

Changing facets of Korean higher education: market competition and the role of the state*

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Abstract. During the past several decades, the Korean higher education sector has experienced tremendous expansion, while the quality of teaching and research has not improved very much. Despite the fact that higher education had to rely on the private sector for most of its finance and provision, market competition among higher education institutions has, until recently, been heavily restricted by the government. We argue that the government should try to incorporate more market-based policies in order to upgrade the quality of teaching and research at higher education institutions.

Keywords: higher education, Korea, regulation

Introduction

South Korea (Korea hereafter) has experienced a spectacular expansion of higher education during the last five decades. In 1950, the number of students enrolled in higher education institutions was only 11,358. In 2002, 52 years later, the enrollment increased to more than 3.5 million.¹ Currently, more than 95% of 18-year-old children graduate from high schools, and more than 70% of them advance to higher education institutions. Currently, Korea's enrollment rate in higher education is one of the highest in the world.²

Even in the period of global massification of higher education, the Korean experience is particularly spectacular from the international perspective.³ In the mid-1970s, about 7% of age cohorts in Korea were enrolled in higher education institutions. Japan passed the same

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benchmark sometime in the 1950s, Taiwan in mid-1960s, and the US in the 1930s. In 2002, more than 50% of high school graduates advanced to 4-year universities, and this entry rate is higher than that of the US, Japan, or Taiwan (Hayhoe 1995; Phelps et al. 2003).

Such a large-scale expansion of the higher education system inevitably brings about challenges to not only higher-learning institutions but also to the social, economic, and political environment in which they are operating (Adams and Gottlieb 1993). In order to provide universal education, the Korean government deliberately focused its resources on primary education during the 1950s and the 1960s. In the following decades, it focused on secondary education in order to supply a large number of semi-skilled workers to fuel rapid industrialization. Because public universities could not possibly keep up with the exploding demand for higher education created by the increased supply of secondary school graduates, the Korean higher education system had to rely heavily on the private sector.

As of April 2002, there were 159 two-year junior colleges and technical colleges (colleges hereafter) in Korea. Out of these 159, 143 were private institutions. About one million students were enrolled in colleges, and more than 95% of them are in private institutions. At the same time, there were 163 four-year colleges and universities (universities hereafter), 137 of them were private. In addition, there were 11 national teachers' universities,⁴ and 19 technical universities (8 are national and the rest are private). Excluding more than 300,000 students in the Korea National Open University, there were 2 million students enrolled in 4-year universities, and about three quarters of them are in private institutions.

Because of the burgeoning demand in higher education, private provision and the marketization of the higher education sector are happening in many countries. Such movement clearly increases the role of the private sector in terms of finance, provision and governance. The marketization does not mean that government's role will diminish in the future (Altbach 2000, Steier 2003). However, it will clearly change the emphasis of the role of the government in the higher education section. A careful examination of the Korean experience will be useful to study the relationship between the market and the government and to examine the proper role of the government, as Korea has been in the frontier of private higher education for many decades. The Korean experience will also be instructive to those countries whose governments strongly regulate the private provision of higher education.

Up until 1995, the Korean government not only maintained strict guidelines regarding how to establish and operate a higher education institution, it also controlled the number of students in each department for each school, as well as student selection methods. In most cases, student quotas and school licenses were rationed to those institutions that could demonstrate to the Ministry of Education and Human Resources Development (MOE) their capabilities of providing quality education. Naturally, the strict regulations created substantial rent-seeking activities, while leaving little room for individual educational initiatives among institutions. Jongbloed (2003) identifies four freedoms for providers (freedom of entry, freedom to specify the product, freedom to use available resources, and freedom to determine prices) and four freedoms for consumers (freedom to choose provider, freedom to choose product, adequate information of prices and quality, and direct and cost-covering prices paid) in order for the higher education market to function properly. According to his criteria, the Korean higher education sector lacks several essential ingredients of markets.

Recognizing that various problems resulted from the heavy regulation, the Presidential Commission on Education strongly recommended market-based approaches for the education policy in 1995. Following the Commission's recommendation, the government started to loosen up regulations regarding higher education. Among other things, private universities were allowed to regulate the number of incoming students as well as the distribution of students within the institution. The rules to establish a new institution were liberalized. Moreover, the government started to give small discriminatory subsidy based on the performance of universities. In short, the government tried to introduce market competition among universities and colleges by making them more autonomous and more competitive. The shift in the paradigm of the government's policy created both opportunities and challenges in the Korean higher education.

In this paper, we examine various aspects of the higher education sector in Korea. In particular, we provide some agenda for further discussion on the higher education market and the proper role of the Korean government. For that purpose, we will use the section "Historical overview: how did the rapid expansion of higher education occur" as a brief overview of the history of higher education in Korea, focusing on the rapid expansion of higher education. In the next section, we characterize the market structure of Korean universities as a hierarchical market in which ranking plays a key role in matching institutions of different reputation and quality with students of different

academic ability. The final two sections are devoted to exploring the proper roles of the government. More specifically, in section “Role of the state in upgrading teaching and research capacity of higher education”, we discuss the proper role of the government in upgrading teaching and research capacity of higher education in Korea from the perspective of funding, governance control, and regulation. In section “Current policy issues in Korean higher education”, we identify and briefly discuss key issues in the Korean higher education system. Brief conclusions are offered at the end.

Historical overview: how did the rapid expansion of higher education occur?

Although present Sungkyunkwan University claims its root to Sungkyunkwan, a higher-learning institution for Confucian scholars established by the Yi dynasty in 1398, higher education in Korea is a relatively modern phenomenon. When the Yi dynasty (1392–1910) started to make a contact with Western civilization at the end of the 19th century, American missionaries established a few higher-learning institutions.⁵ Some years later, progressive Koreans established private higher-learning institutions as well.⁶ In 1924, the Japanese government, following the model of Japanese Imperial universities, established Kyungsung Imperial University in order to train government officials and professionals.⁷ However, the Japanese Imperial government generally viewed the higher education of Koreans as the breeding ground for the Korean independence movement. Consequently, the demand for higher education in Korea was suppressed, and university education was restricted to only a limited elite.⁸

In 1945, when Korea was liberated from Japanese colonial rule, educational resources in Korea were quite poor.⁹ Despite inadequate educational resources, the government wanted to establish universal primary school education as soon as possible. In 1946, the interim government (even before the independence and the formation of the state in 1948) announced an ambitious plan for making primary schooling universal and compulsory by 1951. However, the implementation of the plan was hampered by the unexpected outbreak of the Korean War. When the War was over in 1953, the government immediately resumed the policy. The strong commitment for the expansion of primary education by Rhee’s government (1948–1960) resulted in a remarkable quantity expansion (see Figure 1).¹⁰ Primary school

