7	22.1	26	24.6	22.5
<b>Skilled Agricultural &amp; fishery workers</b>	58.5	50.2	45.8	34	24.6	17.8	11.1	10	7.5	6.0
<b>Others</b>	16.3	20.2	24.1	29	30.3	34.8	37.9	33.5	32.7	34.2

Note: others – craft, machine operators and assemblers, and elementary occupations

Source: Korea National Statistical Office.

These changes in the structures of industry and occupation of labor force in Korea have been accompanied by corresponding changes in the level of educational attainment of employees by occupation. As <Table 9> shows, with respect to professionals and technical workers, the ratio of college graduates (including junior college) increased from 33.5% in 1960 to 81.8% in 1990, indicating that higher education has become essential in order to get these jobs. For administrative and managerial workers, similar pattern can be found. For sales workers, the proportion of elementary school graduates decreased sharply from 77.7% in 1960 to 13.2% in 1990, while that of secondary school graduates increased from 19.9% to 68.5%.

<Table 9> Composition Ratio of Employed Persons by Occupation and Education

Occupation	1960			1970			1980			1990		
	P.E.	S.E.	H.E.	P.E.	S.E.	H.E.	P.E.	S.E.	H.E.	P.E.	S.E.	H.E.
Total	84.2	13.4	2.4	57.7	34.4	7.9	40.3	50.5	9.2	19.9	60.2	19.9
Prof. & Tech.	12.6	53.9	33.5	5.5	38.2	56.3	2	29.5	68.5	0.7	17.5	81.8
Adm. & Man.	51.6	37	11.4	14.3	45.4	40.3	4.5	39.7	55.8	3.3	44.5	52.2
Clerical W.	22.2	58	19.8	9.3	89	31.7	4.1	72.3	23.6	1.5	59.6	38.9
Sales W.	77.7	19.9	2.4	45.6	46.1	8.3	32.2	60.4	7.4	13.2	68.5	18.3
Fervice W.	70.4	25.7	3.9	56.3	39.5	4.2	38.7	57.4	3.9	22.5	68	9.5
Farm. & Fish.	92.8	6.7	0.5	80.3	18.8	0.9	70.7	28.5	0.8	60.7	37	2.3
Others	80.4	18.5	1.1	52.9	43.9	3.2	36	61.7	2.3	16.4	77.8	5.8

Sources: Economic Planning Board, Population and Housing Census Report, 1960, 1970, 1980  
National Statistical Office, Population and Housing Census Report, 1990.

Note: Employment with no schooling is not included.

The overall educational level of employees in Korea has increased as seen in <Table 10>. This reflects that thanks to the universalization of secondary education and massification of higher education, people with high school diploma or college degree have increased rapidly and that occupations which require at least high school education have been increasing as the industrial structure has changed into more advanced level.

<Table 10> Composition Ratio of Labor Force by Education

	1980	1985	1990	1995	2000	2005	2010
Primary School Graduates & Under	51.3	37.7	29.1	20.5	17	13.3	10.9
Middle School Graduates	20.2	21.1	19.5	16.3	14.3	11.5	9.8
High School Graduates	21.8	30.9	37.7	43.9	44.1	42.8	40.4
College, University Graduates & Under	6.7	10.3	13.7	19.3	24.6	32.4	38.9

(unit: %)

Source: Korea National Statistical Office

## 2. Educational Policy for Manpower Supply

Lacking other natural endowments, Korea has utilized abundant high quality human resources as the basic force for its continuous economic development. Schools have provided educated labor forces as demanded by the rapidly industrializing economy. Over the past decades, the major educational policies for economic development in Korea have been directed towards: (i) providing universal primary education; (ii) expanding secondary education with strengthening vocational & technical education; (iii) reforming higher education including junior colleges; and (iv) strengthening education and R&D in science & technology.

