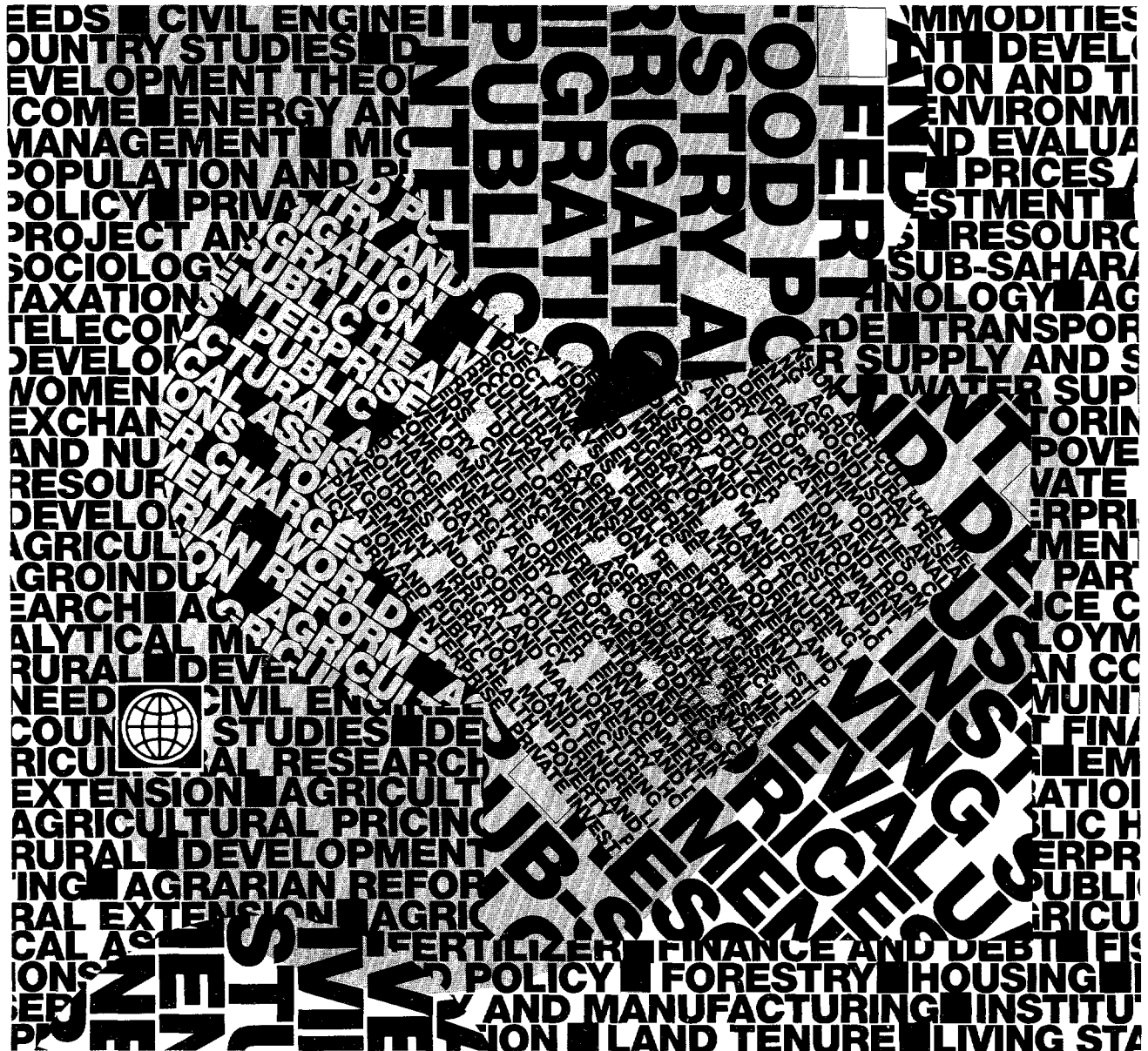


Managing Health Expenditures under National Health Insurance

The Case of Korea

Willy De Geyndt



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Willy De Geyndt

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ABSTRACT

South Korea's gradual expansion of medical insurance over a twelve year period achieving universal coverage in 1989 has been a major social policy accomplishment. Health care spending as a percentage of Gross Domestic Product has increased from 2.8% in 1975 before the introduction of the first stage of universal insurance to 5.2% in 1985, and an estimated 7.3% in 1991. Health care spending at current growth rates will absorb between 11.5% and 13.5% of Korea's GDP in the year 2000 potentially crowding out other investments and damaging exports. This paper analyzes the root causes underlying the rapid increase in health care costs: demand factors, supply factors, financial incentives, and administrative inefficiency. It argues that continuing cost escalation has an economic cost, a financial cost, and a social cost, and suggests a paradigm to analyze alternative strategies for controlling health care expenditures. Strategies are either: (i) micro or macro management in style; and (ii) supply side or demand side in emphasis. Finally, it examines the argument for regulating the private sector and for setting limits on freedom of choice for patients and providers in order to reach the objective of achieving an equitable, affordable and sustainable medical care system of acceptable quality.

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The views expressed in this paper are those of the author and do not necessarily reflect those of the institutions to which he is affiliated. The World Bank does not accept responsibility for the views expressed herein which should not be attributed to the World Bank or to its affiliated organizations.

FOREWORD

Many middle income countries have developed an acceptable health services infrastructure. Health policy in the 1960s and 1970s and into the 1980s favored growth and geographic distribution of resources, and equitable financial access to quality services. By the end of the 1980's it had become clear that continued growth and escalating health expenditures required a shift in health policy towards cost containment and the achievement of an affordable and cost-effective health care services system.

During the process of preparing a lending operation, the author noticed with great concern the rapid increase in health care expenditures in South Korea and the similarity in the evolution of its health care economy with that in other middle, upper middle and high income countries. This study from the Asia Technical Department analyzes the Korean situation and projects current health care expenditures up to the year 2000. It analyzes the causes of cost escalation and its economic, financial and social impact. The study suggests alternative strategies for controlling health care expenditures in order to achieve an affordable, equitable, and sustainable health care system of acceptable quality.