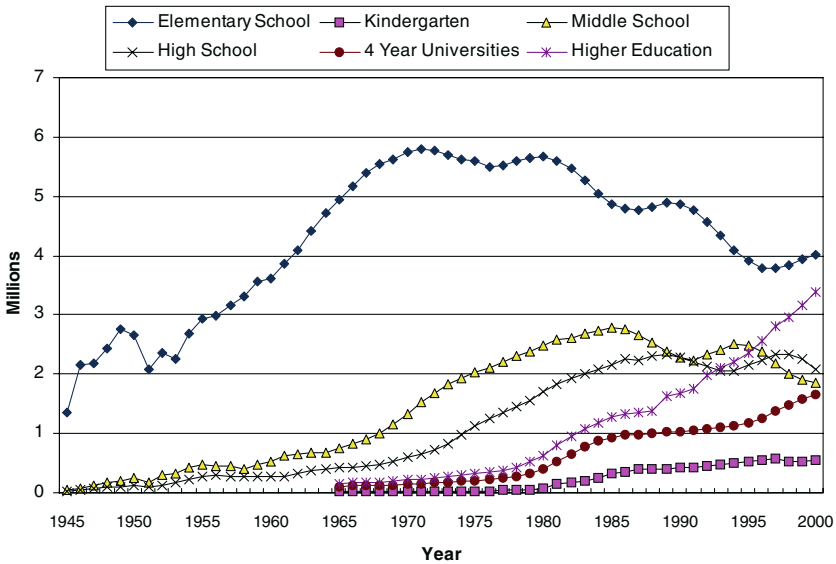


Figure 1. Number of enrollments for various schools.

enrollment increased from 1.37 million in 1945 to 2.27 million in 1947 to 4.94 million in 1965. The number of teachers increased from 20,000 in 1945 to 79,000 in 1965. The enrollment rate for elementary school increased to 96.4% in 1959, and the goal of universal primary education was fulfilled around in the early 1960s.

However, in order to achieve early universal primary school education, the government had to sacrifice its quality. The average student–teacher ratio for elementary school was over 60 during this period, and class sizes often exceeded 80. Quite often, two or three classes shared a single classroom. Also, the government asked parents to share a significant portion of educational expenses such as textbooks, supplies, activity fees and so on.

In 1946, Kyungseong Imperial University was reorganized into Seoul National University (SNU), the first national university, according to the American public university model. It was the first comprehensive modern Korean university that had undergraduate and graduate degree programs. At the same time, several existing private higher-learning institutions were reorganized into American style universities. Since the most important educational objective of the government was to achieve universal primary schooling as fast as possible, the government also established several tuition-free normal schools (schools to train

teachers) in major cities throughout the country during the period. Meanwhile, many new private universities were established immediately after the independence. The number of higher-learning institutions has increased from 19 in 1945 to 55 in 1950.

The Korean War stopped the growth of the education sector. It forced most universities located in Seoul to seek refuge in the southern provinces. During the war, several universities conducted classes in provincial cities, such as Busan and Kwangju. While the effectiveness of this temporary teaching arrangement might have been questionable, the War created the feasibility of higher education in those cities. This experience has become the basis for the national university system in Korea. During the period of 1951–1954, at least one national university was established in each province of Korea.

As the government was focusing its financial resources on the primary education sector, the increased supply of higher education was fulfilled mostly by private universities. Though the private universities had boards of trustees, many of them, particularly the newly established ones, were under the strong control of the founder and his/her family.¹¹ Though all private universities were *de jure* non-profit organizations, many operated with substantial profit motives.¹²

When General Park took over power by a bloodless *coup d'état* in 1961, his primary policy objective was a rapid economic growth through export promotion. The Korean economy started to grow very rapidly under Park's leadership. The rising income and the expansion of elementary graduates created a strong surge in the demand for secondary education in the 1960s. Up until late 1960s, each middle school and high school, regardless of public or private, was allowed to choose students through a competitive entrance examination. Hence, well-known rankings among middle schools and high schools were established. In particular, the competition for better schools became fierce as more students graduated from elementary schools. The situation was commonly called *ipsi-jiok* (entrance examination hell). Education policy makers recognized that the heavy stress of preparing for the entrance exam hindered the health (physical as well as psychological) growth of 11-year old children. In addition, schooling in the elementary schools, particularly in grade six, was geared too much for the preparation of the exam. At the same time, a substantial amount of household expenditure was spent on private tutoring to prepare children for the exam. Many students who failed to get in to their desired schools repeated the sixth grade in order to prepare for the next year's entrance exam. Also, many parents desired to send their children to an elementary school that was

more successful in sending its graduates to prestigious middle schools. This created unbalanced demand for elementary school student allocations across school districts. The government's answer to these problems was the secondary school equalization policy.

The equalization policy replaced the individually administered entrance examination with a random allocation system within separate school districts. Students were randomly assigned to different schools, regardless of public or private, in the school district by lottery as long as they passed a nation-wide qualification examination. In order to suppress the parents' desire to send their children to more prestigious schools by moving to the school district in which they were located, many prestigious schools were eliminated. The implementation of the middle school equalization policy started in 1969, and, by 1971, it was in place throughout the country. The high school equalization policy started in 1974, but the implementation was stopped in smaller cities and rural areas. Currently, about 50% of high school students are in the districts under the equalization policy.

Although the equalization policy did not have the explicit objective of achieving universal secondary education, it was undoubtedly closely related to the dramatic increase in the enrollment of secondary schools during the 1970s and 1980s. Figure 1 shows how middle school enrollment started to increase since the mid-1960s. Only a few years later, similar phenomenon can be observed for high school enrollments. Part of this increase was due to the growth of elementary school graduates, but a substantial portion was due to the fact that a higher percentage of elementary school graduates advanced to middle school. Universal education for middle school was achieved around 1985; for high school, it was achieved 15 years later, around the late 1990s, even though high school is still not free.¹³

Despite the growing secondary education sector, Park's government, committed to ridding the society of corruption, strengthened regulations regarding the administration of private universities. Enrollment quotas were established for each university at the departmental level. Appointment of professors was strictly controlled as well. The MOE had strong control over the establishment and expansion of private universities as well as national universities. In this environment of strict control and excess demand, it was natural that universities were engaged in rent seeking activities, particularly in regards to the expansion of enrollment. Also, since the quota was restricted to the departmental level, there was a wide discrepancy between market demand and supply among different disciplines. During the 1970s, Park's government tried

to accommodate the increasing demand for higher education with 2-year technical colleges and correspondence schools.¹⁴

The restrictive enrollment policy changed dramatically with the emergence of Chun's government in 1980. In an attempt to relieve the entrance examination pressure and the burden of private tutoring, the government increased higher education's enrollment quotas. First, it converted many 2-year national teacher colleges and technical colleges into 4-year colleges. Second, the Chun administration adopted so called "graduation quotas" in lieu of "admission quotas." The justification for this change was concern over the quality of higher education. It had been pointed out that university students no longer worked hard when they got into the university, even though they had to spend a great deal of time, effort, and financial resources in private tutoring as well as in regular schooling to enter the university. Chun's government increased the admission quota with the condition that the university had to drop a certain portion of students before graduation. The "graduation quota" was enormously unpopular with professors and university administrators as well as students. It was politically impossible for the government to enforce the graduation quota, and the policy was rescinded a few years later, resulting in an effective increase in admission quotas. See the sudden increase of the higher education enrollment around 1980 in Figure 1.