## 2.1. Primary Education and the Labor-Intensive Light Industry

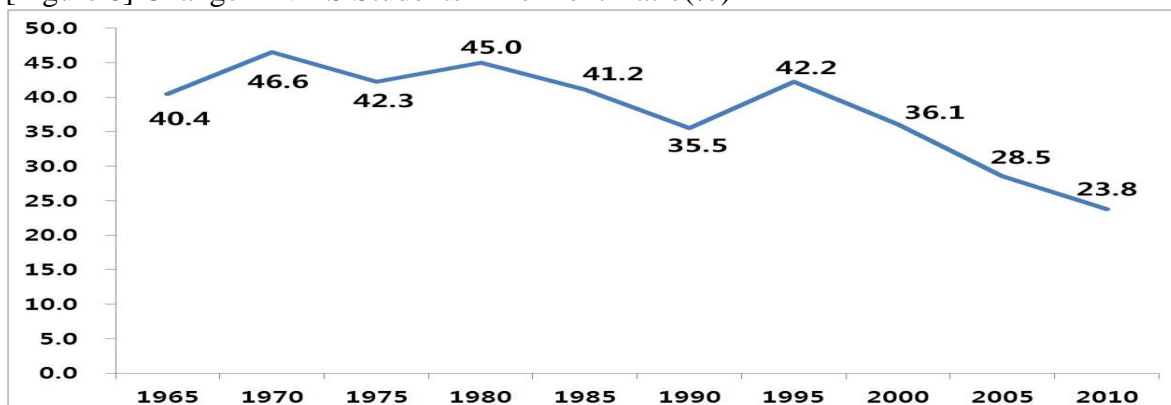
As discussed in the previous section, Korea achieved the early universalization of primary education in the late 1950s. This promoted the rapid economic growth through providing abundant unskilled but qualified manual workers to labor-intensive light industries like textile, footwear and wigs. Early universalization of primary education contributed to equipping elementary school graduates with literacy, positive attitude towards manual work, and values related to economic development. Especially as girls of all age cohort completed primary education, they became a major labor force for light industry development and contributed to the productivity increase in agriculture and informal sector. Girls' high completion of primary education resulted in reduction of fertility rate and population increase and hence in the increase in per capita income.

## 2.2. Secondary Education and the Capital-Intensive Heavy & Chemical Industry

In the 1960s and 1970s Korea experienced very rapid economic development with export-led growth strategy focusing on manufacturing sector. Hence there had been high demand for skilled workers and technicians and wage employment opportunities in formal economy increased.

However, in the early 1960s there was no formal and non-formal VET system in Korea. The Korean government introduced formal vocational education curriculum in high schools. During the 1970s the government endeavoured to expand vocational education in high school level with the following measures: 1) building more vocational & technical high schools; 2) strengthening experiment and practice education; 3) introducing industry-school cooperation system; 4) improving vocational high school teachers' competencies; and 5) increasing scholarship for vocational high school students. The ratio of vocational high school students to total number of high school students increased from 40.4% in 1965 to 45.0% in 1980.

[Figure 8] Change in VHS Students Enrolment Ratio(%)



Source: Statistical Yearbook of Education(each year)

In addition, the government established nine 5-year vocational schools (3-year high school courses and 2-year junior college courses) in 1963. The number of 5-year vocational schools increased to 23 in 1969. In 1970, this school changed to 2-year vocational junior colleges.

Nevertheless, Korea still was experiencing shortage of skilled workers and technicians in the 1960s. For example, demand for skilled workers in 1965 was 444,974, compared to the actual supply of 172,974 (the number of VHS students in 1965); demand for technicians in 1965 was 87,739, while the number of 5-year vocational school students were only 23,159.<sup>24</sup>

Due to the constant shortage of skilled workers and technicians and the government budget constraints to expand formal VET schooling, Korea needed flexible and efficient vocational training system in designing curriculum, recruiting trainers, and selecting trainees as well as more aggressive training policy requiring employers to provide vocational training to their employees. Thus, the Korean government introduced a vocational training system by enacting the ‘Vocational Training Act’ in 1967, which specified (i) establishment of public vocational training institutes and in-company training facilities, (ii) provision of public training, and (iii) bearing costs of training institutes and training.

Furthermore, the government established (i) ‘Central Vocational Training Center’ in 1968, which conducted research, collected and disseminated statistics & information, provided training for vocational training trainers as well as for skilled workers & technicians, supervised public vocational training institutes, and developed vocational training standards, and (ii) public vocational training institutes with foreign assistance from advanced countries (Germany, U.S., Belgium, and Japan) and international organizations (IBRD, ADB) in the 1970s.<sup>25</sup> Vocational training institutes together with employer-provided training, as <Table 11> shows, supplied a little less than half of skilled workers demanded during the third 5-year economic development plan period.

<Table 11> Demand and Supply of Skilled Workers (1972-1976)

	Total	1972	1973	1974	1975	1976
Total Demand	3,184.20	504.6	567.5	631.8	701.9	778.2
Supply	3,193.60	502.5	564.8	635.5	706.9	783.9
Employed	2,779.90	440.9	494.7	550.4	613	680.9
New Supply	413.7	61.6	70.1	85.1	93.9	97.3
V.H.S.	213.9 51.7%	29.2 47.4%	34.8 49.6%	45.1 53%	50.2 53.5%	54.6 56.1%
V.T.I. & Enterprise	199.8 48.3%	32.4 52.6%	35.3 50.4%	40 47%	43.7 46.5%	48.4 43.9%
Δ	9.6	Δ 2.1	Δ 2.7	3.7	5.0	5.7

Source: Office of Science & Technology(1971). The Third 5-year Manpower Development Plan. p.83.

What was important in the vocational training system from the perspective of inclusive growth was the enactment of the ‘National Technical Qualification Law’ in 1973 and its application to the labor market, to officially test and recognize the vocational education and training results of an individual no matter where s/he get trained so that s/he can be accordingly rewarded for her/his qualifications in the labor market.

