KDI SCHOOL

WORKING PAPER SERIES

KDI 국제정책대학원
KDI School of Public Policy and Management

KDI SCHOOL WORKING PAPER SERIES

How Good is Korean Health Care?
An International Comparison of Health Care Systems

Jaeun Shin

March 2006
Working Paper 06-02

KDI 국제정책대학원
KDI School of Public Policy and Management

How Good is Korean Health Care?

An International Comparison of Health Care Systems

Jaeun Shin [*]

KDI School of Public Policy and Management

[*]Assistant Professor of Economics, KDI School of Public Policy and Management, 207-43 Cheongnyangri2-Dong, Dongdaemoon-Gu, Seoul 130-868, Korea. Tel.: +822-3299-1037; Fax: +822-3299-1129; Email: jshin@kdischool.ac.kr.

How Good is Korean Health Care?

An International Comparison of Health Care Systems

Abstract

The aim of the study is to assess the maturity of Korean health care in comparison of OECD countries and to provide a foundation from which the quality and competitiveness of Korean health care system is evaluated. Using data from the Organization for Economic Cooperation and Development (OECD), the performance of the health care of thirty industrialized countries in 2003 are compared. The comparisons focus on three dimensions that have centered in health care debates across countries for years: access, cost, and outcomes. Even though Korea has successfully achieved universal health insurance in a short period of time and possessed highly advanced medical technologies, we find that Korean people pay more out-of-pocket expenditures on their health care and their health outcomes are relatively of low quality compared with other OECD countries.

Key words: Korean health care system; universal health insurance; out-of-pocket expenditure

JEL classification: I1; O5

1. Introduction

Korean health care system has developed dramatically over the past three decades. Most remarkable achievement in its evolution is the completion of universal health insurance. Since 1977 when the government mandated compulsory medical insurance for employees and their dependents in large corporations with more than 500 workers, the national health insurance coverage kept extending to include more occupational groups of citizens such as government employees, teachers, workers in smaller firms and the self-employed. Ultimately, all Korean citizens are covered by the national health insurance (NHI) by 1989. Until the advent of the economic crisis in 1997, the Korean universal health insurance system has stabilized both financially and administratively. Subject to the minimal guidelines by the central government, the decentralized insurance societies, either private-sector initiatives or medical insurance societies served the covered enrollees (Jeong, 2005). Each independent insurance society had autonomy in managing the scheme for enrollees: set the level of contributions and benefits, collect premiums and copayments, reimburse and monitor providers of medical care services for their enrollees. Financial feasibility was the responsibility of each society (Peabody et al., 1995, Kwon, 2002, Jeong, 2005).

However, inefficiency of operating more than 300 individual insurance societies and financial inequity across societies have gradually emerged as serious problems in the administration of the universal health insurance. For worse, the economy-wide crisis in 1997 caused a dramatic increase in the overall NHI's financial deficit. Concerns regarding both the inequity in health care financing between employment categories and the chronic deficit of health insurance society for the self-employed led to the merger of all health insurance societies into a single insurer in 2000 (Kwon, 2002; Lee, 2003; Jeong, 2005). Additional to the integration reform for equity and efficiency, the Korean government implemented another major reform in

2000: the separation reform for specialization and quality care (NHIC, 2005). By the integration reform, all insurance societies are merged into a single insurer, the National Health Insurance Corporation (NHIC). By the separation reform, the prescription of drugs is specialized to medical doctors and the dispensing of drugs is conducted only by the certified pharmacists. Though the launching of the NHIC is designated to improve the financial soundness of the health insurance system, and to enhance efficiency and equity among insured population, only few studies have been conducted to evaluate the historical evolution of Korean health care system and even fewer evidence are available for the performance of the Korean health insurance system.

In the earlier era of the universal health insurance in Korea, Anderson (1989) tributes the successful completion of universal coverage in Korea: “Korea has eliminated financial barriers to health care. Korea has moved from insuring less than 10 percent of the people in 1976 to 100 percent coverage in 1989, while during the same period, the U.S. percentage of covered citizens declined from 86.4 to 82.9 percent.” By that time, Korea had similarities with the United States in health care including a fee-for-service structure and concern for rising health care costs (Anderson, 1989; Peabody et al., 1995; Jeong, 2005). Another feature which is noted as a primary contributor to the achievement of universal health insurance in Korea is the active role of private-sector initiatives. The private sector including three health insurance societies insured 90 percent of the population, while the Korean government insured the remaining 10 percent (Kwon, 2002): “rapid economic growth, the policies implemented by the military regime, and the design of a pluralistic insurance system based on separate insurance societies for different employee categories all contributed to the rapid expansion of health insurance.”

To extend the health insurance coverage to its population, the basic strategy adopted by the Korean military regime was to separate sub-population groups of employees and the self-

employed (Peadoby et al., 1995). Mandating employees to cover their employees has been an effective way to extend coverage from the government's perspective. The notable thing associated with the mandatory expansion of coverage in Korea is that the universal health insurance coverage has been accomplished without any major disruption to the overall economy, any apparent harm to specific industries, or any adverse impact on small firms (Anderson, 1989, Kwon 2002). In Korean experience, the rapid expansion to the population, however, has resulted in several problems, such as low contribution levels with limited health benefits, little involvement of the public sector in health care delivery, cost inflation, and financial distress (Kwon, 2002). In various aspects, the development and reform process of the Korean health insurance system has provided meaningful implications for health care reform in other countries, in particular the United States (Anderson, 1989; Jeong, 2005; Lee, 2003; Peabody et al., 1995).

The purpose of study is to shed a light on the efforts to identify the location of Korean health care on the map of worldwide health care system and furthermore, through an international comparison, to provide an initial step to evaluate the quality and competitiveness of Korean health care system. The comparisons focus on three dimensions that have centered in health care debates across countries for years: access, cost, and outcomes. The paper examines whether Korea has shown improvement relative to other industrialized countries on any of these dimensions in during the period from 1980 to 2003. The performance of the Korean health care system in terms of access to care and cost sharing experienced as of 2003 may be enlightening for the world health care systems which have struggled with the shared tensions and goals such as fair contributions, cost control, and quality care. How well the Korean universal system performs may hint the potential effectiveness of similar reforms in other countries.

2. Data and Sample

The Organization for Economic Cooperation and Development (OECD) Health Data 2005 has released information on per capita spending, utilization rates, health status, demographic factors, and other data on thirty industrialized countries for 1960-2003. While complete data are available for each country for each year, there are numerous technical and data collection issues involved in an international comparison. Nonetheless, the data are useful in outlining how well a particular health care system is performing and has been used in many previous studies in this line of research. In particular, the data allow researchers to evaluate a country's progress in comparison of that of other industrialized countries (Anderson, 1997). The OECD has taken the lead in collecting and publishing data for conducting international comparisons in recent years.

3. Performance of the Korean Health Care System

3.1. Access to Care – Insurance coverage

The history of achieving the universal health insurance coverage for all citizens in Korea is quite overwhelming. Before 1976 when the national health insurance program in Korea was initiated by the military regime to assure universal health insurance coverage for all citizens, less than 10 percent of the population had any health insurance and the per capita income was less than $800 (Anderson, 1989). Although Korea has experienced considerable political turmoil in the intervening years, it finally achieved its goal of universal health insurance coverage in 1989 as the plan was originally designed (Anderson, 1989; Peabody et al., 1995; Kwon, 2002). The prominent characteristic of the universal health insurance coverage in Korea is that it was achieved via private-sector initiatives through incremental process. The system relied on a series of self-contained medical insurance societies to collect revenues, determine the benefits, and

accumulate reserves. The societies were owned and operated by for-profit corporations, but they do not earn a profit on their activities (Anderson, 1989; Lee, 2003, Jeong, 2005).

Another notable feature of the Korean experience in expanding health insurance coverage is that the universal health insurance coverage has been accomplished in a mandatory way. The coverage was compulsory and gradually expanded through a series of laws requiring incremental phase-in of universal coverage. During this process, the caveat worthy to note is that Korean economy did not experience any major disruption to the overall structure, any apparent harm to specific industries, or any adverse impact on small firms (Anderson, 1989; Lee, 2003). Over the period 1976-1989, Korea enjoyed the fortune that its one of the fastest economic growth rates in the world, about 12.2 percent per year, supported the mandatory implementation of the employment-based health insurance for industrial workers (Lee, 2003).