As a result of the expansion of primary and secondary education, the government has been trying for the last three decades to increase resource allocations to primary and secondary education.¹⁵ In higher education, the government relied heavily on private financing, and has not tried to equalize the quality of universities. An equalization policy similar to the one implemented in the secondary schools would have surely created enormous oppositions as well as financial difficulties to the government. However, the government maintained heavy regulations over all aspects of higher education including the amount of tuition charged, the number of students that can be enrolled, the personnel policies of professors (tenure, reappointment, retirement age etc.), and the student admission procedure universities could use.

In 1995, a big shift in the policy on higher education occurred during the Kim Young-sam administration. The government adopted deregulation as a major policy objective.¹⁶ Enrollment quotas were eliminated except for universities in the Seoul metropolitan area.¹⁷ This policy shift enabled many private universities located outside of the Seoul metropolitan area to increase their enrollment, as the increased enrollment directly translated into more revenue. The deregulation created a wave

of new universities including branch campuses of the universities in Seoul.¹⁸ Also, many small private universities were established in regions outside of the Seoul area. The expansion of the higher education supply in the nineties was soon to be faced with declining demand generated by demographic factors. As the number of high school graduates starts to decline and as the enrollment rate of higher education is already very high, the demand for higher education is expected to decline in the near future. This certainly will create financial pressure on some universities, as many Korean institutions rely on tuition revenue as the major income source.

Hierarchical structure in Korean higher education

When the free selection of students by universities is permitted, it is natural to expect a system of rankings among universities to emerge (Epple and Romano 1998).¹⁹ Students have strong incentives to attend a highly ranked university, as it gives them advantages in the labor market. There is substantial evidence that suggests attending an elite university pays off in the labor market.²⁰ Although high ranking universities often spend more per student and charge higher tuitions, they also tend to subsidize students more with larger amounts in scholarships at the same time (Winston 1999).²¹

Ranking is also an important consideration for hiring and firing university administrators. The governing agencies may use university ranking as an efficient contract mechanism to control top university administrators, as it is extremely difficult to monitor their activities and to measure the tangible output directly. At the same time, in order to maintain and improve rankings, the university pays higher salaries and builds better facilities in order to attract higher quality faculty.²² For faculty, higher ranking means higher quality colleagues and students, which provide better research and teaching environment. Therefore, higher ranking of the university adds a non-pecuniary benefit to professors as well.

Over the years, all higher-learning institutions in Korea have been allowed to choose students through competitive entrance examinations. Although the nature of the examinations has been controlled strictly by the MOE, the government has not tried to eliminate the decentralized competitive student selection process itself. Naturally, the hierarchical structure in the Korean higher education market has been recognized for a long time. The government has been ambivalent toward the

hierarchical structure. On the one hand, the government, through more funding, has tried to establish SNU and KAIST as the world class, premier universities in the nation. On the other hand, it constantly tweaked the format of entrance examinations in order to reduce student competition for entering better schools. In any case, the decentralized competitive student selection mechanism is bound to maintain the strict hierarchical system.

From the beginning, SNU naturally became the most highly regarded university. It was the only Japanese Imperial University in Korea. It was national, and therefore, the tuition was substantially cheaper than private universities. Also, the size and financial strength of SNU provided the best faculty and facilities in the nation. Although there has been a generally accepted university ranking among the public, more systematic efforts to rank universities has recently emerged. First, the government has started to evaluate universities in order to give different levels of subsidies based on their performances since the 1995 education reform. Second, private organizations, such as mass media, have started to rank universities.²³ In general, the current pecking order is that SNU shares the top positions with two new-but-very-well-endowed science and engineering universities; below them are more established private universities in Seoul, followed by national provincial universities; and at the bottom private universities outside of the Seoul metropolitan area. Two-year colleges are generally rank lower than 4-year universities. In addition to the comprehensive rankings among universities, Jinhaksa, a major for-profit company that specializes in college admissions guidance, keeps detailed scores of the Scholastic Ability Test (SAT) for different programs in all universities.

Table 1 shows some characteristics of the Korean higher education market, based on the data that we collected for 124 four-year and 132 two-year higher education institutions from various public and non-disclosed sources. In the spring of 2000, there were about 260,000 students entering 4-year universities, and about the same number of students entering 2-year colleges. The institutions in the top two deciles are completely dominated by 4-year universities. The only exception is the 2-year Agricultural Cooperative College, which has no tuition. However, in the middle range, 2-year colleges, most of which are located in the Seoul metropolitan area, are quite competitive. This seems to reflect the popular notion that even though the labor market is flooded with college graduates and college premium has decreased substantially, some of the 2-year colleges produce marketable diplomas that are well received in the labor market, such as the nursing and information technology fields.

Table 1. University hierarchy by decile

	Test score	% 2-yr school	No. of schools			No. of students			% in Seoul region		
			4-yr	2-yr	All	4-yr	2-yr	All	4-yr	2-yr	All
1st decile	94.3	0.0	20	0	20	14,809	—	14,809	82.5	—	82.5
2nd decile	83.5	0.1	24	1	25	10,299	200	9895	53.6	100.0	53.7
3rd decile	75.9	1.4	23	3	26	10,252	1107	9197	25.5	100.0	26.5
4th decile	65.7	15.5	18	10	28	8715	2876	6629	25.1	94.6	35.9
5th decile	59.3	24.5	13	9	22	10,304	4819	8060	3.3	100.0	26.9
6th decile	52.9	50.7	12	14	26	5661	4993	5301	16.5	74.1	45.7
7th decile	44.3	63.5	7	20	27	6717	4094	4774	0.0	46.9	29.8
8th decile	37.6	71.2	4	21	25	8580	4035	4762	0.0	15.3	10.9
9th decile	29.8	93.6	2	26	28	3520	3982	3949	0.0	0.0	0.0
10th decile	20.1	97.3	1	28	29	3130	4409	4018	0.0	0.0	0.0
Seoul Metro	70.9	26.5	52	44	96	9461	4029	6971	100.0	100.0	100.0
Other Region	46.7	32.3	72	88	160	10,242	3998	6808	0.0	0.0	0.0
All	54.5	30.1	124	132	256	9915	4008	6869	40.0	33.5	38.1

Note. 1. Test score is the average SAT score in percentile.