<sup>24</sup> Suh, Sangsun(2002). Vocational Training System in Korea. KCCI. P.48.

<sup>25</sup> Suh, Sansun(2002). Vocational Training System in Korea. KCCI. P.p.117-156.

The vocational training system as a supplementary to vocational high schools played a crucial role in supplying skilled workers and technicians especially for steel, machinery and ship-building industries. The vocational training system provided second chance to early school leavers and unemployed youth without marketable skills and thereby reduced future social costs. As the competition with vocational high schools and junior colleges for students increased in the 1990s, the government changed the role of vocational training institutes to provide programs for incumbent workers to retrain themselves.

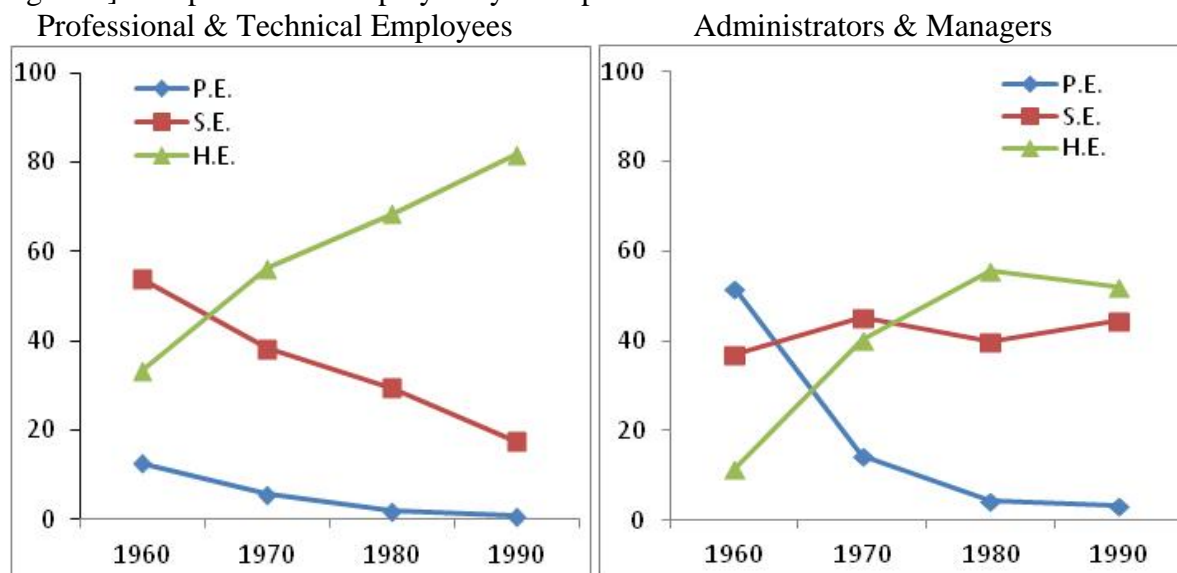
The policies including rapid expansion of secondary schooling, the strengthening of vocational education at the high school level, and the introduction and utilization of vocational training system in the late 1960s and 1970s all made positive contributions to the supply of skilled workers needed for national economic development.

### 2.3. Higher Education and Technology & Knowledge-Intensive Industry

From the 4<sup>th</sup> 5-year Economic Development Plan period(1977-1981), Korea began to change industrial structure to improve national competitiveness. Since the 5<sup>th</sup> Plan period(1982-1986), Korea developed knowledge/information-intensive industries, which require college level cognitive skills and knowledge, indicating higher demand for professionals and technologists.

In addition, as the Korean economy has developed toward more advanced level, the structure of production and management has become more complicated, indicating increasing demand for managers with higher capacities. [Figure 9] shows the changes in composition of employees in professional & technical jobs and administrators & managers between 1960 and 1990. The expansion of higher education in Korea has enabled the government and companies to train and supply sufficient number of engineers, technologists, technicians and managers.

[Figure 9] Composition of Employed by Occupation and Level of Education



Sources: Economic Planning Board, Population and Housing Census Report, 1960, 1970, 1980  
National Statistical Office, Population and Housing Census Report, 1990.

## IV. General Assessment and Policy Implications

This chapter assesses educational development policies that Korea has implemented in terms of equal access to education, equal treatment and equal outcome, and draws some meaningful policy implications for the African countries.

### 1. General Assessment of Educational Development Strategy

As observed in [Figure 2], the enrolment rates of primary, middle and high schools have steadily increased over time, and reached 95% - 100% level in 1965, in 1985, and in 2000, respectively. The differences in enrolment and entrance rates between male and female students have continuously decreased and as of 1990 there was almost no difference except for higher education. These observations imply that the development of the Korean educational system has been successful, at least in primary and secondary education, in providing equal educational opportunities irrespective of gender, geographical location, and socioeconomic background. For higher education, however, there are several issues of inequitable access by student's socioeconomic background and gender.