The study is intended for health policy analysts and decision-makers, and for health economists and policy analysts in development agencies, governments and universities. Using South Korea as a case example, it sets the framework for debating the required shift in dominant health policy to address the issue of affordable cost effective health care services without losing sight of equity and quality objectives.



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Director
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MANAGING HEALTH EXPENDITURES UNDER NATIONAL HEALTH INSURANCE -

THE CASE OF KOREA

The Korean health economy is riding the crest of a cost explosion. Health care spending as a percentage of Gross Domestic Product has increased from 2.8% in 1975 before the introduction of the first stage of universal insurance to 5.2% in 1985, to 6.6% in 1989, and an estimated 7.3% in 1991. This puts Korea at the high end of the range for developing countries and in the middle of the range for developed countries. In absolute terms, health care expenditures were about US\$290 per capita in 1989, or 25% of Japan's, and 12.5% of the US per capita expenditures for health care (Annex 1). Korea's health care spending at current growth rates will absorb between 11.5% and 13.5% of GDP in the year 2000. What demand and supply factors fuel this rapid increase? What are the potential financial, economic, and social consequences of unabated cost escalation? What policy options are open to the Government of Korea to moderate and contain costs?

Country Background

South Korea's rapid economic growth during the last three decades and its estimated 1990 US\$4,400 per capita income are the envy of many developing nations. An industrious population of 42 million and a rapid transformation from a rural agrarian to an industrialized and urbanized society have contributed to its economic achievements. Concomitantly, improvements in education, housing, nutrition, public health services, and personal incomes have increased life expectancy at birth (68 years for males and 75 years for females) and dramatically decreased infant mortality (11 deaths per 1,000 live births). (Annexes 2 and 3). At the same time, this quick-paced evolutionary process has resulted in new life styles and has changed the risk factors of Koreans. The mortality profile and the disease burden have shifted from a typical developing country high fertility/high mortality and prevalence of infectious and parasitic diseases profile to a developed country profile with a predominance of noncommunicable chronic and degenerative diseases, and a rapidly increasing incidence of diseases related

to social, environmental and occupational factors. Personal behavior, food, and the nature of the environment have become the prime determinants of health and disease.