2. Seoul metro region includes Kyunggi Province.

Table 2 shows some basic indicators of the 4-year universities in terms of the average SAT scores of the incoming class. In general, high-ranked universities have more students, spend more per student, and give more financial aid to students. It is interesting to note that the universities in the top decile dominate private donations. Table 3 shows some input and output measures of the 4-year universities. The table clearly shows that high-ranking schools have superior output measures as well as input measures. The who's who column represents the number of graduates in personality databases in four major daily newspapers (Chosun, Donga, Joongang, and Moonwha) divided by the size of the incoming class. The top decile universities average about 41,000, whereas SNU has more than 100,000. The figure drops very quickly to 11,500 in the second decile, and to less than 6000 in the third decile. The number of alums who passed the government's high examinations also declines very rapidly as one goes down the hierarchy.²⁴ The faculty's

Table 2. Basic indicators of 4-year university hierarchy by decile

	Test score (percentile)	Total expense (A)	Net expense (B)	Student subsidy (A-B)	B/A (%)	Donation	No. of student	% Public	% Seoul
1st decile	97.8	7404	3470	3934	50.7	1493	21,363	24.6	97.6
2nd decile	92.5	4572	2963	1608	65.0	450	17,854	39.9	57.7
3rd decile	87.7	4567	3389	1177	76.5	457	14,709	16.7	83.3
4th decile	82.1	4267	2018	1349	73.5	392	11,896	37.8	57.9
5th decile	78.2	4452	2662	1789	60.1	486	15,137	46.1	27.2
6th decile	74.3	4190	3356	834	83.1	496	13,788	7.6	32.7
7th decile	68.6	4171	2922	907	89.0	398	11,854	25.0	19.0
8th decile	62.3	3587	2991	595	84.6	213	10,268	17.4	11.7
9th decile	55.4	3306	3134	171	98.0	234	10,721	6.4	3.5
10th decile	41.2	2704	2837	-133	103.4	192	7774	3.3	3.8
Public univ.	80.8	4200	1691	2508	40.8	130	17,961	100	10.9
Private univ.	71.9	4315	3469	835	89.4	578	12,210	0	47.5
Seoul metro	86.2	4935	3593	1321	81.1	625	13,325	6.1	100
Other region	65.8	3871	2728	1142	76.8	381	13,593	32.7	0
All univ.	73.9	4289	3069	1212	78.5	477	13,488	22.2	39.4

Note. 1. Expenses are in 1000 Won.

2. Total expense is the amount spent by the university per student per year. It includes salary, maintenance, teaching, and research expense.

3. Net expense is total expense minus the subsidy given to students.

Table 3. Major input and output indicators of 4-year university hierarchy by decile

	Who's who	High exam	History	SCI	% Teacher	% Building	% Campus	Lab.	Lib. holdings	Medical school (%)
1st decile	40,914	177.1	47.8	0.64	70.9	72.9	140.0	4343	54.9	88.6
2nd decile	11,551	19.8	49.0	0.22	60.5	62.2	74.8	2140	48.5	80.7
3rd decile	5733	7.0	42.9	0.18	54.5	62.9	129.1	2097	36.5	31.2
4th decile	2366	1.4	43.4	0.18	62.1	65.3	143.3	1938	39.3	29.8
5th decile	3775	1.3	41.1	0.16	61.0	70.5	235.9	2539	37.4	63.9
6th decile	2899	1.3	31.8	0.11	60.1	66.8	198.3	1809	35.6	54.6
7th decile	755	0.0	27.0	0.09	59.7	69.5	135.3	1667	39.0	54.4
8th decile	486	0.0	27.9	0.09	55.2	64.5	176.0	1385	36.3	28.4
9th decile	861	0.1	24.7	0.07	49.0	64.0	163.6	1376	37.6	11.0
10th decile	115	0.0	16.5	0.06	44.4	53.7	191.4	1019	35.6	16.5
Public univ.	11,508	38.7	44.2	0.28	65.1	68.0	166.0	3006	41.4	69.7
Private univ.	4007	11.7	32.5	0.20	55.5	64.4	158.2	1733	39.6	38.5
Seoul metro	11,000	35.7	38.5	0.28	59.1	66.2	135.0	2095	45.8	37.6
Out of Seoul	2208	1.5	32.9	0.17	56.7	64.5	176.4	1981	36.6	50.5
All univ.	5777	16.4	35.1	0.22	57.6	65.2	160.0	2029	40.1	45.4

Note. 1. Who's who: Number of graduates in four major (Chosun, Donga, Joongang, Moonwha) personality database (total 397,616).

2. High Exam: Number of graduate who passed high examinations by the number of admission quota.

3. History: Number of years in 4-year university status until 1999.

4. SCI: Number of articles in 1997 SCI divided by the number of professors.

5. % Teachers: Based on MOE standards. (100% if student/faculty ratio is 25 for humanities and social science, 8 for medicine, 20 for others)

6. % Building: Based on MOE standards for floor space. (100% if 12 m² for 1000 humanity and social science students, 17 m² for natural sciences, 20 m² for engineering, 19 m² for arts, 20 m² for medicine.

7. % Campus: 100% if land area is two times of the floor space.

7. Lab.: Value of laboratory equipment divided by number of students.

8. Lib. Holdings: Number of books divided by the number of students.

research output is measured by the number of articles in Science Citation Index (SCI) per professor. Again, it shows a similar pattern of rapid decline. The other input measures such as building, faculty, land area,

laboratory facilities, and book holdings in the library show a declining pattern, but it is not as rapidly as the output measures. This is probably due to the lack of quality differentiation in the input measures.

The analysis of the Korean higher education market suggests that the market is setup in a strong hierarchy so that universities in the top ranking attract not only top students but also private donation money. Also, the top students seem to be drawn by the reputation of the university (the degree of success of the alums) as well as the quality of faculty and the better physical facilities of the school. In addition to these quality measures, being a public university or being located in the Seoul metropolitan area have substantial premiums. These factors will be discussed in more detail in the following section.

Role of the state in upgrading teaching and research capacity of higher education

It has been repeatedly pointed out that the quality of teaching and the amount of research produced by major Korean universities are not in par with top universities in the world. This observation contrasts the remarkable expansion of the quantity of higher education provision (Panel on Education Excellence 2001; IMD 2003).

Government's involvement in funding for and operation of higher education varies across countries. In some countries, universities are more or less fully operated and funded by the government, and students pay virtually no tuition. In these countries, higher education is regarded as a right, and sometimes it is codified in the country's constitution. In other countries, universities are operated publicly, but students and parents are required to pay a substantial portion of the expenses. In other countries, private universities co-exist with public universities, and government only partially subsidizes public universities. The provision of higher education also varies across countries. In some countries, virtually all higher education institutions are government-controlled. In other countries, there are substantial numbers of privately run universities. The financing and provision does not necessarily coincide. In some countries, institutions are run more or less independently of the government, even though the government finances most of their operation.²⁵

There are several dimensions to any government's policy choice. First, the government needs to make decisions regarding the level of funding and accessibility of secondary education, as the demand for

higher education crucially depends on the number of high school graduate. For example, if she decides to provide secondary education to all students free of charge (or with very modest tuition), the potential student pool for higher education will be very large. When the secondary education is widely available as in many developed countries, the demand for higher education is likely to be high as well. Some governments choose to divide secondary school students into university track and technical track in an attempt to reduce the demand for university education, as in Switzerland or Germany.

However, most countries do not have extensive technical secondary schools. Moreover, the changing economic structure provides more premiums to highly educated workers. Therefore, in most developed as well as in rapidly developing countries, the demand for higher education is likely to increase. Then, the question is how to finance the growing higher education. Naturally, the ensuing tradeoff is a balance between greater accessibility and higher government expenditure (Birdsall 1996). If the government chooses a highly competitive selection process with heavy subsidy, such as in the former Soviet Union or China, the higher education system will be elite-oriented, although the resources necessary to meet the higher education demand will be small. Or alternatively, the government may allow a larger private sector contribution, as the demand for higher education increases.²⁶ In the former case, the quality of higher education can be easily maintained, whereas the latter system may have diverse qualities across institutions.