Korea began the program to assure health insurance coverage by starting with the employed population. All firms with more than 500 employees were required to provide health insurance in 1976 and in 1982, much smaller firms with more than 16 employees were under the obligation. Corporations and employees negotiate over the benefit package as long as it meets a minimum set of benefits established by the government. The health insurance societies established or joined by most of the corporations with more than 16 employees provided health insurance coverage to the employees. Over 30 percent of the population was covered through these plans in 1988 (Anderson, 1989; Kwon, 2002).

The second insurance program, which was established in 1977, covers the indigent. It is a categorical program similar to the U.S. Medicaid program that covers individuals living in public facilities, those who are unemployed and rely on family assistance for financial support, and the medically needy due to high medical expenses (Anderson, 1989). The percentage of the

population eligible for this government assistance program has remained relatively constant at 10 percent since the program was established in 1977 (Kwon, 2002).

Government workers, school employees, and pensioners began to be covered by the third type of health insurance in 1979 (Anderson, 1989; Peabody et al., 1995). In this program, the government and the insured equally share the contributions (Kwon, 2002). The payroll deductions of this health insurance were relatively higher than the deductions for industrial societies because utilization rates were higher for this population who tends to be older than the members of the industrial societies. These health insurance plans have covered about 10 percent of the entire population annually until 1998, when it has been merged into one with the industrial societies (Anderson, 1989; Kwon, 2002).

The self-employed and residents of urban and rural communities, who took remaining 50 percent of Korean population, were entitled to health insurance coverage beginning in 1981 (urban area) and 1988 (rural area), respectively (Anderson, 1989; Peabody, et al. 1995, Kwon, 2002). In the initial stage, the government paid the administrative expenses of operating the program. The individuals paid all remaining costs. As the program has evolved, however, the government paid up to 50 percent of the costs for assuring the health insurance coverage among the self-employed population (Anderson, 1989, Kwon 2002).

Table 1 shows changes in the percentage of population with health insurance coverage in inpatient and acute care services during 1977 ~ 2003. The insurance rate of Korea, 14.5%, was the lowest among twenty-five countries that reported relevant information. As Korea completed the expansion of health insurance coverage to its all citizens in 1989, the coverage rate increased from 14.5% in 1976 to 100% in 1989, the fastest increase in insurance rate out of the thirty industrialized countries.

In 2003, eighteen countries had achieved 100-percentage of coverage publicly mandated for inpatient & acute hospital care, and the majority had more than 90 percent of coverage for the services. Though all Koreans hold a basic coverage from the mandatory national health insurance, many Koreans opt to purchase supplemental private health insurance against disastrous medical bills from serious illness such as cancer and heart diseases. This is also true in some other countries. The most affluent Germans have private health insurance (Iglehart, 1991). In the Netherlands higher-income employee groups, the self-employed, and state government officials have private health insurance for the treatment that is not publicly mandated (Schut, 1995). Though the Netherlands has achieved universal coverage through a combination of public and private insurance, the publicly mandated insurance coverage for Netherlands was only 64.2% in 2001 (Anderson, 1997). It suggests that the successful expansion of the universal coverage experienced in Korea is a very fortunate and remarkable achievement. The U.S. coverage rate seems shockingly low since the rate represents only for the coverage by public programs such as Medicare and Medicaid and excludes the coverage by any private insurance which most of Americans purchase through their employment. The rate of public insurance coverage in the U.S. rose from 23.3% in 1989 to 25.3% in 2002 and a slight increase during 1990s may be contributed primarily by the expansion of Medicaid eligibility. The private health insurance mostly based on employment-related plans cover about 60 percent of the U.S. population for inpatient & acute care services. An estimated 15.2 percent of the population had no health insurance coverage during 2002, challenging the entire health care system in the U.S. via cost increase and inequity in health (U.S. Census Bureau, 2003).

3.2. Health Care Use and Supply

Service use and resource supply: Table 2 documents the average use of physician service and hospital beds among thirty OECD countries in 2003. The average number of annual physician visits per capita[1] (column 1) varies widely, from 2.5 visits in Greece and Mexico to 14.1 visits per year in Japan. Per capita physician visits in the median OECD country had an average of 6.15 in 2003. Koreans made more than four times frequent visits than the median number of visits among thirty countries (10.6 visits per capita) and are ranked as the 5th highest per capita utilization among OECD countries in 2003. The majority of OECD countries had between five and ten annual physician visits per capita. Including Korea, only five countries (Japan, Czech Republic, Slovak Republic, Hungary, Korea) had annual physician visits per capita higher than ten in 2003. Unless Koreans are particularly unhealthy compared to than the population in other developed countries, the higher utilization of physician service in Korea indicates that either Koreans tend to have greater dependency for medical help with mile health problems or they are more subject to moral hazard problem in the demand for health care services due to the universal coverage.

More than two thirds of the OECD countries had between two and three practicing physicians per 1,000 populations in 2003. The median OECD country had 3.1 practicing physicians per 1,000 populations. There was not a wide range of the number of practicing physicians per capita. Greece had the largest number of practicing physicians (4.4 per 1,000) and Turkey had the least (1.4 per 1,000). Korea, despite high utilization of physician care (measured by physician visits per capita) had relatively small number of practicing physicians (1.6 per 1,000). The number of practicing physicians in Korea (1.6 per 1,000) is ranked as the third from the bottom (or the 28th from the greatest, Greece (4.4 per 1,000)) next to Mexico (1.5 per 1,000) and Turkey (1.4 per 1,000) among the OECD countries. It indicates that Korea runs a short supply of physicians to meet the demand for their services among citizens. The shortage of

physicians and high utilization of physician services together result in the second top number of visits per physician in Korea. The average visits per physician in Korea are 6,630 per year which is second most average annual number of visits per physician among the OECD countries. The average number of annual visits per physician per year varies widely across the thirty countries. A physician in the median OECD country had an average of 2,090 visits per year. Physicians in Japan had the most visits per year (7,050), while physicians in Sweden and Switzerland had the fewest (880). Large number of visits or patients a physician serve in a given period of time may degrade the quality of care or the responsiveness of care to patient satisfaction, which are often realized as difficulties in making an appointment with a doctor, long-waiting in service setting, and short consulting time with a doctor.

The average length of stay (ALOS) in acute care hospital beds per capita ranged from 3.6 days in Denmark to 20.7 days in Japan (Table 2). There has been a consistent trend toward fewer inpatient days per capita in many OECD countries since 1980 (Anderon and Hussey, 2001). Since 1980, worldwide health policies, particularly the policy in the U.S., have centered on keeping people out of the hospital and keeping hospital stays as short as possible so that the increase in health expenditure may slow down. In 2003 the average length of a hospital acute care stay in Korea was 10.6 days, which is the second longest stay in the acute care inpatient beds days next to Japan (20.7). Again, Koreans tend to depend more seriously on medical care in hospital facilities. If Japan relies on the hospital inpatient care for the longest days on average primarily due to high portion of elderly citizens, the same aging problem rapidly progressing in Korea may be the reason for the long stays in hospital inpatient beds.

Unlike the case of physician supple, the number of hospital acute care beds per 1,000 populations in Korea is the 5th (5.9 beds) among thirty developed countries. Japan has the most number of acute care beds (8.5 beds) and Mexico has the fewest beds (1.0 bed). Notably, the U.S

has relatively fewer beds, 2.8 beds per 1,000 (the 23rd). It indicates that As a mean of cost containment, the U.S. not only abridges the length of stays in acute care beds but also cut down the supply of inpatient beds in a hospital which may generate additional cost saving.

Medical technology: For measuring the utilization rate of high-tech medical equipments, we use the supply of magnetic resonance imagers (MRIs), computed tomography (CT) scanners, and lithotriptos as proxies for the availability of expensive medical technology. In the previous studies in this line of research, the number of MRIs is the most common measure for the degree of technological advance in a given medical system (Anderson and Hussey, 2001). The number of MRIs per million persons in 2003 ranged from 0.2 in Mexico to 35.3 in Japan (Table 3). The availability of MRIs in Korea was in upper 30% of OECD countries. Japan, Switzerland, Iceland, Austria, Finland, Italy, Luxembourg, and Denmark had more MRIs per capita than Korea in 2003. The number of computed tomography (CT) scanners ranged from 1.5 in Mexico to 92.6 in Japan. The number of CT scanners in Korea was 31.9 per million populations. Korea had the second largest number of computed tomography scanners next to Japan. The median number of lithotripters of OECD countries was 2.2 per million populations, ranging from 0.3 in Mexico to 6.8 in Korea. Korea had more than triple times of lithotripters to the median number of OECD countries.