Health Sector

The Korean health care system is patterned after the Japanese system which in turn was inspired by the German social insurance model. Features of the United States private health care system were grafted onto Korea's system after the second World War. Today, Korean health policies strive to emulate the accomplishments of Japan and the US. Therefore, Korean data in this article are compared with Japan and the US whenever data sets are available. In making these comparisons one should keep in mind that per capita income of Japan and the US is about five times that of Korea, the size and the aging of their populations is different, and their health sectors have evolved over a longer period. However all three health care systems have similar structural properties and the strategies used to manage expenditures are of analytical and policy interest.

Korea also has a strong, vibrant and aggressive private sector. Private clinics and hospitals account for 95 percent of all medical facilities, employ 72 percent of physicians, and manage 80 percent of hospital beds. Private medical schools account for more than two thirds of the medical schools and for 60 percent of the dental schools. All the traditional oriental medical schools are private. However, as is often the case, private sector activities are concentrated in urban areas, creating a maldistribution of resources between the 70% urban population and the people living in agricultural and fisheries areas.

Government action has narrowed the urban/rural resource maldistribution by giving medical school graduates the option to work in rural areas in lieu of military service, and by investments in the rural hospital and health center infrastructure. In an effort to make the sector more efficient, Government has also divided the country into eight medical regions with strict referral standards, improved the diagnostic and treatment

capabilities of lower level health centers to slow more expensive upward referrals, and initiated in 1990 a program of training home care nurses.

A Sui Generis National Health Insurance.

Korea introduced its first compulsory health insurance scheme for industrial firms with more than 500 employees in 1977. Mandatory health insurance was gradually expanded to firms with over 300 employees in 1979, with over 100 workers in 1981, and with over 15 employees in 1983. Government workers, teachers and staff in private schools were included in 1979. Coverage for urban and rural self-employed, low income, elderly and disabled was also gradually provided during this period. Universal coverage was completed in July 1989.

Some government officials were concerned about its financial impact and the lack of regulation to contain costs. Two other social policies had been adopted in 1988, i.e. the national pension system and the minimum wage legislation, and the cumulative financial impact of these two social programs and of a national health insurance (NHI) was cause of concern. A political consensus however seemed to have existed. The population liked the idea in part because it believed that it would make medical care free. Politicians responded to public demand. Hospitals and doctors anticipated a reliable and regular source of income and an end to uncompensated care and bad debts. The fast growing economy would be able to absorb the additional expenditures generated by a NHI. Thus, the general support for NHI was easily made a legal reality in a country which has a strong public executive and a regulation-oriented intellectual tradition.

The Korean NHI consists of 408 private, administratively and financially independent insurance societies or sickness funds (Krankenkasse in Germany, caisses de maladies in France). This model of a vertically structured insurance system where each insurance society has its own management structure stands in contrast to the coordinated Japanese model or the Canadian horizontal public insurance model. A central administrative body (National Federation of Medical Insurance), organized as a public corporation

but monitored by MOHSA, performs a number of administrative tasks for all insurance societies, such as claims processing and payment, data collection, and program monitoring. Economies of scale cannot be realized with the small size membership of insurance societies (between 30,000 and 200,000), and, consequently, administrative costs absorb over 10% of their premium income ranging up to 22%.

Insurance societies cover 90% of the population and a government welfare program covers the remaining 10%. The insurance societies can be broadly grouped in three types by membership: industrial employees (154 societies with 37% of the population), civil servants and private school employees (one corporation with 10% of the population), and the Regional Medical Insurance grouping the self-employed, farmers, fishermen, and pensioners (254 societies with 43% of the population). The maximum legal ceiling for the insurance premium is 8% of payroll. The industrial worker pays 1.7% and the civil servant 2.3% with the employer paying an equivalent percentage. The contribution of the self-employed in the Regional Medical Insurance however is determined by a classification scheme based on the family's total assets and wage earnings as reported on tax records. Premiums for the first two groups are a fixed proportion of the salary and wages. The premium for the self-employed is not proportional to income because tax declarations are often unreliable, excluding a large non-reported underground economy. Some self-employed and some farmers are reluctant to pay premiums for medical care that they judge not to meet their health needs or that is not readily accessible to them.