In addition, the education system in Korea appears to be equitable in terms of educational treatment and its results. When the variances of PISA scores between the 5% lowest and 5% highest performing students among countries are compared, variance in Korea is the smallest as [Table 12] shows. Together with the observations in [Figure 2], this implies that the Korean education system provides more equitable high quality education compared to other countries. OECD provided other evidences on the equity of educational services in Korea. [Figure 10] indicates that Korean students got higher scores and are less affected by their socio-economic background than the OECD average.<sup>26</sup>

[Table 12] Scores in PISA 2000

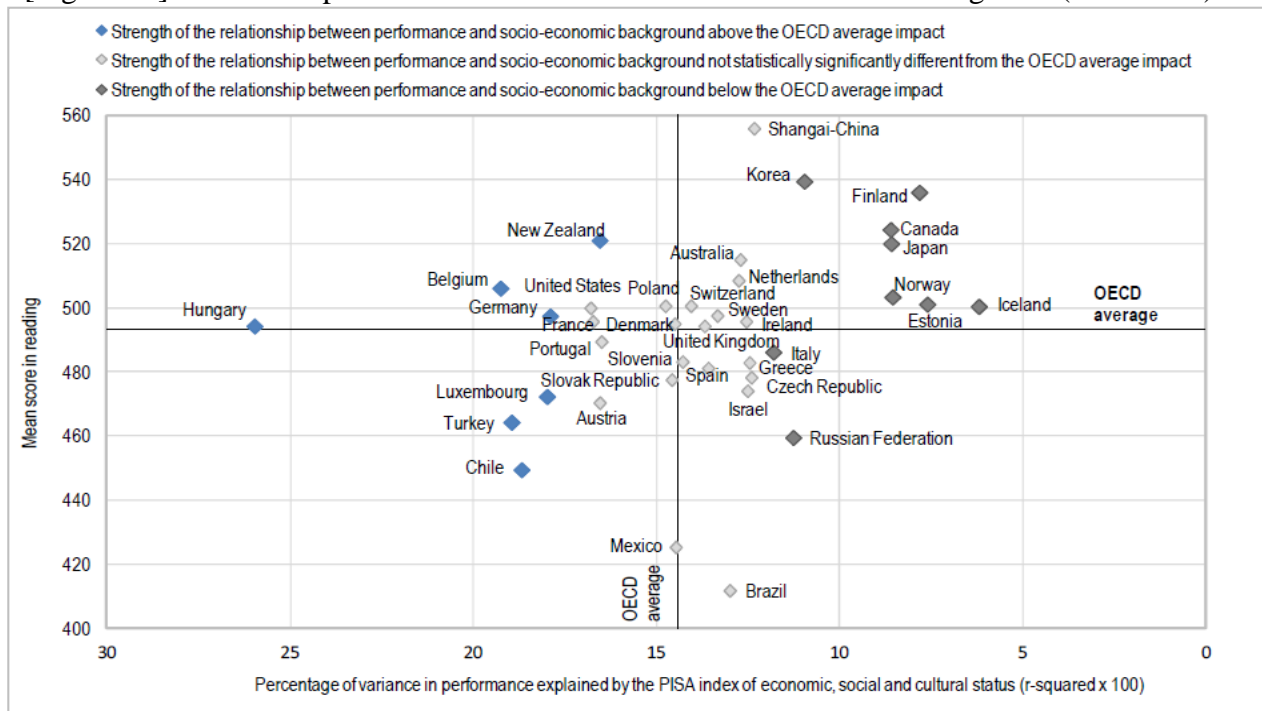
Countries	Reading Literacy		Mathematical Literacy		Scientific Literacy	
	Means	Range	Means	Range	Means	Range
Finland	546	291	536	264	538	283
Canada	534	310	533	278	529	290
New Z	529	355	537	325	528	326
Australia	528	331	533	299	528	307
Ireland	527	309	503	309	513	300
U.K.	523	330	529	302	532	321
Japan	522	284	557	286	550	297
Korea	525	227	547	276	552	263

Note: range – gap between the scores of the 5% lowest performing and highest performing students  
Source: Germany in international comparison: Results from PISA 2000. P.7.

<sup>26</sup> OECD(2012). Equity and Quality in Education: Supporting Disadvantaged Students and Schools. P.15.



[Figure 10] Relationship between Performance and Socio-economic Background(PISA2009)



Source: OECD (2012). Equity and Quality in Education: Supporting Disadvantaged Students and Schools. p.15.