Table 4 shows the amount of money spent by higher education institutions in OECD and World Education Indicators Program (WEI) countries as a percentage of GNP. Also, it shows how the expenditure is financed. The "public sources" column indicates the percentage of the expenditure to higher education institutions directly paid by the government. The next column shows the percentage of the expenditure paid by private sources, and the last column is the public subsidy to households who in turn pay the institutions.

There are two notable things about Korea in the table. In terms of the percentage of GNP, Korea spends the highest on higher education among the OECD countries. She spends 2.51% of GNP in higher education, which is almost twice as much as the OECD mean of 1.33%. Second, the amount financed by private sources is by far the highest of those countries. The public's share of higher education in Korea is 16.7%, which is far smaller than the OECD average of 77%. Also, there is very little government subsidy of 0.7% to the private source. Despite its weak financial support, the Korean government has exercised very

Table 4. Expenditures of higher education institution and its source in 1998

	Percentage of GNP	Public sources (%)	Private sources (%)	Private: of which subsidized (%)
OECD mean	1.33	77.3	22.7	4.8
Australia	1.59	56.1	43.9	12.0
Austria	1.46	98.9	1.1	–
Canada	1.85	56.6	43.4	26.1
Czech Republic	0.88	85.9	14.1	–
Denmark	1.53	97.2	2.8	–
France	1.13	85.5	14.5	4.2
Germany	1.04	92.1	7.9	–
Hungary	1.01	76.6	23.4	2.4
Iceland	1.78	97.7	2.3	–
Ireland	1.38	72.6	27.4	4.9
Italy	0.84	74.7	25.3	6.3
Japan	1.02	41.7	58.3	–
Korea	2.51	16.7	83.3	0.7
Mexico	0.89	87.9	12.1	–
Netherlands	1.18	87.5	12.5	9.0
Norway	1.51	94.0	6.0	–
Portugal	1.04	92.3	7.7	–
Spain	1.11	72.1	27.9	3.9
Sweden	1.67	89.3	10.7	–
Switzerland	1.11	98.5	1.5	1.5
Turkey	0.84	94.2	5.8	2.1
United Kingdom	1.11	62.7	37.3	12.4
United States	2.29	46.8	53.2	5.7
<i>WEI participants</i>				
Argentina	1.14	74.3	25.7	–
Chile	1.85	24.2	75.8	6.7
Indonesia ¹	0.58	43.6	56.4	–
Israel	2.18	59.4	40.6	6.5
Peru	1.32	44.6	55.4	–
Philippines ²	1.15	44.2	55.8	–
Thailand	2.58	32.5	67.5	–

Source: OECD, *Education On-line Database*, <http://www.oecd.org>.

Note. ¹ Year of reference 1999, ² Year of reference 1997.

strong controls over universities. We argue that it should focus on funding for and governance of higher education institutions rather than on direct regulation over their management.

The Korean higher education system relies heavily on the private sector, and most private universities rely almost exclusively on tuition by students. Most of them do not generate substantial private donations and do not have any significant amount of accumulated endowment.²⁷ The shortfall of private endowment and donations is due to several reasons. First, the history of private universities is relatively short in Korea. Although several universities were established in the 19th century, their meaningful operation started after 1950. Therefore, there has not been enough time for these universities to accumulate substantial endowments. Second, for the last 50 years, virtually all universities have been engaged in rapid expansion in order to accommodate increasing demand, which required substantial capital expenditure. During the last several decades, more than 90% of funding for most private universities came from student tuition. When there was excess demand, and the tuition had been set low by the government, private universities had strong incentives to admit as many students as possible as long as such action did not erode their reputation seriously enough to diminish the students' demand for the school. Without any other source of revenue, they had to finance growth by sacrificing the quality of instruction. Student-faculty ratios were high. Cheap *ad hoc* instructors were hired rather than regular full-time faculty members.²⁸ The number of hours taught by each professor was also kept high. All these factors contributed to lower quality of instruction. It is ironic that this low level of teaching input has existed along side an excess supply of Ph.D. who constantly look for permanent positions in teaching.²⁹

The Korean government's funding for higher education was mainly directed to national universities. This funding policy left most private universities seriously lacking financial resources. The government needs to devise a mechanism in which private and public universities can increase fiscal capability. One possibility is to permit the institutions to engage in for-profit activities as long as the profits earned are circulated to the primary mission of the institution. Another possibility is to develop an environment that stimulates donations and gifts to higher education institutions through appropriate tax incentives.

Lack of resources has also been a serious problem in public universities. As the government regulates the level of tuition and personnel, an individual public university has to rely on the government apportionment for most of its operating expenditure. Moreover, since the public

university usually has lower tuition than a comparable private university, the former does not need to work hard to improve its instructional quality in order to attract better students.

It seems more appropriate for the government to provide funds to enhance research capabilities than teaching capabilities, because research activities produce public goods while teaching activities generate private goods. It would be more efficient to distribute research funds through competitions to individual researchers than through grants to institutions, as even major universities have disparate faculty research capabilities. Furthermore, since higher education in Korea becomes more or less universal with more than 80% of private funding, there seems very little to be gained by increasing public subsidy simply to increase university attendance.³⁰ However, it may be an appropriate social policy goal to increase university attendance for a particular group of people, say low-income households, veteran's family and so on. This kind of policy objective can be better achieved by direct cash transfer (or voucher) to the potential beneficiaries than by price subsidy through public transfer of funds to higher education institutions.

The government should play a pivotal role in formulating the governance structure of universities. One can divide the governance issues into external governance and internal governance.³¹ Most of the public universities in Korea are national, and most of the national universities are under the control of the MOE.³² Therefore, the key issue of external governance control of public universities is how to allocate power between the Ministry and individual institutions. Currently, the Ministry maintains relatively direct and strict control. One can think about alternative governance structure in which the university system is relatively independent of the Ministry by having a higher education council (or board of regents). Alternatively, each university can have a separate board so that individual institutions can exercise more autonomy and responsibility.³³

External governance control for private universities is by nature decentralized since each university would be under the control of its own board of trustees. One key problem of the Korean private university has been the conflict between the founder (and his/her family) and the other stakeholders (particularly faculty and students). In many cases, the founder has put substantial personal resources into the university, and, in return, gets control of the board of trustees by nominating persons whom s/he can easily exercise influence over. In some cases, the founder may engage in nepotism in recruitment and promotion of professors and even illegal usages of institutional funds.