In 1989 about 10% of the population was classified as poor or medically indigent and qualifies for medical care under government subsidized public assistance provided in designated public or private health care facilities. These beneficiaries are divided into three income groups. Only about 1.5% of the population qualifies for free care and the others pay part of the cost of their care. Some people in the latter two groups are joining the NHI partly because it gives them more freedom of choice of providers. It is estimated that the 10% has already been reduced in 1990 to 7.5%.

Insurance societies are financially independent and there are no transfers of funds among societies. As the budget of each sickness fund comes from premium contributions, some have much larger per capita budgets than others, depending on the wage level and risk profile of its members. Premium increases authorized by government in 1990 for the Regional Medical Insurance averaged 28% and 30% in 1991. In part, these steep increases may reflect higher medical expenditures but also the fact that premiums for self-employed, including farmers and fishermen, and for pensioners were set initially at low levels for social reasons. The amount of premium increase for each insurance society within the Regional Medical Insurance varies with its financial health, and the financially weakest insurance societies increased premiums the most, with one example of a 90% jump. The combined deficit of all insurance societies under the Regional Medical Insurance was about 70 billion Won or US\$97 million in 1990 and it is estimated to increase to 130 billion Won or US\$180 million in 1991. The other two large insurance society groupings, the corporate employees and the government employees, show surpluses. Inter-society solidarity which would transfer funds - through subsidies or lending - from financially strong to weak societies, or national risk pooling, or government subsidies would break this vicious circle, and this issue merits further research.

Supply of Health Care.

On the supply side, four production factors account for most of the national health expenditures: hospital beds, physicians, drugs, and medical technologies. We will review the availability and use of these four items and compare them with Japan and the US.

Hospital Beds. In 1989 Korea had 2.9 hospital beds per 1,000 population including short-stay acute care hospitals, long-stay facilities (tuberculosis, psychiatric, leprosy, oriental medicine), and clinics with less than 20 beds. Japan has 13 beds per 1,000 population including short-stay and long-stay hospitals but excluding clinics with less than 20 beds. In 1987 the US had 4.3 short-stay acute-care beds, 6.7 nursing home beds, and 0.8 beds in

long term facilities (psychiatric, mental retardation, alcoholism), for a total of 11.8 beds per 1,000 population.

The number of people admitted to a hospital in one year was 67 per 1,000 population for Korea, 75 for Japan and 118 for the US (the 1988 US figure refers only to short-stay non-federal hospitals). The Korean and Japanese hospital admission rates are quite similar but there are large differences in the number of days that an admitted patient stays in the hospital. The number of patient days per 1,000 population is 870 for Korea and 3,300 for Japan because the average length of stay in Korea is 14 days and in Japan it is 44 days (unadjusted for population structure).

The Korean average length of stay was 11 days in 1980 and has increased slowly in the eighties to reach 14 days in 1989. This upward creep is affected by the reimbursement rate for patient days which is reduced to 80 percent of the allowed fee, starting with the sixteenth day of hospitalization. To what extent this pricing system triggers discharges before 16 days and subsequent readmissions is not known, as figures for readmission of the same patient for the same diagnosis are not available. From the Japan and US experiences, and taking into account differences in disease profile and aging of their populations, it can be deduced and projected that Korea will increase its hospital admission rate and the number of patient days per 1,000 population. This may require an expansion of hospital beds as the national bed occupancy rate is over 80%. The increase in beds could be slowed by freeing up beds through a reduction in the average length of stay. This, however, would require a change in financial incentives. On the other hand, a growing elderly population living in an urban environment will require an increasing amount of institutional care for medical and social reasons. Adding less expensive long term beds would also free up inappropriately used expensive acute-care beds.