Since the inequality of pay is an important component of the total income inequality and since education is a strong determinant of earnings, it has been believed that more education, in particular, providing equal access to education would contribute to equalizing the size distribution of personal labor earnings in the future. Educational expansion at all levels of schooling in Korea – more equal distribution of educational opportunities and increase in the level of educational attainment – appeared to have had a positive effect of equalizing labor earnings distribution between the 1970s and the 1990s because of the reduction in the scarcity rents of people with higher level of education. The wage gap among people with different levels of education declined continuously since the mid 1970s, as [Table 13] shows. The wage gap decreased because demand for managerial and skilled workers dwindled in the 1980s after the period of great expansion of the heavy industries and large firms in manufacturing, construction and finance. The other side of the market forces also contributed to equal distribution of labor earnings, as the supply of skilled or workers with higher education increased far faster than less skilled workers as a result of nation-wide increase in the level of education. Altogether, changes in the structure of wages and employment since the mid 1970s have had a substantial effect on equalizing the personal earnings distribution.<sup>27</sup>

<sup>27</sup> The Korean experience, however, does not necessarily mean that relative educational expansion always brings about the reduction of earnings inequality. The effectiveness of education for equalizing earnings distribution is limited throughout the labor markets by such factors affecting the rates of return as government wage and employment policies, occupational structure, and cyclical unemployment.

[Table 13] Relative Wage Differentials by Level of Education

Year	Middle School	High School	Junior College	University
1975	57.2	100.0	136.2	214.4
1980	72.7	100.0	145.7	217.3
1985	79.3	100.0	129.5	214.7
1990	87.7	100.0	116.7	174.6
1993	91.9	100.0	109.0	153.1
2000	87.8	100.0	103.4	150.9
2005	85.5	100.0	103.5	154.9
2010	86.0	100.0	105.6	154.4

Source: Ministry of Employment & Labor(each year). Employment Survey

## 2. Implications for Developing Countries

In what ways has the Korean education system played a positive role in approaching the inclusive growth in Korea? Considering that the fundamental theme of the inclusive growth is to guarantee equal opportunity, we can analyze the key educational policies and their results in terms of equal access to education, equal educational treatment, and equal educational outcomes.

What policies did Korea adopt to increase access to education and to provide equal educational services? After the Korean War(1950-1953), Korea adopted sequential educational expansion policies to provide equal educational opportunities to children, irrespective of gender, parents' SES, and residence location. In the 1950s, the Korean government decided to accomplish compulsory primary education first. Due to the successful implementation of '6-year plan for accomplishing compulsory education(1954-1959),' the enrolment rate of primary education reached 96.4% in 1959. After universalizing primary education, the government shifted its policy focus to secondary education in the 1970s. With the abolition of the middle school entrance examination in 1968 and the introduction of 'high school equalization policy' in 1974, the Korean government increased school seats as many as middle and high schools could accommodate all applicants and allocated students to schools located nearby their residence by a lottery system. This system was regarded as equitable because parents' socioeconomic status would not affect student placement. In order to guarantee equal educational infra across schools, the government provided subsidies to private schools which had lower financial capacity than public schools.

What investment strategies did Korea use to support the implementation of these policies? In order to support educational expansion policies, the Korean government shifted its investment priority in the same sequential manner from primary education to secondary and higher education, while maintaining its commitment to educational investment. To secure the budget for educational development, the government steadily increased education budget since the 1960s. The government also utilized private sector's capacity and willingness to invest in education to supplement its budget constraints.

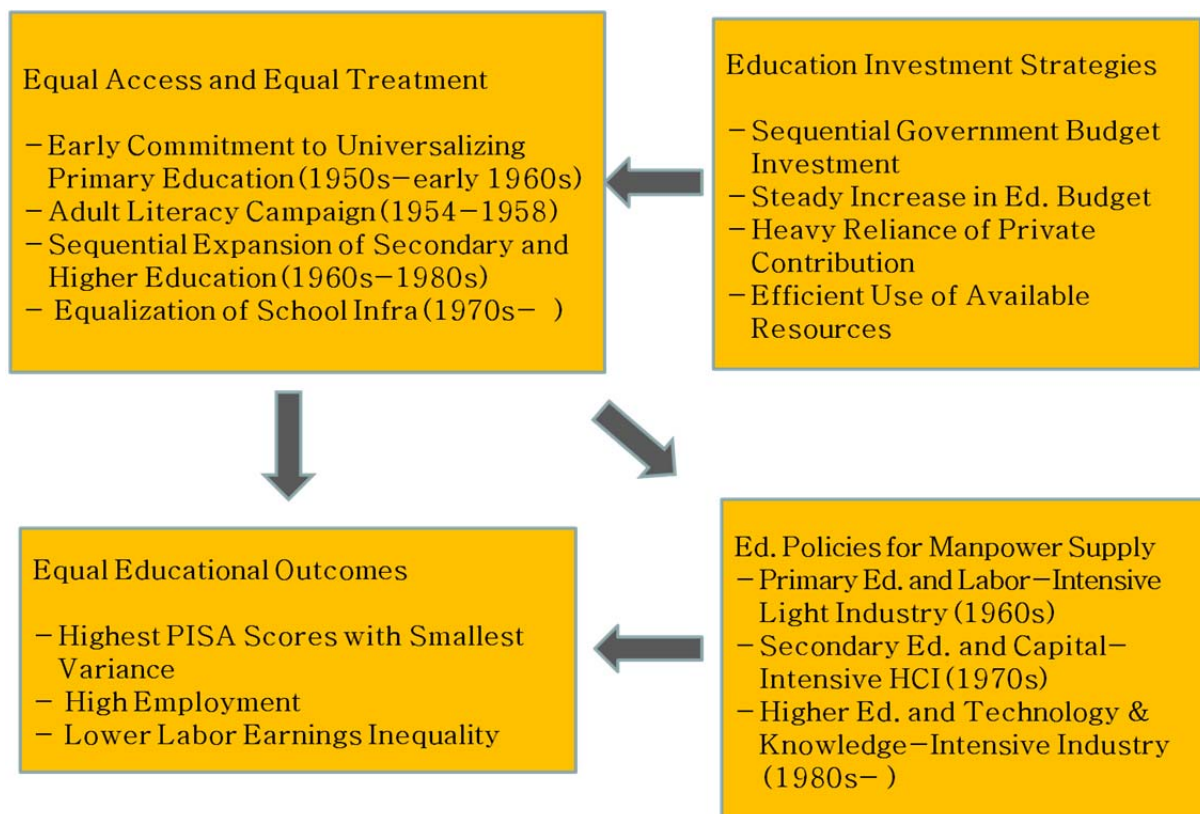
How was education policy matched with economic development policy? Korea's sequential education expansion policies were in line with national economic development plans. Early universalization of primary education resulted in the supply of good quality workers for labor-intensive light industry in the 1960s. Expansion of secondary education combined with