Allegation of such activities may create internal dispute that may paralyze the normal operation. Even when there is no such illegal transfer of funds, the control of the institution is the key attraction to the founder in terms of financial gain as well as personal fulfillment. Therefore, the founder may use sub-optimal tactics in appointment of personnel and operation of the institution in order to protect her/his control. These issues are particularly acute for many colleges and universities that do not have long histories, as many of the founders and their immediate families are deeply involved in the institutions.³⁴

It becomes increasingly important for both public and private higher education institutions to build up appropriate governance structures that could help make them more autonomous from either the MOE or private families, as well as hold them more accountable to important stakeholders such as taxpayers, students, and communities. The current internal governance control in Korean universities needs to be closely examined in order to meet the challenges of the future. First, the incentive system for faculty members needs to be improved. Traditionally, most universities provided *de facto* tenure when a professor was hired, and salary on the length of service rather than merit. Although the system of periodic reappointment had been introduced, the implementation of the system was more harmful, as it had been used more often for political purposes by the government or the university administration. Under these situations, the pursuit for teaching and research excellence was seriously hampered.

The resource allocation across units within an institution is also an important issue in the internal governance control system. Because of the lengthy existence of enrollment quotas, the administrative structure and the allocation of resources have a great deal of discrepancy to the market demand. Efforts to quickly fill the discrepancy will inevitably create dissatisfaction among some members of the university and create schisms within the institution. Although the government should not get involved too much in the internal governance control mechanisms of individual institutions, it is imperative that it provides guidelines that each university can use as a benchmark.

Regulations are another important mechanism available to policy makers. However, the government should do away with substantial portions of current regulations that deal with direct control of the operation of higher-learning institutions through enrollment quotas, student admission procedures, establishment of new departments, and so on. These regulations tend to generate unintended consequences of distorted incentive systems and petty corruption, while the effectiveness

of the regulations can be defeated substantially with a variety of loopholes. For example, student selection methods should be totally delegated to individual universities. The government's obsession to reduce private tutoring by tweaking the admission procedure has failed its objectives. Such radical changes simply have created confusions to students, and frustration to university administrators as well as to government officials.

Such a shift in the policy paradigm from regulation to liberalization requires not only fewer regulations, but more transparent information and strict enforcement of the rules. The government should be the rule maker and the enforcer. It should not to pick winners and losers. Such government intervention will inevitably create wasteful rent-seeking activities. It also requires the patience to wait until the more market-based system works toward a more efficient system that best suits the Korean higher education sector with proper funding and governance structures.

The successful experience of POSTECH and KAIST suggest two important lessons for universities aspiring to be among the world's best research universities. First, availability of financial resources would be essential if the institutions were to attract high caliber faculty and provide them with a good research environment. Second, the governance system, focused on its mission and flexibility to be able to run the institution in order to achieve its goal, is also essential. Over the years, many institutions used merit scholarships in an attempt to attract better quality students. As tuition for Korean universities is substantial, such scholarships seemed to work very well. However, the competitive merit scholarship may change the preference of the student, and thereby change the rank of the quality of incoming students. In addition, the scholarship may not be able to improve teaching and research environment of the university in the short run, as the resources used for merit scholarship may diminish the resources for better teaching and research.

Current policy issues in Korean higher education

In this section, we discuss the impending policy choices in the higher education sector in Korea. For each issue, we argue that the government needs to shift its role from direct regulator to overseer of funding for and governance of higher education institutions.

Specialization in higher education market

An intelligent discussion is urgently called for regarding how to create the division of roles in the higher education market in Korea. The first issue is what should be the proper role of 2-year colleges. Some 2-year institutions, particularly the ones in Seoul, find a niche for training technical personnel in demand. However, many colleges are fallback opportunities for those who want to advance to 4-year universities but fail to do so. Some of the students eventually move up the university hierarchy ladder by transferring to 4-year universities.

These two roles of colleges are not necessarily mutually exclusive. However, the optimistic view of the ever-expanding higher market will soon be busted as the number of college-aged persons will decrease substantially in the near future. The colleges that are located outside of Seoul and do not have viable technical and occupational programs will be faced with severe enrollment shortages and financial difficulties.

The second issue is how to divide and complement the teaching and research functions of the university. Over the years, instruction has been the more important function of Korean universities.³⁵ Until recently, the typical *modus operandi* was that bright undergraduate students from these schools went abroad to major research universities in the US and Western Europe for their Ph.D.s. Upon their return, they occupied professorial positions at their alma mater.³⁶

However, the academic environment they came back to is different from the research environment in which they were trained. The Korean academic environment requires more teaching, more administrative responsibilities, and more lucrative outside consulting opportunities; academic research has not been rewarded well with either salary or scholarly reputation. Given the current lack of infrastructure, incentive system, and resources of these schools as compared to top research universities in the world, it is inappropriate to ask these schools and their faculty members to transform them into research institutions in a short time period. Specifically, it would be totally imprudent to try to make all universities research universities, and all professors productive researchers. Undergraduate teaching and research function sometimes are odds with each other. The former requires dedicated teachers who are willing to spend time with students in classroom and lecture halls. On the other hand, research responsibilities require professors to spend time alone or with a handful of colleagues and assistants. Unless the large and established universities can devise incentive systems that can handle the two conflicting demands on diverse instructional and

research staff within each institution, the effort to increase research capabilities may create undesirable conflict among faculty.

Regional balance of education opportunities

Concentration of economic activities in Seoul has been the perennial problem in Korea. Previous administrations beginning with Park have talked about decentralization policies in various sectors. However, continuous concentration of power, resource, and decision-making capacity in Seoul has made decentralization policies mere lip services. Public investment (such as land development, road construction, subway system, water system, and so on) has been disproportionately concentrated in Seoul and its suburbs.

Concentration of universities in Seoul is no different from the concentration of daily newspapers, TV stations, theater groups, and other cultural assets. However, the government has maintained strict control over higher education institutions. Even after the deregulation in 1995, private universities in the Seoul metropolitan were required to get permission from the government when they wanted to increase enrollments in order to restrict migration of students to Seoul. The policy resulted in a premium for the universities located in the Seoul metropolitan area.

Each provincial capital city has at least one national university, which was setup in the early 1950s. It is true that these universities played a key role in the development of the surrounding region by providing various economic and social services including medical services as well as education. Therefore, higher-learning institutions can be an effective tool for regional development policies. Locating, maintaining, and improving these institutions can result in positive impact by generating employment, income, and knowledge spillover in the surrounding areas.

However, simply using the enrollment quota as a growth control device will not work. First of all, a student can migrate to the Seoul area after finishing school. Also, since Korea is physically a small country, a student can visit his/her home anywhere in the country in a day. Preventing a student from going to a university in Seoul will not make the student settle down in the provincial cities. Therefore, the current differential treatment of the institutions in the Seoul area only creates undue market restriction of excess higher education demand in the Seoul area without producing any tangible social benefits. Even the extreme scenario where Seoul specializes in higher education and becomes a net exporter of education services would not be too bad.

However, the concentration of all major universities in Seoul and surrounding areas is a concern, not because it makes Seoul bigger, but because it creates uneven education opportunities and social service deliveries across the region. This concern must be dealt with in more direct measures of regional development policies such as rearrangement of the tax system and reallocation of fiscal resources.