Physicians. The US and Japan have respectively 2.8 and 1.9 times more physicians per capita than Korea. The number of persons per practicing physician in 1987 was 428 in the US, 638 in Japan and 1,216 in Korea (Annex 4). The Korean supply of physicians is bound to expand in the medium term:

decision-makers think that Korea should at least double its physician stock to serve a still growing population; some economists hypothesize that more physicians would increase competition, and therefore lower costs, and at the same time correct the rural/urban maldistribution; and 31 medical schools, with four more schools coming on stream, have the institutional capacity to maintain, and even increase, the current 8% annual growth in the number of physicians. The number of physician contacts per person per year has slowly increased in the eighties from 2.7 to 3.3 which is below the 4.7 figure for the US but far from the 14 patient visits in Japan. The latter figure is strongly affected by Japan's drug dispensing policy under which the physician only gives drugs for one or two days thereby generating repeat visits. Generally, the imposition of fee schedules with controlled prices drives up the volume of services, so that physician incomes do not suffer. This is what happened in Japan and what is likely to occur in Korea. As prices in the US are free, volume of service has been quite stable.

Medical Technologies. It is generally accepted that the introduction and diffusion of medical technologies drive up aggregate costs. Estimates of the relative inflationary role of technology in the US have ranged from 20 to 40 percent for "little ticket" items in the 1960's and 1970's (lab tests, diagnostic radiology, etc.) and for "big ticket" items in the 1980's (CT scanners, MRI, etc). Korea has not been immune to the rapid spread of medical technologies but in the late 1980's it still had ten times fewer CT scanners per million people than Japan, five times fewer MRI's (Magnetic Resonance Imaging), and four times fewer linear accelerators (Annex 5). American hospitals have also responded willingly to widespread professional demand for technological sophistication. It can be anticipated that Korea is likely to acquire more medical technologies. In fact, in 1989 it already had more lithotripter units per million persons than Canada and Germany (Annex 5). Government is aware of the inflationary impact of technology and has a policy requiring approval of expensive bio-medical equipment prior to purchase and installation.

Drugs. In Korea, like in Japan and China but unlike in Western countries, physicians can sell the drugs they prescribe. Part of the hospital's and the physician's profit is earned from selling medication. Pharmacies compete with hospitals and doctors because they can sell drugs without a medical prescription. Part of their competitive strategy is to deter patients from switching providers by not labeling the prescribed medication, and also for physicians to prescribe and dispense medication for only one or two days at a time. The result of this unusual situation is that prescription drugs account for over one third of national health expenditures. In the US prescription drugs consume 5% of total annual health expenditures but, in absolute terms, the 1988 expenditure is higher in Korea, i.e., US\$116 per capita per year versus US\$106 in the US. A 1988 government initiative to separate prescribing from selling was rejected by all providers. Korea may also be the only country where health insurance reimburses non-prescription drugs (albeit with a co-payment of 60%).

Uses of Funds by Major Providers. Table 1 compares how health care money is spent in Korea, Japan and the US. Definitional and categorization problems demand caution in its interpretation. High drug consumption in Japan is hidden in outpatient and inpatient care. If the figures could be disaggregated, relative expenditures in Japan and the US for inpatient and outpatient care and for drugs would probably be quite similar. The corresponding percentages for Korea are depressed because of the high percentage for prescription drugs. Data on dental care expenses are not available for Korea; in the two comparator countries they are about US\$120 per person per year.

Table 1: National Health Expenditures by Uses of Funds, Korea, Japan, USA

	<u>Korea</u> (1989)	<u>Japan</u> (1987)	<u>USA</u> (1989)
In-patient Care	29%	43.2%	46.4% (a)
Out-patient Care	24%	44.3%	31.4% (b)
Dental Care	N/A	10.3%	5.2%
Prescription Drugs	36%	2.2% (d)	4.8%
Other	<u>11%</u>	-	<u>12.2% (c)</u>
Total	100%	100%	100%

- (a) Hospital (38.5%) and nursing home (7.9%) care combined;
- (b) Includes hospital OPD and ER, physician and other professional services, home health care, over-the-counter drugs, vision products and other medical durables;
- (c) Total for administrative cost of insurance (5.8%), government public health expenses (2.9%), research (1.8%) and construction (1.6%);
- (d) Only prescription drugs dispensed in pharmacies.

Demand for Medical Care.