the implementation of vocational training system provided sufficient number of skilled workers for heavy and chemical industry in the 1970s. As technology and information-intensive industry grew since the 1980s, higher education played a crucial role in supplying professionals such as engineers and managers. Sequential educational expansion policy contributed to supplying manpower needed for each stage of national economic development. Rapid economic growth generated ample job opportunities and school graduates could get employed, which led to the increase in personal earnings.

What are the main results of Korea’s education policies? In the OECD PISA test, the Korean students got the highest level of scores with smallest variance, which indicates the equality of educational outcome. Due to the large expansion of secondary and higher education, the increase in the educational attainment and the high level of employment of graduates, earnings differentials among people with different levels of education decreased until the 1990s. Korea’s educational development policies contributed to equal educational outcomes in terms of the variance in education test results and labor earnings.

From the inclusive growth point of view, Korea’s educational development policies contributed to improving (i) the equal access to primary and secondary education irrespective of gender, geographical location and parents’ SES, (ii) the equal educational treatment across private and public schools in primary and secondary education, and (iii) the equal educational outcome in secondary and higher education in terms of test scores and labor earnings differentials. These are summarized in [Figure 14].

[Figure 14] Major Education Policies towards Inclusive Growth in Korea



Policy implications for developing countries' inclusive growth through education policy, which can be drawn from the Korean experiences, are as follows:

- (1) Sequential expansion from lower to higher level of education: To provide more equal educational opportunities in all levels of education, it would be better to begin with universalization of primary education and then to expand to higher levels of education in a sequential manner.
- (2) Diversification of funding sources including private sector: Given the government's budget constraints, the government needs to diversify funding sources to finance educational expansion.
- (3) Efficient use of available resources: It is required to identify policy variables which have the highest return on investment in terms of quality, quantity and equity
- (4) The government's consistent commitment: It is integral to maintain the government's consistent commitment to education investment because educational development is a long-term project.
- (5) Coordination between education development and economic development policies: In order for educational development to be connected to inclusive growth from the economic perspective, it is necessary that graduates can get employed as they leave schools so that they can make earnings. In that sense, education development policies need to be coordinated with national economic development plans.

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<Appendix>

<Table 1> Enrolment Rates by Level of Education and Gender

(unit : %)

	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010
Kindergarten	1.1	1.3	1.7	4.2	18.9	31.5	26.0	26.2	31.1	40.3
female	1.0	1.2	1.6	3.9	18.5	32.0	40.2	26.2	31.0	40.3
Elementary Sch.	98.1	100.7	105.0	102.9	100.4	101.4	100.1	98.7	100.2	100.7
female	96.9	100.2	105.3	103.7	101.1	103.2	100.3	99.3	100.1	100.6
Middle School	41.4	50.9	71.6	95.0	100.0	97.8	101.6	99.5	97.7	100.0
female	31.3	40.6	63.1	92.5	99.6	97.0	101.8	100.0	98.1	100.0
High School	26.4	27.9	40.8	63.3	79.5	87.6	91.9	95.6	94.6	93.9
female	18.7	21.6	32.5	56.2	75.5	85.0	91.3	95.5	94.5	93.9
Higher Ed. Inst.	-	8.8	9.5	16.0	35.6	38.1	55.1	85.4	102.9	96.5
female	-	4.5	5.4	8.1	21.6	24.3	37.9	68.1	78.8	74.6

Source : Statistical Yearbook of Education(each year)

Note : For elementary school, the enrolment ratio is estimated to be higher than 100%.