Interestingly, wealthier OECD countries (measured by GDP per capita) and countries with higher health spending per capita on health (including United States, United Kingdom, Germany, France, and Canada) generally have lower number of computed tomography scanners than do poorer OECD countries. A country with high and rapidly increasing health expenditure per capita may tighten the supply of expensive medical equipment and also may discourage both patients and providers from using costly medical services. Large supply of advanced medical technology in Korea can contribute to the cost-insensitive use of expensive medical services. On

the other hand, as these services are not reimbursed by the national health insurance (until 2005), individual providers and hospitals which are under strict regulation on service pricing, may seek for high revenue by inducing demand for these uncovered services among their patients.

3.3. Health Care Costs and Financing

Table 4 documents various measures of health care expenditure among OECD countries. Health spending per capita (measured by U.S. dollars with purchasing power parity (PPP) adjustment) ranged from $452 per capita in Turkey to $5,635 per capita in the U.S. The U.S. continues to spend considerably more per capita on health care than any other country – more than double the amount spent by the median OECD country in 2003. Many studies have shown that most of the difference in health spending across countries can be explained by the level of average wealth, as measured by GDP per capita (Anderson and Hussey, 2001). Countries with higher average wealth spend proportionally more on health care: The most obvious examples are the U.S., Switzerland, Germany, France, and Canada.

The health care expenditure per capita in Korea ($1,074, the 26th) is relatively small, below the half of the OECD median ($2,269). During the period 1995-2003, however, the real Korean health care spending rapidly increased at an average annual rate of 12.5 percent. The annual rate of increase in real health care spending in Korea was almost twice high the annual rate of increase in the median OECD country (6.95 percent).

Between 1960 and 1998 there was some observed tendency toward the mean in health spending. Countries with high health care spending per capita in 1960 tended to have slower rates of spending growth than did countries with lower spending per capita (Anderson and Hussey, 2001). Also, countries with more rapid economic growth also had more rapid increase in health spending. The case of Korea clearly demonstrates the combination of relatively low per

capita spending and high growth rate which accompany the dramatic GDP growth and the completion of the universal health insurance in last three decades. Along with the aging of Korean population, Korea faces with the future challenge in financing its health care system in a viable way.

Canada is the example of opposite situation, high level ($3,003, the 6th) and slow growth (5.8 percent, the 25th) of per capita spending. The respectful performance of Canadian health system in terms of stabilized growth in health expenditure has generated the enthusiasm among researchers and policy makers in the U.S. about learning from the Canadian system. Some even suggest transforming the private-initiated U.S. system into the universal national health insurance system like the one in Canada.

Public expenditure on health per capita in Korea ($531) is below one third of the OECD median. In the process of expanding the national health insurance, the central government minimized its role in financing health care so that there would not be any trouble in supporting the economic growth, which was the top priority in the government budgeting. As most contributions are made by employees and employers, the public spending on health care per capita seems to be shockingly low among countries which similarly run a national health insurance system: the amount of per capita public contribution on health care is $2,100 (the 10th) in Canada, $1,743 (the 15th) in Japan, and $1,860 (the 11th) in the U.K. Another indicator demonstrates the minimal role of the central government in financing Korean health care system as well: The percent of public funding out of total health expenditure is only 49.4 percent in Korea while the rates are much higher in other countries with the national health insurance (69.9 percent in Canada, 81.5 percent in Japan, 83.4 percent in the U.K.).

With less support from the central government, the consumer cost sharing measured by per capita out-of-pocket (OOP) spending is notably high ($450, the 8th) in Korea, far above the

OECD median level ($397). In Germany and Japan of which health care systems have been the benchmark in molding the Korean health care financing system, per capita OOP is much smaller ($312, the 17th for Germany and $370, the 15th for Japan). Again, the proportion of total out-of-pocket spending to total health care expenditure is 41.9 percent (the 3rd highest next to Mexico (50.5%) and Greece (46.5%)) in Korea while the figures are only 14.9% in Canada, 10.4% in Germany, 17.3% in Japan and 14.1% even in the U.S. These findings suggest that the successful expansion of health insurance coverage in Korea does not necessarily guarantee the appropriate financial protection against the potentially catastrophic medical expenses an average Korean citizen may be exposed to. Furthermore, low contribution rates of the insured and stringent public funding for health care system result in limited range service as benefit-in-kind. Wide variety of uncovered services commonly received by the patients may be one reason for high OOP spending in Korea. High cost sharing rates may help mitigate the moral hazard effect on the demand for health care services and improve the financial stability of the National Health Insurance Corporation (NHIC) in Korea which is the single insurer under a continuous deficit since 1997. The benefit of the universal coverage, though its achievement itself is admirable, should not be overemphasized since in practice, the range of benefit-in-kind may not sufficient enough to completely remove barriers to necessary care among the insured Korean citizens.

3.4. Health Outcomes

High health care expenditure and its rapid growth may be rewarding and even recommendable if it actually brings better health into the population. Though it is unquestionable that better health is the ultimate goal of any health care system, it is not very convenient to measure and compare the health outcomes (by nature, a qualitative attribute) across countries and their relationship with the type of health system and with the level of health care spending.

Obviously, the marginal improvement of health outcomes generated by unit investment on health care system is the best indicator of how good a health system performs. Most commonly used quantified measures for health outcomes are the life expectancy at birth and infant mortality rate (Table 5).

Life expectancy: On average, women's life expectancy at birth was more than five years longer (81.1 years) than men's (75.5 years) in a median OECD country. Life expectancy in Korea was below the OECD median for both men (73.4 years, the 24th) and women (80.4 years, the 21st). The life expectancy is the longest for women (85.3 years) and the second longest for men (78.4 years) in Japan indicating the severity of aging-related problems recently occurring in Japan. Women live seven years longer than men in Korea. To adjust the loss of life expectancy due to health problems, the potential years of life lost (PYLL) measures the years of life lost before age seventy due to preventable conditions.[2] Deaths during childhood can have a major influence on PYLL. The PYLLs of Korean are about 5.7 years for men (16 percent above the OECD median PYLLs for men, 4.95 years) and 2.7 years for women (3 percent above the OECD median PYLLs for women, 2.6 years). This result is contrast to the case of Japan where the PYLLs are 25 percent below the OECD median for men (3.7 years) and 25 percent below the median for women (2.0 years). In the U.S. both the life expectancy and the PYLLs are substantially poor: the years of life expectancy are 74.5 (the 22nd) and 79.9 for women (the 23rd). The PYLLs are 6.4 years for men (the 6th) and 3.7 years for women (the 3rd). Table 4 showed that the U.S is one of countries which spend more on health care both in level and in growth. If life expectancy correctly represents the worth of spending in a health care system, the U.S. may run one of the most poorly performing health care systems. Years of life expectancy, however, may depend on many other factors than the support from medical services, such as food, natural environment,

ethnicity-specific physical conditions and tendency of keeping healthy life style. Often, unhealthy eating is blamed for the short life expectancy in the U.S.

Infant mortality: The comparison of infant mortality per 1,000 live births (Table 5, column 3) shows the similar results in health outcomes. Japan has the second lowest infant mortality rate (3 out of 1,000 live births) and the rate is quite high in the U.S. (7 out of 1,000 live births, the 5th). The situation is likewise in Korea (6.2, the 7th). The Korean infant mortality is 33 percent above the OECD median (4.7 per 1,000 live births).

Immunization: The immunization against life-threatening diseases, particularly critical for infants and children are one of the most important preventive cares which may be highly related with long and healthy living among the population. Diphtheria, pertussis, and tetanus (simply called D.P.T.) and measles are examples of diseases that most of countries require or at least strongly recommend for children to be vaccinated against. As shown in Table 6, 97 percent (the 14th) of Korean children take the vaccine shots for preventing D.P.T and 90.2 percent (the 20th, below the OECD median) does for being immunized against measles. The national health insurance (NHI) of Korea does not provide coverage for certain services including vaccinations to its citizens.[3] Lack of a comprehensive national-level immunization policy and insufficient vaccinations are centered in the risk of prevalence of communicable diseases. At the same time, over 90 percent vaccination rates are quite impressive as all the expenses must be borne by consumers. Koreans seem to be well aware of the importance of proper immunizations and the potential harm a communicable disease would cause. Then, the expansion of the insurance coverage for immunization service will successfully raise the rates up to 100 percent as in Japan. As an effort to increase the immunization rates for preventing circulation of infectious disease, the national immunization services are strongly recommended in the Korean national health insurance system.