Demand for medical care has increased consistently over the past two decades, but more pronounced in the 1980's, as measured by hospital admission rates, physician contacts per capita per year, and production of drugs. The latter input factor more than doubled during the 1980's (Annex 6). Demand for medical care seems to have increased more rapidly after the introduction of the last phase of universal coverage on July 1, 1989. Annex 7 compares the last six months of 1989 with the corresponding period in 1988, and shows impressive gains in inpatient volume, repeat outpatient visits, and hospital revenue from inpatient and outpatient services.

Several factors account for the steady rise in medical care demand: (i) broadening of the insurance coverage; (ii) aggressive marketing by the providers; (iii) the medicalization of healing; (iv) a cultural shift in the definition of disease as the basis of illness, i.e. health professionals and the population have embraced the mechanistic view of the human body with the resulting engineering approach, which emphasizes the intensive use of medical technologies and drugs; and (v) people's ability and willingness to pay for more medical care.

Although user fees in Korea pay for 51% of national health expenditures they have not contained the fast growth in aggregate demand. Korea's experience is in line with that of other middle income and developed countries showing that a demand side strategy (deductibles and co-payments) cannot contain costs. Providers in Korea charge a fee for each service provided and patients participate in the cost of service through three types of cost sharing. First, a deductible is paid for each unit of service. Second, co-payment rates are 20 percent for inpatient hospital care and 30 to 55 percent for outpatient services depending on the place of service. Co-payment rates are 30 percent for prescription drugs and 60 percent for over-the-counter drugs. Third, insurance benefits stop after 180 hospital days per year, thus excluding coverage for prolonged hospital stays.

Effective cost sharing by the patient however is generally acknowledged to be much higher than reported here. Senior hospital medical staff command special treatment fees not covered by insurance and patients who are able to pay these special fees do so willingly to buy "better quality care". As in China and Japan, the ancient custom of thanking the doctor (and also the nurse now) with a gift persists, but the gift now is money and can be as much as the regular fee or hospital bill.

Table 2 compares the sources of health care funds in Korea, the US and Japan. Two important facts stand out. First, the primary source for financing health care is different in each country: it is insurance in Japan, government in the US, and user charges in Korea. Second, the distribution by source for Korea in 1989 is similar to the US distribution in 1960.

Extrapolating the Japan and US experience to the Korean health economy, the composition of sources of funds in Korea would shift to a larger share of insurance and of government payments and a sharp drop in out-of-pocket expenses. However, the evolution in Korea would depend on prevailing market mechanisms and on eventual changes in government regulatory policies. This is an area that would benefit from policy research.

Table 2. National Health Expenditures by Source of Funds: Korea, Japan, USA

	<u>Korea</u> (1989)	<u>USA</u>		<u>Japan</u> (1987)
		(1960)	(1988)	
Medical Insurance	17%	22%	32%	55.6%
Out of Pocket	51%	49%	21%	12.7%
Government	24%	24%	42%	31.6%
Other Private	8%	5%	5%	-
	<hr/>	<hr/>	<hr/>	<hr/>
	100%	100%	100%	100%

Sources: Ikegami (1990); US National Health Expenditures, 1988;

What Drives Up Cost?

The root causes underlying the rapid increase in health care costs can be subsumed under four categories: demand factors, supply factors, financial incentives, and administrative inefficiency.

Demand Factors.

More money has become available in the 1980's for use in the health economy. This money has come from two sources: health insurance covering many medical care expenses for the whole population, and rising personal incomes combined with a willingness to spend more on medical care. An expansion in health insurance changes patient behavior as a consequence of "moral hazard": consumers tend to consume more as the effective "out-of-pocket" price is lower. Providers also have a tendency to order more services for their patients, because it is in their economic self-interest to hospitalize patients, to order extra tests, and to sell more expensive drugs. In general, providers induce demand but more so when insurance is present. The increasingly insured Korean hospital patient population stayed three days longer in the hospital on average in 1990 than in 1984. In the six months following the universalization of national health insurance, the hospital occupancy rate increased by seven percentage points for both urban and rural hospitals.