The reasons for this are: i ) there were children who entered primary school after or before the age of six; and/or ii ) population projection may be incorrect

<Table 2> Entrance Rates by Level of Education and Gender

(unit : %)

	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010
Elem.S. → Mid.S.	54.3	66.1	77.2	95.8	99.2	99.7	99.9	99.9	99.9	99.9
female	46.9	56.5	69.7	84.1	99.1	99.8	99.9	99.9	99.9	99.9
Mid.S. → High S.	69.1	70.1	74.7	84.5	90.7	95.6	98.5	99.6	99.7	99.7
female	69.3	68.6	72.3	80.8	88.2	94.9	98.4	99.6	99.8	99.7
High S. → Higher E.	32.3	26.9	25.8	23.7	36.4	33.1	51.4	68	82.1	79.0
female	34.3	28.6	24.9	22.5	32.6	32.3	49.8	65.4	80.8	80.5

Source : KEDI. Educational Indicators in Korea, 1995; KEDI Education Statistics Service.

Note :

"Entrants to higher school among  
 Entrance rate =  $\frac{\text{graduates in a given year}}{\text{Graduates in a given year}} \times 100$

<Table 3> Students per Teacher by Level of Education

(unit : %)

Year	Kinder.	Prim.S	Mid.S	High.S	Jun.C.	C. & Univ
1965	14.0	62.4	39.4	30.2	26.0	19.9
1970	13.4	56.9	42.3	29.7	20.5	18.8
1975	14.9	51.8	43.2	31.4	22.9	20.7
1980	19.9	47.5	45.1	33.3	30.1	27.9
1985	33.9	38.3	40.0	31.0	37.8	35.8
1990	22.3	35.5	25.3	24.6	43.8	31.1
1995	20.7	28.2	24.8	21.8	54.9	26.3
2000	19.5	28.7	20.1	19.9	78.0	39.7
2005	17.5	25.1	19.4	15.1	70.9	37.8
2010	14.8	18.7	18.2	15.5	61.2	36.2

Source : KEDI(1995, 2012). Educational Indicators in Korea.

Ministry of Education(each year). Statistical Yearbook of Education.

<Table 4> Ratio of Tuition & Fees to Educational Expenditures by Level of Schooling

(unit : %)

Level of Schooling	1977	1982	1985	1990	1994
Total	44.9	44.2	45.4	38.9	35.8
Nat. & Pub.	23.9	29.5	24.8	18.8	15.4
Private	89.1	76.8	78.3	73.6	66.7
Kindergarten	82.1	55.3	73.3	76.7	71.9
Nat. & Pub.	-	7.0	12.2	12.2	13.1
Private	-	87.6	84.1	93.9	92.9
Elementary S.	5.2	1.9	1.7	1.8	1.6
Nat. & Pub.	-	0.8	0.7	0.7	0.5
Private	-	76.3	64.6	82.6	80.2
Middle Sch.	74.1	73.1	56.8	37.2	29.5
Nat. & Pub.	-	70.7	52.7	34.3	28.9
Private	-	77.4	66.7	46.0	31.5
High Sch.	67.4	75.0	73.7	60.6	43.4
Nat. & Pub.	-	58.5	59.3	41.9	28.9
Private	-	88.3	84.8	79.6	58.4
Junior Coll.	73.0	67.9	69.0	77.7	83.4
National	-	31.6	26.5	21.3	37.7
Private	-	78.1	76.3	87.1	85.1
Teachers Col.	8.4	16.5	-	17.5	26.4
Coll. & Univ.	64.3	62.1	69.2	62.8	62.3
National	-	37.9	47.1	37.1	33.4
Private	-	71.7	77.9	72.3	71.9

Source: Kong, E.B. & S.J. Paik(1994). Educational Investment and Rates of Return to Education in Korea, KEDI.

<Table 5> GNP/GDP, Central Government Budget, and MOE Budget

(unit: billion won, %)

Year	GNP/GDP (A)	Government Budget(B)	MOE Budget(C)	Ratio (%)		
				B/A	C/A	C/B
1963	23,579.2	5,208.4	511.5	22.1	2.2	9.8
1965	27,369.7	5,234.7	519.8	19.1	1.9	9.9
1970	45,507.9	9,941.9	1,300.8	21.8	2.9	13.1
1975	69,201.9	14,451.9	1,543.0	20.9	2.2	10.7
1980	97,575.2	22,961.1	2,912.4	23.5	3.0	12.7
1985	147,742.0	27,946.3	4,644.8	18.9	3.1	16.6
1990	243,415.9	44,429.0	7,627.7	18.3	3.1	17.2
1995	409,653.6	72,915.0	12,495.8	17.8	3.1	17.1
2000	603,236.0	92,700.0	19,172.0	15.4	3.2	20.7
2005	865,240.9	134,370.4	27,982.0	15.5	3.2	20.8
2010	1,173,274.9	201,283.5	41,627.5	17.2	3.5	20.7

Sources: 1) National Statistical Office, Major Statistics of Korean Economy, 2012.  
 2) Economic Planning Board, Major Statistics of Korean Economy, 2012.  
 3) Korea Development Institute, 40-year History of Public Finance in Korea, 1991.  
 4) Economic Planning Board, Government Budget Summary, 2012.