It is notable that though the immunization services are generally included as a part of basic benefit both in a private plan and in public programs, the U.S shows quite low rates of vaccinations (84.8 percent for D.P.T and 93 percent for measles). It may be due to high proportion of the uninsured population (15.2 percent in 2002).

In spite of variation in immunization rates across the OECD countries, by 2003 many countries achieved nearly universal immunization rates for communicable diseases such as D.P.T and measles. As such, the median immunization rates of D.P.T. and measles are 97.0 percent and 93.5 percent, respectively. It is a very satisfying and optimistic sign of better health worldwide in the future.

Unhealthy lifestyles: One aspect of the performance of a public health system is the promotion of healthy lifestyles (Anderson and Hussey, 2003). Most prevalent unhealthy activities are smoking and drinking (Table 6). The smoking rate among men of aged 15 or more is the highest in Korea (61.8 percent) whereas the rate among women of aged 15 or more is the lowest (5.4 percent) among the thirty industrialized countries. The smoking rate among Korean men is almost double the median value (31 percent) of the OECD countries. The very low rate of Korean female smoking seems closely related to cultural practice. Social prejudices about female smoking could contribute to the large gap across gender in Korea.

Per capita alcohol consumption among Koreans of aged 15 or older is ranked 16th (9.3 liters per year). The heaviest drinkers are French (14.8 liters per year), seemingly related with their unique culture of savoring wine in everyday cuisine. Regardless of the relative extent of smoking and drinking, these unhealthy activities generate a serious risk as they tend to be addictive. Hence, there lifestyles should be effectively discouraged for better health and low health expenditure for the smoking-related or the drinking-related illness. A systematic provision

of health education programs (anti-smoking, anti-drinking) may a reliable way to reduce the smoking and drinking and to promote healthy lifestyles, especially in Korea.

4. Discussions

It is remarkable that Korea achieved universal health insurance within 12 years. Many predicted Korean NHI would suffer financial distress, but trends in financial receipts and disbursements during the early 1990s showed no sign of financial instability (Lee, 2003). However, with the advent of the economic crisis of 1997, a financial deficit challenged Korean NHI and it grew serious each year until 2002 (Kwon, 2002; Lee, 2003; Jeong, 2005). The separation reform of pharmaceuticals initiated by the Korean government is regarded to make the most significant financial damage triggered by the foreign currency crisis of 1997 (Lee, 2003; Kim et al., 2004).

Cost containment and stabilization of the financial deficit of the NHI has been an impending mission to Korean government in 2003. Health care expenditures have been rising rapidly in the past three decades. Korea's total health care expenditure per capita has increased from $169 (4.0 percent of GDP) in 1985 to $1,074 (5.9 percent of GDP) in 2003. From 1985 to 2003, health spending per capita increased at an average rate of 33.5 percent per year. The lesson from the Korean case, associated with the escalating health care costs, is most likely to the role of governmental policies in regulating the supply side of the market (Lee, 2003). The five-year experience after the Korean health care reform of 2000, which launched a single insurer, the national health insurance corporation (NHIC), inform us that government cost containment in the absence of enhanced capacities for regulating the supply side of the market is no longer effective in controlling health care expenditure (Kwon, 2002; Lee, 2003). Korea has developed few cost containment programs. The most significant initiative was the fees for hospitals and physicians

set by the government. But this relatively naïve cost-containment mechanism was rapidly disrupted when it faced unexpectedly fierce strikes among physicians against a pharmaceutical reform and reimbursement guidelines such as diagnosis-related-groups (DRGs) system all of which threat their financial interest. The absence of capacity for regulating the supply side of the market led to rising health care costs (Anderson, 1989; Kwon, 2002; Lee, 2003; Kim et al., 2004). The rising health care cost was perfectly shifted to consumers that pay larger portion of payrolls as their health insurance contributions. The larger portion of private expenditures (about 55% out of total health care expenditure) and high cost sharing for consumers in receiving health care are easily understood financial outcomes as shown in Table 4.

The other mission for better health care is about efficient use of medical resources. It has been a concern that inappropriate and excessive utilization of resources may be generated by the universal coverage in Korea. High coinsurance levels and wide ranged of uncovered services are implemented against the potential overutilization. It has not been fully successful, however, as people continue to seek care in the most sophisticated facilities for trivial symptoms (Anderson, 1989). Even though Korea has achieved universal health insurance for all citizens in very short time and possessed highly advanced medical technologies, rapid increase in health care spending requires for a special attention from the policy makers. In this regard, precisely understanding provider-side incentive as well as consumers' behavior in the health care market and constructing effective ways to monitor both players are the most urgent and important policy agenda in the Korean health care reform. At the same time, some missing roles of the national health insurance such as high out-of-pocket expenditure and lack of coverage for some indispensable preventive services should be reconstructed. Enhanced health education programs against unhealthy habits among younger population are also helpful for lowering health expenditure and providing healthy long life in the long run.

NOTES

1. The average number of visits per physician was calculated by dividing the number of physician visits per capita by the number of practicing physicians per capita.

2. The calculation for PYLLs involves adding up deaths occurring at each age and multiplying this with the number of remaining years to live until a selected age limit. The limit of seventy years has been chosen for the calculation in OECD Health Data 2005. The PYLL per 100,000 populations is calculated by the OECD secretariat based on age-specific death statistics provided by the World Health Organization (WHO). The total OECD population in 1980 is taken as the reference population for age standardization.

3. "The NHI does not provide coverage for ultrasounds, MRIs (Magnetic Resonance Imaging), vaccinations, meals during hospitalization, home care, traditional medication, private hospital rooms (rooms with less than six beds), etc (Kwon, 2002, pp. 26)" Out of the list for health insurance benefits that are not covered by the Korean National Health insurance, MRIs and hospital meal services were newly included in covered benefits as of 2005.

REFERENCES

Anderson, G. F., "Universal Health Care Coverage," Health Affair, 8(2): 24 -34, 1989.

Anderson, G. F., "In Search of Value: An International Comparison of Cost, Access, and Outcomes," Health Affairs, 16(6): 163-171, 1997.

Anderson, G. F. and Hussey, Peter Sotir, "Comparing Health System Performance in OECD Countries," *Health Affairs*, 20(3): 219- 232, 2001.

Flynn, M. L. and Chung Y. S. "Health Care Financing in Korea: Private Market Dilemmas for a Developing Nation." *Journal of Public Health Policy*, 11(2):238-

253, 1990.

Iglehart, J. K., “Health Policy Report: Germany’s Health Care System (Part1),” *The New England Journal of Medicine*, 324 (7): 503-508, 1991.

----------, “Health Policy report: Germany’s Health Care System (Part2),” *The New England Journal of Medicine*, 324(24): 1750-1756, 1991.

Jeong, Hyoung-Sun, “Health Care Reform and Change in Public-Private Mix of Financing: A Korean Case.” *Health Policy*, 74: 133-145, 2005.

Kim, H. J., Chung W., and Lee, S. G. “Lessens from Korea’ Pharmaceutical Policy Reform: The Separation of Medical Institutions and Pharmacies for Outpatient Care,” *Health Policy*, 68: 267-275, 2004.

Kwon, Soonman. “Achieving the Health Insurance for All: Lessens from the Republic of Korea,” *Extension of Social Security (ESS) Working Paper Series* No. 1, International Labour Office, Geneva, 2002

Lee, Jong-Chan. “Health Care Reform in South Korea: Success or Failure?” *American Journal of Public Health*, 93(1): 48-51, 2003.

National Health Insurance Corporation. *National Health Insurance Program of Korea*, 2005.

Peabody J. W., Lee S. J., and Bickel, S.R. “Health for all in the Republic of Korea: One Country’s Experience with Implementing Universal Health Care.” *Health Policy* , 31: 29-42, 1995

Schut, F. T., “Health Care Reform in the Netherlands: Balancing Corporatism, Etatism, and Market Mechanisms,” *Journal of Health Politics, Policy, and Law*, 615-652, 1995.

U.S. Census Bureau. *United States Department of Commerce News*. September 30, 2003.