Private tutoring in secondary schools

Reducing the resources devoted to private tutoring has been one of the top education priorities of the government. It is understandable that the government wanted to deal with the issue when the household expenditure on private tutoring almost approached the government's expenditure on public education. As strict regulation of the private tutoring failed to curb the phenomenon, the government used the college admission policy to reduce private tutoring. However, past experience with the change in university admission procedures suggests that such a policy would not make the ills of secondary school system, including private tutoring, go away.

Given that the higher education market is highly hierarchical, the student selection procedure is the key mechanism to assign more able students to higher ranking institutions. Therefore, the primary objective of the student selection procedure should be efficiency and equity of the procedure. In other words, a good student selection procedure should be cheap to administer, have a good probability that highly able students will enter highly ranked universities, and be fair for all students in the system. However, the previous selection procedures mandated by the government were far from such criteria.³⁷

Changing admission procedures for universities will neither discourage competition for better universities nor decrease private tutoring. In fact, discouraging competition for better universities should not be the government's objective. The admission procedure is the fundamental mechanism in which students with different abilities and motivations are matched with the universities with different qualities and reputations.

Strategies for merger, exit, and privatization

Due to the demographic factors, it is expected that enrollment for higher education will shrink substantially in the near future. This means

that it is inevitable that some higher-learning institutions will fail to attract enough students to exist. Therefore, it is urgent to devise ways in which merger or exit can take place voluntarily in the marketplace. In principle, public universities can be merged or eliminated at the will of the government under the current law. However, such action would be politically very unpopular to the faculty and the students of the institution. Therefore, it would be desirable to create a more decentralized governance system with more financial autonomy at the institutional level before a major crisis happens, and to encourage the decision-making body to adjust more flexibly as the market changes.

An unsustainable private university may either be merged with another one having a better financial situation or be closed down permanently. However, when the private university is a non-profit institution, the major stakeholder, such as the founder or chairman of the board, may hold out the merger or exit, when the loss of her/his control of the institution negatively affects her/his personal well-being. As long as the founder controls the board, s/he may benefit personally from the continual operation of the university by receiving a salary, using university housing, and so on, even though the institution may accumulate more debt during the process. This moral hazard problem can be reduced, if not totally eliminated, by allowing some institutions to become for-profit. The owner of the for-profit institution will have stronger incentives for merge or exit when it is not financially viable, making structural adjustment among higher institutions easier.

Already there exist a large number of for-profit technical schools (called *hakwons*) that teach job skills similar to some 2-year technical colleges, such as hair styling, cooking or automobile repair. By allowing some private universities to become for-profit, the government may be able to eliminate the holdout problem of the major stakeholder. Similarly, a buyout can be arranged with the major stakeholder when s/he contributes substantial financial resources as a founder or founder's family. If an effective and transparent board could be set up by removing the founder's influence, then the long term prospect of the university could be improved by such buyouts.

Conclusions

In this paper, we examined the rapid expansion and current policy issues of the Korean higher education sector. With the implementation the government's universal primary education policy, followed by the

secondary school equalization policy, accompanied by the successful economic growth, the Korean education system now provides higher education opportunities for about 80% of high school graduates. The successful high level of access to higher education in such a short time period was achieved by aggressively utilizing the private sector in funding and provision. As the country dramatically expanded primary and secondary education during the same period, the marketization of the higher education sector was an inevitable choice. The end result is that Korea relies more heavily on private resources for higher education than any other country in the OECD.

Heavy reliance on private funding creates both challenges and opportunities for Korean policy makers. As the demand for public allocation of resources to primary schools and secondary schools diminishes, the Korean government will have more resources available to higher education in the future. This creates an opportunity to upgrade Korea's higher education system. However, even if these additional resources are put into the system, the teaching and research capacity of Korean universities may not improve dramatically as long as the current funding mechanisms and governance structures are in place.

With the large proportions of private universities and colleges, the Korean higher education sector is highly amenable to market-based reform policies. However, given the imminent reduction in enrollment due to demographic factors and the enlargement of the constituency of the higher education sector, there will be enormous political pressure for more financial support by the government. Although more support would be beneficial to the higher education sector in general, the government should adopt more discriminatory policies based on market principles.

In many countries where the demand for higher education increases rapidly, private responsibilities in funding and provision will grow inevitably. However, the government should play a crucial role in creating a suitable incentive structure for institutions, students, and faculty in order to create an effective, efficient, and equitable higher education sector. Unfortunately, as the legal framework of and political environment toward higher education differs substantially among countries, it would be difficult to come up with a set of universally acceptable "best" marketization policies. Every country should find its own "best" policies based on its historical, political, social, and economic environment.

Finally, as Dill (2003) points out in the examination of the US higher education sector, market-based policies are not without perils. First, the

competition among universities for better students and that among students for better universities may create wasteful zero-sum games among them. Universities may have to spend substantial amounts of money for non-educational purposes such as advertisements for student recruitment. Students have to continuously spend large sums of money in private tutoring in order to increase their chance of being admitted to better schools. Second, heavy reliance on private finance may hinder the access to higher education institution, particularly of high-quality-high-expenditure ones, by the students from low-and moderate-income households (see Steier 2003 for similar concern). Therefore, the right mixture of need-based, merit-based scholarships and loans must be provided. Third, the quality control for lower-end institutions may become a serious issue in the market-based system. Without quality assurance, more diplomas of college graduation *per se* will not contribute much either to individual well-being or to social benefit.

Notes

1. The enrollment figure increased to 101,014 in 1960, to 201,436 in 1970, to 647,505 in 1980, to 1,691,681 in 1990, and 3,383,293 in 2000. Most of the statistics about Korean education in this paper is from KEDI, Korean MOE (1998), Korean National Statistical Office.
2. For comparison, the population of 20–24 years old in 2002 is estimated about 4.01 million.
3. See Brunner (1993) for the experience of Chile, Eisemon (1992) for Kenya, Gindling and Sun (2002) and Wang (2003) for Taiwan, Wang (2001) for China, Goldin and Katz (1998) for the US, James (1986, 1987) for Japan, and Naradowski and Andrada (2001) and Rozada and Menendez (2002) for Argentina, Al-Lamki (2002) for Oman.
4. All teachers' universities were 2-year institutions, but converted to 4-year since early 1980s.
5. American missionary Rev. Allen, also a medical doctor, established Kwanghye-won, an earlier medical school, in 1885. This became Severance Medical School, which later merged into Yonsei University. One year later, Mrs. Scranton, another American missionary, started Ewha Woman's School, which became Ewha Womans University.
6. The most notable one is Bosung School established in 1905, which later became Korea University.
7. Kyungsung was an old name for Seoul.
8. In 1945, there were 19 higher-learning institutions, which had less than 8000 students in total.
9. In 1945, only 65% of primary school aged children were enrolled in schools. Moreover, the Japanese teachers, who consist of more than 40% of all primary school teachers, went back to Japan soon after the liberation. The situation in

secondary schools was much worse. As the colonial Japanese government had not encouraged secondary education to Koreans, the enrollment rate for secondary schooling was less than 20%. Also, more than 70% of secondary school teachers were Japanese.