Notes: 1) 'A' between 1963 and 1990 is GNP and from 1995 is GDP.  
 2) Government budget means central government budget which consists of general and special accounts. Therefore, local government budget is not included.  
 3) MOE budget means budget for education in central government budget. Thus educational expenditures by local governments are not included.

<Table 6> PISA Scores of Reading, Math, Science, and Analytic Ability (2000)




	On the overall reading scale	On the reading subscales					On the mathematics scale	On the science scale
		Access and retrieve	Integrate and interpret	Reflect and evaluate	Continuous texts	Non-Continuous texts		
OECD average	493	495	493	494	494	493	496	501
Shanghai-China	556	549	558	557	564	539	600	575
Korea	539	542	541	542	538	542	546	538
Finland	536	532	538	536	535	535	541	554
Hong Kong-China	533	530	530	540	538	522	555	549
Singapore	526	526	525	529	522	539	562	542
Canada	524	517	522	535	524	527	527	529
New Zealand	521	521	517	531	518	532	519	532
Japan	520	530	520	521	520	518	529	539
Australia	515	513	513	523	513	524	514	527
Netherlands	508	519	504	510	506	514	526	522
Belgium	506	513	504	505	504	511	515	507
Norway	503	512	502	505	505	498	498	500
Estonia	501	503	500	503	497	512	512	528
Switzerland	501	505	502	497	498	505	534	517
Poland	500	500	503	498	502	496	495	508
Iceland	500	507	503	496	501	499	507	496
United States	500	492	495	512	500	503	487	502
Liechtenstein	499	508	498	498	495	506	536	520
Sweden	497	505	494	502	499	498	494	495
Germany	497	501	501	491	496	497	513	520



Ireland	496	498	494	502	497	496	487	508
France	496	492	497	495	492	498	497	498
Chinese Taipei	495	496	499	493	496	500	543	520
Denmark	495	502	492	493	496	493	503	499
United Kingdom	494	491	491	503	492	506	492	514
Hungary	494	501	496	489	497	487	490	503
Portugal	489	488	487	496	492	488	487	493
Macao-China	487	493	488	481	488	481	525	511
Italy	486	482	490	482	489	476	483	489
Latvia	484	476	484	492	484	487	482	494
Slovenia	483	489	489	470	484	476	501	512
Greece	483	468	484	489	487	472	466	470
Spain	481	480	481	483	484	473	483	488
Czech Republic	478	479	488	462	479	474	493	500
Slovak Republic	477	491	481	466	479	471	497	490
Croatia	476	492	472	471	478	472	460	486
Israel	474	463	473	483	477	467	447	455
Luxembourg	472	471	475	471	471	472	489	484
Austria	470	477	471	463	470	472	496	494
Lithuania	468	476	469	463	470	462	477	491
Turkey	464	467	459	473	466	461	445	454
Dubai(UAE)	459	458	457	466	461	460	453	466
Russian Federation	459	469	467	441	461	452	468	478
Chile	449	444	452	452	453	444	421	447
Serbia	442	449	445	430	444	438	442	443
Bulgaria	429	430	436	417	433	421	428	439
Uruguay	426	424	423	436	429	421	427	427
Mexico	425	433	418	432	426	424	419	416
Romania	424	423	425	426	423	424	427	428
Thailand	421	431	416	420	423	423	419	425
Trinidad and Tobago	416	413	419	413	418	417	414	410
Colombia	413	404	411	422	415	409	381	402
Brazil	412	407	406	424	414	408	386	405
Montenegro	408	408	420	383	411	398	403	401
Jordan	405	394	410	407	417	387	387	415
Tunisia	404	393	393	427	408	393	371	401
Indonesia	402	399	397	409	405	399	371	383
Argentina	398	394	398	402	400	391	388	401
Kazakhstan	390	397	397	373	399	371	405	400
Albania	385	380	393	376	392	366	377	391
Qatar	372	354	379	376	375	361	368	379
Panama	371	363	372	377	373	359	360	376
Peru	370	364	371	368	374	356	365	369
Azerbaijan	362	361	373	335	362	351	431	373
Kyrgyzstan	314	299	327	300	319	293	331	330

Source: OECD, PISA 2009 Database.

Note:

	Statistically significantly <b>above</b> the OECD average
	Not statistically significantly different from the OECD average
	Statistically significantly <b>below</b> the OECD average

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