Table 1. Publicly Mandated Coverage for Inpatient & Acute Hospital Care among OECD Countries (During 1977 ~ 2003)

Country	**1977**	**1989**	**2003**
Australia	100.0	100.0	100.0
Austria	98.0	99.0	97.0
Belgium	99.0	98.0	99.0
Canada	100.0	100.0	100.0
Czech Republic	100.0	100.0	100.0
Denmark	100.0	100.0	100.0
Finland	100.0	100.0	100.0
France	98.0	99.3	99.9
Germany	92.3	89.3	90.9
Greece	98.0	100.0	100.0
Hungary	100.0	100.0	100.0
Iceland	100.0	100.0	100.0
Ireland	85.0	100.0	100.0[b]
Italy	100.0	100.0	100.0[e]
Japan	100.0	100.0	100.0[a]
Korea	**14.5**	**100.0**	**100.0**
Luxembourg	-	-	99.6
Mexico	-	-	-
Netherlands	69.7	61.6	64.2[a]
New Zealand	100.0	100.0	100.0
Norway	100.0	100.0	100.0
Poland	-	-	-
Portugal	98.0	100.0	100.0
Slovak Republic	-	-	19.3
Spain	84.0	98.9	-
Sweden	100.0	100.0	100.0
Switzerland	94.8	99.3	100.0
Turkey	37.8	53.6	66.0[e]
United Kingdom	100.0	100.0	100.0
United States	-	23.3	25.3[a]
Median	100.0	100.0	100.0

Source: *OECD Health Data 2005* (Paris: Organization for Economic Cooperation and Development, 2005)
Note: DPT is diphtheria, pertussis, and tetanus. [a] 2001. [b] 2000. [c] 1999. [d] 1998. [e] 1997. -- not available.

Table 2. Use of Physician Service and Hospital Facility among OECD Countries, 2003

Country	**Physician visits per capita**	**Number of practicing physicians per 1,000**	**Average visits per physician**	**ALOS_ hospital acute care days**	**Hospital acute care beds per 1,000**
Australia	6.0 (17)	2.5[a] (21)	2,400[a] (11)	6.2[a] (19)	3.6[a] (15)
Austria	6.7 (12)	3.4 (7)	1,971 (17)	5.8 (21)	6.0 (4)
Belgium	7.8[a] (8)	3.9[a] (3)	2,000[a] (16)	7.7[e] (9)	4.0[a] (10)
Canada	6.2[b] (14)	2.1 (26)	2,952[a] (8)	7.4[d] (10)	3.2[a] (17)
Czech Republic	13.0 (2)	3.5 (6)	3,714 (6)	8.3 (6)	6.5 (3)
Denmark	7.3 (9)	2.9[a] (17)	2,517 (9)	3.6 (30)	3.4[b] (16)
Finland	4.2 (21)	2.6 (19)	1,615 (21)	4.3 (28)	2.3 (25)
France	6.9[a] (11)	3.4 (7)	2,029 (15)	5.6 (22)	3.8 (13)
Germany	7.3[c] (9)	3.4 (7)	2,147[a] (14)	9.2[a] (3)	6.6[a] (2)
Greece	2.5[e] (27)	4.4[b] (1)	568[c] (28)	6.2[c] (19)	--
Hungary	12.2 (4)	3.2 (12)	3,813 (5)	6.7 (15)	5.9 (5)
Iceland	5.6[b] (18)	3.6 (4)	1,556[a] (22)	5.2[h] (24)	--
Ireland	--	2.6 (19)	--	6.5 (18)	3.0 (22)
Italy	6.1[c] (15)	4.1 (2)	1,488[a] (23)	6.8[a] (14)	3.9[a] (11)
Japan	14.1[a] (1)	2.0[a] (27)	7,050 (1)	20.7 (1)	8.5 (1)
Korea	**10.6[a] (5)**	**1.6 (28)**	**6,625 (2)**	**10.6 (2)**	**5.9 (5)**
Luxembourg	6.3 (13)	2.7 (18)	2,333 (13)	7.4[g] (10)	5.7 (8)
Mexico	2.5 (27)	1.5 (29)	1,667 (20)	3.9 (29)	1.0 (27)
Netherlands	5.6 (18)	3.1 (14)	1,806[b] (19)	8.6[b] (5)	3.2[a] (17)
New Zealand	3.2 (24)	2.2 (24)	1,455[e] (24)	4.9 (26)	--
Norway	--	3.1 (14)	--	5.4 (23)	3.1 (19)
Poland	6.1 (15)	2.5 (21)	2,440[a] (10)	7.9[a] (7)	5.1 (9)
Portugal	3.7 (22)	3.3 (10)	1,121[b] (25)	7.3 (12)	3.1 (19)
Slovak Republic	12.4 (3)	3.1 (14)	4,000 (3)	7.9 (7)	5.9 (5)

Spain	9.5 (6)	3.2 (12)	2,969[b] (7)	7[b] (13)	3.1 (19)
Sweden	2.9[b] (25)	3.3[a] (10)	879[a] (27)	4.8[a] (27)	2.4[c] (24)
Switzerland	3.4 (23)	3.6[a] (4)	944 (26)	9 (4)	3.9 (11)
Turkey	2.6[b] (26)	1.4 (30)	1,857[a] (18)	5.2 (24)	2.3 (25)
United Kingdom	5.2 (20)	2.2 (24)	2,364 (12)	6.7 (15)	3.7 (14)
United States	8.9 (7)	2.3[a] (23)	3.870 (4)	6.7 (15)	2.8 (23)
Median	6.15	3.1	2,088	6.7	3.7

Source: *OECD Health Data 2005* (Paris: Organization for Economic Cooperation and Development, 2005)
Note: ALOS stands for average length of stays. [a] 2002. [b] 2001. [c] 2000. [d] 1999. [e] 1998, [f] 1997, [g] 1996, -- not available. Ranks are reported in the brackets.

Table 3. Use of Medical Technology among OECD Countries, Per Million Population, 2003

Country	**MRI**	**CT scanners**	**Lithotripters**
Australia	3.7 (19)	20.8[h] (7)	1.8[a] (13)
Austria	13.5 (4)	27.2 (4)	1.8 (13)
Belgium	6.6[a] (13)	28.8[a] (3)	--
Canada	4.5 (16)	10.3 (20)	0.5 (20)
Czech Republic	2.4 (24)	12.6 (18)	3.4 (6)
Denmark	9.1 (8)	14.5 (11)	--
Finland	12.8 (5)	14.0 (14)	0.4 (22)
France	2.8 (22)	8.4 (22)	0.7 (19)
Germany	6.0[a] (14)	14.2[a] (12)	3.3[a] (7)
Greece	2.3[a] (25)	17.1[a] (10)	3.0[e] (9)
Hungary	2.6 (23)	6.9 (24)	1.1 (17)
Iceland	17.3 (2)	20.7 (8)	3.5 (5)
Ireland	--	--	--
Italy	11.6 (6)	24.0 (6)	2.9[g] (10)
Japan	35.3[a] (1)	92.6[a] (1)	6.4[a] (2)
Korea	**9.0** **(9)**	**31.9** **(2)**	**6.8** **(1)**
Luxembourg	11.1 (7)	26.7 (5)	2.2 (12)
Mexico	0.2 (28)	1.5 (27)	0.3 (23)
Netherlands	3.9[h] (17)	--	--
New Zealand	3.7 (19)	11.5 (19)	0.5 (20)
Norway	--	--	--
Poland	1.0 (27)	6.3 (25)	2.9 (10)
Portugal	3.9 (17)	12.8 (17)	1.4 (16)
Slovak Republic	2.0 (26)	8.7 (21)	4.3 (4)
Spain	7.3 (12)	13.0 (16)	1.8 (13)
Sweden	7.9[d] (11)	14.2[d] (12)	--

Switzerland	14.2 (3)	18.0 (9)	4.5 (3)
Turkey	3.0 (21)	7.3 (23)	0.9[b] (18)
United Kingdom	5.2[b] (15)	5.8[b] (26)	--
United States	8.6[a] (10)	13.1[a] (15)	3.2[a] (8)
Median	5.6	14.0	2.2

Source: *OECD Health Data 2005* (Paris: Organization for Economic Cooperation and Development, 2005)
Note: MRI and CT stands for magnetic resonance imaging and computed tomography, respectively. [a] 2002. [b] 2001. [c] 2000. [d] 1999. [e] 1998, [f] 1997, [g] 1996, [h] 1995, -- not available. Ranks are reported in the brackets.