10. Several teachers' colleges were established in order to produce primary school teachers quickly. Also, the government started an aggressive construction campaign by building more than 5,000 classrooms per year starting in 1954.
11. Typically the board of trustees has the legal ownership of the institution, the founder or his/her family is the de facto proprietor, by manipulating and controlling the appointment of the board.
12. Up until now, the Korean government has not allowed for-profit higher education institutions.
13. In 1956–1957, only 44.8% of primary school graduates advanced to middle schools and 64.6% of middle school graduates advanced to high schools. By 1970, 66% of primary school graduates entered to middle schools, and 70% of middle school students to high schools. In 1999, almost all students graduating elementary schools and middle schools continue their schooling to middle schools and high schools, and 85% of the graduates from academic high school continue their higher education.
14. Korea National Open University was established in 1972 as a division of SNU. In 1982, it became an independent institution.
15. The government's real expenditure per student during 1975 and 1999 has increased about seven times in elementary school but less than two times in university.
16. Although the level of regulation has been relaxed, the government still maintains a high degree of control over the operation of universities, public or private.
17. Korean government recognized that the migration to Seoul is partly motivated by attending universities there. In order to comply with the standing regional development policy of decentralization of economic activities away from the Seoul area, the institutions located in the Seoul area must still obtain explicit permissions when they want to increase the number of students.
18. For example, Yonsei University established a branch campus in Wonju, Konkuk University in Choongju, and Hanyang University in Ansan.
19. Rankings can be determined by a variety of criteria. For example, the U.S. News & World Report annually announces a comprehensive ranking of universities in the US by using more than a dozen criteria including the assessment by administrators at peer institutions, retention of students, faculty resources, student selectivity, financial resources, alumni giving, and graduation rate. Ehrenberg and Hurst (1998) use several criteria, but Webster (2001) identifies that the most significant ranking criterion is the average SAT score of enrolled students.
20. Fox (1993) estimates that private return in quality of higher education is as high as the return in quantity. Brewer et al. (1999) documents that even after controlling for selection effects (i.e., highly able students are more likely to attend elite universities), there is strong evidence suggesting that economic return to attending an elite private institution in the US, and the premium has increased over time. In Korea, Jang (2002) shows the pronounced wage premium of about 42% for the graduates of top five universities over those below ranked 30. Also, he estimates that the quality premium depreciates very quickly after the top five schools. For the next top five universities, the premium decreases to less than 10%.

21. Rothschild and White (1995) recognized that peer group effect is an important element in the provision of higher education, as the quality of a student exerts an externality to other students' educational experience. By charging lower price to high ability students who exert high positive externality to others, schools can effectively internalize the externality so that the competitive market equilibrium would be socially efficient. Similarly, Ehrenberg and Sherman (1984) and Epple et al. (2003) show selective universities provide more scholarship to poorer but more able students.
22. A major exception is that the faculty salary of the top ranked SNU is known to be substantially lower than top ranked private universities. However, the gap can be reduced or eliminated for many faculties who can attract substantial outside research funds or consulting jobs because of the University's reputation.
23. For example, Joongang Daily Newspaper ranks all major universities every year. The methodology is similar to the US News & World Report's ranking for American University. According to its 2002 ranking, Pohang University of Science and Technology (POSTECH) ranked the number one, followed by Korean Advanced Institute of Science and Technology (KAIST), SNU, Yonsei, Korea, Sungkyunkwan, Sogang, Hanyang, Ewha, and Inha (Joongang Daily, September 25, 2002).
24. Following the tradition of Ming and Qing dynasty in China, the Yi dynasty of Korea (1392–1910) conducted annual open examinations in order to recruit high-level government officials. Such recruitment method was adopted in modern Korea as well in the judicial and executive branch of the government. The numbers reported in the table are normalized to the class size of the humanities and social sciences, as they are the most popular majors among applicants
25. In Austria, Germany and China, almost all universities are public and are virtually free. In the UK, Australia, and Singapore, almost all universities are public, but students pay substantial tuition. In the US, Mexico, Chile, Japan, and Korea, there exists substantial number of private universities along with public universities. In those countries, tuitions for public universities are generally lower than those for private universities, but the tuition for public universities is substantial. Visit Johnstone's website for further information.
26. Given the trend of de-industrialization in which high-paying blue collar jobs are decreasing rapidly and more demand for longer education, the selective university entrance exam system or early tracking system would be politically unpopular. Therefore, it is inevitable that substantial portion of higher education needs to be paid by private sources in the future no matter what system the country has chosen.
27. This contrasts starkly with the US, another country in which private universities play comparably important roles. Also, it differs greatly from the Japanese situation in which the government decided to subsidize substantial amounts to private universities.
28. In 2003, the number of *ad hoc* instructors was estimated at more than 50,000, which is larger than that of regular full-time faculty members. Most of the *ad hoc* instructors work full-time by taking 3 to 6 courses per semester in several universities simultaneously with much lower wages than regular faculty.
29. In 2003, more than 7000 Ph.D.s were awarded in Korea, and more than 1000 Ph.D.s were awarded to Korean students at foreign universities. Since the total number of current full-time faculty positions is about 45,000 in Korea, one can imagine the tightness of the academic job market.

30. However, it may be an appropriate social policy goal to increase university attendance for a particular group of people, say low-income households, veteran's family and so on. This kind of policy objective can be better achieved by direct cash transfer (or voucher) to the potential beneficiaries than by price subsidy through public transfer of funds to higher education institutions.
31. External governance control means how the institution is controlled by the players outside of the institution. It includes issues like how top administrators are appointed, how to accredit and evaluate the institution, how the amount of public subsidy is decided, and so on. Internal governance issues are how to allocate power between the president, deans, and faculties within the institution.
32. One important exception is KAIST, which is under the control of the Ministry of Science and Technology. However, the Ministry does not directly control KAIST. Rather, it is operated as an independent institution with a separate board of directors. Many experts attribute the success of KAIST to the independence of governance from the government control, though its funding is primarily by the government.
33. Recently, Japan has adopted a similar reform measure (Yonezawa 1998).
34. According to a survey done in 2003 by Sul Hoon, in 23 out of 83 private universities, a member of the immediate family of the founder serves as President, Vice President, or other high-level administrators. Also, more than three immediate family members serve in faculty or administration in 18 universities.
35. Although POSTECH and KAIST, whose mission is to become world-class research institutions, have been quite successful in fulfilling their objectives, larger and more established universities, including top universities such as SNU, Yonsei, and Korea, have much more extensive undergraduate programs than graduate programs.
36. Since early 1990s, the domestic supply of Ph.D.s increased very rapidly. The glut of Ph.D.s created very tight job market for Ph.D. holders. See also note 29.
37. For example, in line with the equalization policy, government prohibited universities from weighing the differences in high school quality in student selection procedures. Any information regarding the quality differences among schools is not disclosed, and the evaluation of an applicant's academic performance in high school is restricted to only relative position of the applicant in school. Even under equalization policy, there could be significant differences across schools depending on socio-economic backgrounds of students. The relative position of a student in school without information on the quality of school cannot convey much about the true academic capability of the student. Accordingly, universities rely more heavily on entrance examinations in student selection.

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