Table 4. Health Care Spending among OECD Countries, 2003

Country	**Health spending per capita, US$ PPP**	**Health spending, percent of GDP**	**Annual growth in health spending, 1995-2003**	**Public expenditures on health per capita, US$ PPP**	**OOP spending per capita, US$ PPP**
Australia	$2,699[a] (12)	9.3[a] (12)	7.8% (11)	$1,821[a] (13)	$529[b] (5)
Austria	2,280[a] (15)	7.6[a] (21)	3.1 (20)	1,593[a] (18)	399[a] (13)
Belgium	2,827 (10)	9.6 (10)	6.9 (16)	--	--
Canada	3,003 (6)	9.9 (7)	5.8 (25)	2,100 (10)	448 (9)
Czech Republic	1,298 (24)	7.5 (22)	6.1 (22)	1,170 (22)	108 (26)
Denmark	2,763 (11)	9.0 (14)	6.2 (21)	2,292 (6)	436 (10)
Finland	2,118 (19)	7.4 (23)	6.0 (23)	1,622 (17)	403 (12)
France	2,903 (9)	10.1 (6)	5.3 (28)	2,214 (7)	291 (21)
Germany	2,996 (7)	11.1 (3)	4.0 (29)	2,343 (5)	312 (17)
Greece	2,011 (20)	9.9 (7)	7.6 (13)	1,032 (23)	935 (2)
Hungary	1,115[a] (25)	7.8[a] (18)	9.3 (5)	783[a] (24)	293[a] (20)
Iceland	3,115 (5)	10.5 (4)	8.5 (8)	2,602 (3)	513 (6)
Ireland	2,386[a] (14)	7.3[a] (24)	13.7 (2)	1,793[a] (14)	314[a] (16)
Italy	2,258 (16)	8.4 (15)	5.9 (24)	1,697 (16)	468 (7)
Japan	2,139[a] (18)	7.9[a] (17)	5.6 (27)	1,743[a] (15)	370[a] (15)
Korea	**1,074 (26)**	**5.6 (30)**	**12.5 (4)**	**531 (26)**	**450 (8)**
Luxembourg	3,190[a] (4)	6.1[a] (27)	7.8 (11)	2,725[a] (2)	379[a] (14)
Mexico	583 (29)	6.2 (26)	6.6 (18)	270 (29)	294 (19)
Netherlands	2,976 (8)	9.8 (9)	7.9 (10)	1,856 (12)	233 (22)
New Zealand	1,886 (21)	8.1 (16)	6.4 (20)	1,484 (19)	296 (18)
Norway	3,807 (2)	10.3 (5)	12.6 (3)	3,188 (1)	591 (4)
Poland	677[a] (28)	6.0[a] (28)	8.9 (6)	490[a] (27)	187[a] (23)
Portugal	1,797 (23)	9.6 (10)	8.3 (9)	1,253 (21)	--
Slovak Republic	777 (27)	5.9 (29)	7.2 (14)	687 (25)	91 (27)

Spain	1,835 (22)	7.7 (19)	6.6 (18)	1,306 (20)	434 (11)
Sweden	2,594[a] (13)	9.2[a] (13)	7.0 (15)	2,213[a] (8)	--
Switzerland	3,781 (3)	11.5 (2)	5.8 (25)	2,213 (8)	1,192 (1)
Turkey	452[c] (30)	6.6[c] (25)	28.9 (1)	284[c] (28)	125[c] (25)
United Kingdom	2,231[a] (17)	7.7[a] (19)	8.9 (6)	1,860[a] (11)	160[g] (24)
United States	5,635 (1)	15.0 (1)	6.8 (17)	2,503 (4)	793 (3)
Median	2,269	8.25	6.95	1,743	379

Source: *OECD Health Data 2005* (Paris: Organization for Economic Cooperation and Development, 2005)
Note: OOP, PPP, GNP stand for out-of-pocket, purchasing-power-parity, and gross national product, respectively. [a] 2002. [b] 2001. [c] 2000. [d] 1999. [e] 1998, [f] 1997, [g] 1996, [h] 1995, -- not available. Ranks are reported in the brackets.

Table 5. Life Expectancy and Infant Mortality among OECD Countries, 2003

Country	**Life expectancy at birth, 2003**		**Potential years of life lost per 100,000 population, 2003**		**Infant mortality per 1000 live births**
	Males, 0-69	Females, 0-69	Males, 0-69	Females, 0-69	All
Australia	77.8 (4)	82.8 (6)	4.376[b] (22)	2.385[b] (21)	4.8 (13)
Austria	75.6 (14)	81.6 (12)	4.713 (18)	2.516 (19)	4.5 (16)
Belgium	75.1[a] (18)	81.1[a] (15)	5.576[f] (10)	3.053[f] (8)	4.3 (18)
Canada	77.2[a] (6)	82.1[a] (9)	4.425[b] (21)	2.636[b] (15)	5.4[a] (9)
Czech Republic	72.0 (26)	78.5 (26)	6.257 (7)	2.875 (11)	3.9 (24)
Denmark	74.9 (20)	79.5 (24)	4.953[c] (15)	3.055 (7)	4.4 (17)
Finland	75.1 (18)	81.8 (11)	5.219 (12)	2.294 (23)	3.1 (27)
France	75.8 (13)	82.9 (4)	5.590[b] (9)	2.624[b] (16)	3.9 (24)
Germany	75.5 (15)	81.3 (14)	4.789[b] (17)	2.523[b] (18)	4.2 (21)
Greece	75.4 (16)	80.7 (18)	4.700[a] (19)	2.200[a] (26)	4.8 (13)
Hungary	68.3 (29)	76.5 (29)	9.483 (2)	4.310 (2)	7.3 (4)
Iceland	78.7 (1)	82.5 (7)	3.661[a] (28)	2.526[a] (17)	2.4 (30)
Ireland	75.2[a] (17)	80.3[a] (22)	5.232[b] (11)	3.034[b] (9)	5.1 (11)
Italy	76.9 (9)	82.9 (4)	4.332[b] (23)	2.247[b] (25)	4.3 (18)
Japan	78.4 (2)	85.3 (1)	3.718[a] (27)	1.969[a] (29)	3.0 (29)
Korea	**73.4[a] (24)**	**80.4[a] (21)**	**5.741[a] (8)**	**2.716[a] (13)**	**6.2[d] (7)**
Luxembourg	74.9[a] (20)	81.5 (13)	5.119 (14)	2.265 (24)	4.9 (12)
Mexico	72.4 (25)	77.4 (28)	11.129[h] (1)	6.486[h] (1)	20.1 (2)
Netherlands	76.2 (11)	80.9 (17)	3.966 (26)	2.677 (14)	4.8 (13)
New Zealand	76.3[a] (10)	81.1[a] (15)	5.208[c] (13)	3.108[c] (6)	5.6[b] (8)
Norway	77.0 (8)	81.9 (10)	4.273[a] (24)	2.492[a] (20)	3.4 (26)
Poland	70.5 (27)	78.9 (25)	8.315[a] (3)	3.477[a] (5)	7.0 (5)
Portugal	74.0 (23)	80.6 (20)	6.547[a] (5)	2.985[a] (10)	4.1 (22)
Slovak Republic	69.9[a] (28)	77.8[a] (27)	8.117[a] (4)	3.638[a] (4)	7.9 (3)

Spain	77.2 (6)	83.7 (2)	4.828[a] (16)	2.187[a] (28)	4.1 (22)
Sweden	77.9 (3)	82.4 (8)	3.658[b] (29)	2.197[b] (27)	3.1 (27)
Switzerland	77.8[a] (4)	83.0[a] (3)	4.225[b] (25)	2.323[b] (22)	4.3 (18)
Turkey	66.4 (30)	71.0 (30)	--	--	29.0 (1)
United Kingdom	76.2 (11)	80.7 (18)	4.620[a] (20)	2.762[a] (12)	5.3 (10)
United States	74.5[a] (22)	79.9 (23)	6.435[b] (6)	3.733[b] (3)	7.0[a] (5)
Median	75.5	81.1	4.953	2.636	4.7

Source: *OECD Health Data 2005* (Paris: Organization for Economic Cooperation and Development, 2005)
Note: [a] 2002. [b] 2001. [c] 2000. [d] 1999. [e] 1998. [f] 1997. g 1996. h 1995. -- not available. Ranks are reported in the brackets.

Table 6. Immunization and Unhealthy Lifestyles among OECD Countries, 2003

	Percentage of children immunized, 2003		**Percentage of population at age 15 and older smoking daily, 2003**		**Annual liters per capita alcohol consumption, age 15 and older, 2003**
Country	**D.T.P.**	**Measles**	**Men**	**Women**	
Australia	92.2 (21)	94.1 (14)	21.4[b] (27)	18.2[b] (21)	9.8[a] (13)
Austria	84.0 (29)	79.0 (27)	40.7[d] (5)	32.2[d] (1)	11.0[a] (10)
Belgium	97.1[d] (13)	75.0 (29)	30.0 (18)	25.0 (8)	9.6[a] (15)
Canada	84.2[e] (28)	94.5[a] (13)	19.0 (29)	14.0 (27)	7.8[a] (24)
Czech Republic	97.0 (14)	99.1 (4)	30.9[a] (17)	18.1[a] (22)	12.1 (5)
Denmark	96.0 (17)	96.0 (9)	31.0 (15)	25.0 (8)	11.5 (6)
Finland	96.0[a] (17)	97.0[b] (5)	25.7 (23)	19.3 (18)	9.3 (16)
France	97.2 (12)	86.5 (22)	32.0[a] (13)	25.6[a] (7)	14.8[a] (1)
Germany	97.5 (11)	92.5 (18)	29.8 (19)	19.1 (19)	10.2 (12)
Greece	88.0 (25)	88.0 (21)	44.0[c] (4)	27.0[c] (4)	9.1[a] (18)
Hungary	99.8 (2)	99.9 (2)	40.5 (6)	27.8 (3)	13.4[a] (4)
Iceland	97.0 (14)	93.0 (16)	25.4 (25)	19.6 (16)	6.5 (27)
Ireland	85.0 (26)	78.0 (28)	28.0[a] (20)	26.0[a] (5)	13.5 (3)
Italy	95.8 (19)	83.0 (24)	31.4 (14)	17.6 (24)	8.6[a] (20)
Japan	100.0 (1)	100.0 (1)	48.3 (3)	13.6 (28)	8.2[c] (22)
Korea	**97.0 (14)**	**90.2[d] (20)**	**61.8[b] (1)**	**5.4[b] (30)**	**9.3 (16)**
Luxembourg	98.0 (6)	91.0 (19)	39.0 (8)	26.0 (5)	14.7[a] (2)
Mexico	97.9 (10)	96.4 (8)	39.1[a] (7)	16.1[a] (25)	4.6[a] (29)
Netherlands	98.0[a] (6)	96.0 (9)	39.0[b] (8)	30.0[b] (2)	9.8[a] (13)
New Zealand	88.7[c] (24)	85.0[c] (12)	25.0 (26)	25.0 (8)	8.9 (19)
Norway	90.0 (23)	84.0 (23)	27.0 (22)	25.0 (8)	6.0 (28)
Poland	99.0 (4)	97.0 (5)	37.0[b] (10)	19.5[b] (17)	8.1[a] (23)

Portugal	99.0 (4)	96.0 (9)	32.8[e] (12)	9.5[e] (29)	11.5[a] (6)
Slovak Republic	99.3 (3)	99.3 (3)	25.5[a] (24)	22.5[a] (14)	7.6 (25)
Spain	98.0[a] (6)	97.0 (5)	34.2 (11)	22.4 (15)	11.2[a] (8)
Sweden	98.0 (6)	94.0 (15)	16.7 (30)	18.3 (20)	7.0 (26)
Switzerland	95.0 (20)	82.0 (26)	31.0[a] (15)	22.8[a] (13)	10.8 (11)
Turkey	68.0 (30)	75.0 (29)	51.1 (2)	17.8 (23)	1.5 (30)
United Kingdom	91.3 (22)	82.3 (25)	28.0 (20)	24.0 (12)	11.2 (8)
United States	84.8 (27)	93.0 (16)	19.4 (28)	15.7 (26)	8.3[a] (21)
Median	97.0	93.5	31.0	21.0	9.45

Source: *OECD Health Data 2005* (Paris: Organization for Economic Cooperation and Development, 2005)
Note: DPT includes diphtheria, pertussis, and tetanus. [a] 2002. [b] 2001. [c] 2000. [d] 1999. [e] 1998. -- not available. Ranks are reported in the brackets.

Working Paper Series

Category	Serial #	Author	Title
Working Paper	99-01	Se-Il Park	Labor Market Policy and The Social Safety Net in Korea: After 1997 Crisis
Working Paper	99-02	Sang-Woo Nam	Korea's Economic Crisis and Corporate Governance
Working Paper	99-03	Sangmoon Hahm	Monetary Bands and Monetary Neutrality
Working Paper	99-04	Jong-Il You Ju-Ho Lee	Economic and Social Consequences of globalization: The Case of South Korea
Working Paper	99-05	Sang-Woo Nam	Reform of the Financial Sector in East Asia
Working Paper	99-06	Hun-Joo Park	Dirigiste Modernization, Coalition Politics, and Financial Policy Towards Small Business: Korea, Japan, and Taiwan Compared
Working Paper	99-07	Kong-Kyun Ro	Mother's Education and Child's Health: Economic Anlaysis of Korean Data
Working Paper	99-08	Euysung Kim	Trade Liberalization and Productivity Growth in Korean Manufacturing Industries: Price Protection, Market Power, and Scale Efficiency
Working Paper	99-09	Gill-Chin Lim	Global Political-Economic System and Financial Crisis: Korea, Brazil and the IMF
Working Paper	99-10 (C99-01)	Seung-Joo Lee	LG Household & Health Care: Building a High-Performing Organization
Working Paper	00-01	Sangmoon Hahm Kyung-Soo Kim Ho-Mou Wu	Gains from Currency Convertibility: A Case of Incomplete Markets
Working Paper	00-02	Jong-Il You	The Bretton Woods Institutions: Evolution, Reform and Change
Working Paper	00-03	Dukgeun Ahn	Linkages between International Financial and Trade Institutions: IMF, World Bank and WTO
Working Paper	00-04	Woochan Kim	Does Capital Account Liberalization Discipline Budget Deficit?
Working Paper	00-05	Sunwoong Kim Shale Horowitz	Public Interest "blackballing" in South Korea's Elections: One-Trick Pony, or Wave of the Future?
Working Paper	00-06	Woochan Kim	Do Foreign Investors Perform Better than Locals? Information Asymmetry versus Investor Sophistication
Working Paper	00-07	Gill-Chin Lim Joon Han	North-South Cooperation for Food Supply: Demographic Analysis and Policy Directions
Working Paper	00-08 (C00-01)	Seung-Joo Lee	Strategic Newspaper Management: Case Study of Maeil Business
Working Paper	01-01	Seung-Joo Lee	Nokia: Strategic Transformation and Growth
Working Paper	01-02	Woochan Kim Shang-Jin Wei	Offshore Investment Funds: Monsters in Emerging Markets?
Working Paper	01-03	Dukgeun Ahn	Comparative Analysis of the SPS and the TBT Agreements
Working Paper	01-04	Sunwoong Kim Ju-Ho Lee	Demand for Education and Developmental State: Private Tutoring in South Korea
Working Paper	01-05	Ju-Ho Lee Young-Kyu Moh	Do Unions Inhibit Labor Flexibility? Lessons from Korea
Working Paper	01-06	Woochan Kim Yangho Byeon	Restructuring Korean Bank's Short-Term Debts in 1998 - Detailed Accounts and Their Implications -
Working Paper	01-07	Yoon-Ha YOO	Private Tutoring as Rent Seeking Activity Under Tuition Control

*** The above papers are available at KDI School Website <http://www.kdischool.ac.kr/faculty/paper.asp>.**
You may get additional copy of the documents by downloading it using the Acrobat Reader.

Working Paper Series

Category	Serial #	Author	Title
Working Paper	01-08	Kong-Kyun Ro	경제활동인구 변동의 요인분석: 선진국과의 비교분석
Working Paper	02-01	Sangmoon Hahm	Restructuring of the Public Enterprise after the Crisis : The Case of Deposit Insurance Fund
Working Paper	02-02	Kyong-Dong KIM	The Culture of Industrial Relations in Korea : An alternative Sociological Approach
Working Paper	02-03	Dukgeun Ahn	Korean Experience of the Dispute Settlement in the world Trading System
Working Paper	02-04	BERNARD S. BLACK Hasung Jang Woochan Kim	Does Corporate Governance Matter? (Evidence from the Korean Market)
Working Paper	02-05	Sunwoong Kim Ju-Ho Lee	Secondary School Equalization Policies in South Korea
Working Paper	02-06	Yoon-Ha YOO	Penalty for Mismatch Between Ability and Quality, and School Choice
Working Paper	02-07	Dukgeun Ahn Han-Young Lie	Legal Issues of Privatization in Government Procurement Agreements: Experience of Korea from Bilateral and WTO Agreements
Working Paper	02-08	David J. Behling Kyong Shik Eom	U.S. Mortgage Markets and Institutions and Their Relevance for Korea
Working Paper	03-01	Sang-Moon Hahm	Transmission of Stock Returns and Volatility: the Case of Korea
Working Paper	03-02	Yoon Ha Yoo	Does Evidentiary Uncertainty Induce Excessive Injurer Care?
Working Paper	03-03	Yoon Ha Yoo	Competition to Enter a Better School and Private Tutoring
Working Paper	03-04	Sunwoong Kim Ju-Ho Lee	Hierarchy and Market Competition in South Korea's Higher Education Sector
Working Paper	03-05	Chul Chung	Factor Content of Trade: Nonhomothetic Preferences and "Missing Trade"
Working Paper	03-06	Hun Joo Park	RECASTING KOREAN *DIRIGISME*
Working Paper	03-07	Taejong Kim Ju-Ho Lee	Mixing *versus* Sorting in Schooling: Evidence from the Equalization Policy in South Korea
Working Paper	03-08	Naohito Abe	Managerial Incentive Mechanisms and Turnover of Company Presidents and Directors in Japan
Working Paper	03-09	Naohito Abe Noel Gaston Katsuyuki Kubo	EXECUTIVE PAY IN JAPAN: THE ROLE OF BANK-APPOINTED MONITORS AND THE MAIN BANK RELATIONSHIP
Working Paper	03-10	Chai-On Lee	Foreign Exchange Rates Determination in the light of Marx's Labor-Value Theory
Working Paper	03-11	Taejong Kim	Political Economy and Population Growth in Early Modern Japan
Working Paper	03-12	Il-Horn Hann Kai-Lung Hui Tom S. Lee I.P.L. Png	Direct Marketing: Privacy and Competition
Working Paper	03-13	Marcus Noland	RELIGION, CULTURE, AND ECONOMIC PERFORMANCE
Working Paper	04-01	Takao Kato Woochan Kim Ju Ho Lee	EXECUTIVE COMPENSATION AND FIRM PERFORMANCE IN KOREA
Working Paper	04-02	Kyoung-Dong Kim	Korean Modernization Revisited: An Alternative View from the Other Side of History

*** The above papers are available at KDI School Website <http://www.kdischool.ac.kr/faculty/paper.asp>.**
You may get additional copy of the documents by downloading it using the Acrobat Reader.

Working Paper Series

Category	Serial #	Author	Title
Working Paper	04-03	Lee Seok Hwang	Ultimate Ownership, Income Management, and Legal and Extra-Legal Institutions
Working Paper	04-04	Dongsoo Kang	Key Success Factors in the Revitalization of Distressed Firms : A Case of the Korean Corporate Workouts
Working Paper	04-05	Il Chong Nam Woochan Kim	Corporate Governance of Newly Privatized Firms: The Remaining Issues in Korea
Working Paper	04-06	Hee Soo Chung Jeong Ho Kim Hyuk Il Kwon	Housing Speculation and Housing Price Bubble in Korea
Working Paper	04-07	Yoon-Ha Yoo	Uncertainty and Negligence Rules
Working Paper	04-08	Young Ki Lee	Pension and Retirement Fund Management
Working Paper	04-09	Wooheon Rhee Tack Yun	Implications of Quasi-Geometric Discountingon the Observable Sharp e Ratio
Working Paper	04-10	Seung-Joo Lee	Growth Strategy: A Conceptual Framework
Working Paper	04-11	Boon-Young Lee Seung-Joo Lee	Case Study of Samsung's Mobile Phone Business
Working Paper	04-12	Sung Yeung Kwack Young Sun Lee	What Determines Saving Rate in Korea?: the Role of Demography
Working Paper	04-13	Ki-Eun Rhee	Collusion in Repeated Auctions with Externalities
Working Paper	04-14	Jaeun Shin Sangho Moon	IMPACT OF DUAL ELIGIBILITY ON HEALTHCARE USE BY MEDICARE BENEFICIARIES
Working Paper	04-15	Hun Joo Park Yeun-Sook Park	Riding into the Sunset: The Political Economy of Bicycles as a Declining Industry in Korea
Working Paper	04-16	Woochan Kim Hasung Jang Bernard S. Black	Predicting Firm's Corporate Governance Choices: Evidence from Korea
Working Paper	04-17	Tae Hee Choi	Characteristics of Firms that Persistently Meet or Beat Analysts' Forecasts
Working Paper	04-18	Taejong Kim Yoichi Okita	Is There a Premium for Elite College Education: Evidence from a Natural Experiment in Japan
Working Paper	04-19	Leonard K. Cheng Jae Nahm	Product Boundary, Vertical Competition, and the Double Mark-up Problem
Working Paper	04-20	Woochan Kim Young-Jae Lim Taeyoon Sung	What Determines the Ownership Structure of Business Conglomerates? : On the Cash Flow Rights of Korea's Chaebol
Working Paper	04-21	Taejong Kim	Shadow Education: School Quality and Demand for Private Tutoring in Korea
Working Paper	04-22	Ki-Eun Rhee Raphael Thomadsen	Costly Collusion in Differentiated Industries
Working Paper	04-23	Jaeun Shin Sangho Moon	HMO plans, Self-selection, and Utilization of Health Care Services
Working Paper	04-24	Yoon-Ha Yoo	Risk Aversion and Incentive to Abide By Legal Rules
Working Paper	04-25	Ji Hong Kim	Speculative Attack and Korean Exchange Rate Regime
Working Paper	05-01	Woochan Kim Taeyoon Sung	What Makes Firms Manage FX Risk? : Evidence from an Emerging Market
Working Paper	05-02	Janghyuk Lee Laoucine Kerbache	Internet Media Planning: An Optimization Model

*** The above papers are available at KDI School Website <http://www.kdischool.ac.kr/faculty/paper.asp>.**
You may get additional copy of the documents by downloading it using the Acrobat Reader.

Working Paper Series

Category	Serial #	Author	Title
Working Paper	05-03	Kun-Ho Lee	Risk in the Credit Card Industry When Consumer Types are Not Observable
Working Paper	05-04	Kyong-Dong KIM	Why Korea Is So Prone To Conflict: An Alternative Sociological Analysis
Working Paper	05-05	Dukgeun AHN	Why Should Non-actionable Subsidy Be Non-actionable?
Working Paper	05-06	Seung-Joo LEE	Case Study of L'Oréal: Innovation and Growth Strategy
Working Paper	05-07	Seung-Joo LEE	Case Study of BMW: The Ultimate Driving Machine
Working Paper	05-08	Taejong KIM	Do School Ties Matter? Evidence from the Promotion of Public Prosecutors in Korea
Working Paper	05-09	Hun Joo PARK	Paradigms and Fallacies: Rethinking Northeast Asian Security
Working Paper	05-10	WOOCHAN KIM TAEYOON SUNG	What Makes Group-Affiliated Firms Go Public?
Working Paper	05-11	BERNARD S. BLACK WOOCHAN KIM HASUNG JANG KYUNG-SUH	Does Corporate Governance Predict Firms' Market Values? Time Series Evidence from Korea
Working Paper	05-12	Kun-Ho Lee	Estimating Probability of Default For the Foundation IRB Approach In Countries That Had Experienced Extreme Credit Crises
Working Paper	05-13	Ji-Hong KIM	Optimal Policy Response To Speculative Attack
Working Paper	05-14	Kwon Jung Boon Young Lee	Coupon Redemption Behaviors among Korean Consumers: Effects of Distribution Method, Face Value, and Benefits on Coupon Redemption Rates in Service Sector
Working Paper	06-01	Kee-Hong Bae Seung-Bo Kim Woochan Kim	Family Control and Expropriation of Not-for-Profit Organizations: Evidence from Korean Private Universities
Working Paper	06-02	Jaeun Shin	How Good is Korean Health Care? An International Comparison of Health Care Systems

*** The above papers are available at KDI School Website <http://www.kdischool.ac.kr/faculty/paper.asp>.**
You may get additional copy of the documents by downloading it using the Acrobat Reader.