The nominal elasticity of per capita health expenditure relative to per capita GDP is estimated to be 1.6 for Korea (Kwon, 1988) compared to 1.3 in Japan and the US and a mean of 1.1 for all OECD countries for the period 1975-87 (Schieber and Poulhier, 1989). For every 10 percent increase in nominal per capita GDP, Koreans experience a 16 percent increase in nominal per capita health services spending. Expenditure in the 1980's may have increased faster as a result of deliberate government policies to provide needed services to more people. Some of the population's increased purchasing power was spent on more medical services and medical spending took a larger bite out of a larger household income quite apart from the moral hazard effect. In 1975, prior to the introduction of the first stage of NHI, the urban population spent 4.5 percent of its income on medical care; this percentage rose to 7.1 in 1987. The corresponding percentages for the rural

population are 3.7 and 5.6. (EPB, 1988)¹. The high rate of cost sharing in Korea has necessitated a higher percentage of disposable income to be spent on medical care.

Supply Factors.

In the first eight years of the eighties, the number of hospital beds doubled and the number of physicians increased 63 percent. In the first five years of the nineties, hospital beds are projected to increase about 50 percent and the physician stock is expected to increase annually by about 8 percent. More physicians are pursuing clinical specialties. Specialists represented 32 percent of all physicians in 1980 but reached 49 percent in 1988. This trend is likely to continue and, in addition, proceduralists using sophisticated medical technologies will account for a growing share of specialist physicians.

Korea's utilization rates (hospital admissions, patient days, physician visits) are expected to increase. Largely influenced by induced demand, there will be more hospital admissions, more patient days, more doctor visits, more drug consumption, and more medical procedures in the 1990's. These increases will be supported by the availability and use of more medical technologies, and an intensification of medical care services. Higher utilization of services and intensification of medical care, meaning the application of technological advances and intensified services to individual patient care (intensive care units, coronary care units, neonatal care units), accounted for one-fifth of health spending increases in the period 1975-80, but its share jumped to three-fifths during 1980-85 (Table 3). The availability of more money to purchase more medical services stimulated the supply of all factors of production, and, conversely, aggressive and competing providers triggered more spending.

¹/ This did not occur in the US. When out-of-pocket spending in the US is compared with disposable income, the out-of-pocket share has remained fairly constant since 1950, between 3.0 and 3.9 percent of disposable income. However, this may have occurred because out-of-pocket payments as a source of funds dropped from 49 percent in 1960 to 21 percent in 1988.

Table 3. Decomposition of Health Spending Increases
(Compounded Annual Growth Rate in %)

Years	Nominal Expenditure	GNP Deflator	Real Expenditure	
			(Demography)	(Utilization/ Intensity)
1975-1980	32	24.2	7.8 (1.55)	(6.3)
1980-1985	25	8.2	16.8 (1.36)	(15.4)

Sources: Nominal Expenditure from KMIC study (1989). GNP deflator from The Korea Bank, Industrial Annual Statistics for 1975-1985.
Compiled by B.M. Yang (1990)

Financial Incentives.

Under NHI, Korean hospitals and physicians are reimbursed on a fee-for-service basis, according to a relative value fee schedule that is regulated by Government and provides a potential mechanism for expenditure control. Fees are set on a cost-plus basis and are increased annually. The increase is based on the rate of general inflation in the economy and on the results of a sample review of hospital costs. This methodology is similar to retrospective cost reimbursement, which also guarantees providers to earn a profit. The plus factor recognizes the level of hospital and case mix complexity, and is paid for treatment charges, including labor, but not for drugs and medical supplies, which are reimbursed according to their value in the fee schedule. It consists of a four-tiered payment system: clinics (less than 20 beds) and private practice physicians receive the fee plus 7 percent; general community hospitals receive fee plus 13 percent; multi-specialty

hospitals receive fee plus 23 percent, and the plus factor for the 25 large university hospitals is 30 percent. The public health sector is the only provider not receiving the plus, and the only patients for whom no plus is paid are the poor and the medically indigent covered by the public assistance program.

The increase in the number of medical schools (opposed by the Korean Medical Association) can in part be explained by government policy aimed at increasing the number of physicians to correct their maldistribution, and in part by the generous reimbursement levels for medical services provided in academic medical centers. This cost-plus payment modality provides no financial incentives to contain costs, or to be efficient. On the contrary, cost increasing behaviors are rewarded and much of the demand for medical care may be supply-induced. Increasing costs and maximizing the volume of services brings more sales, more revenue and more profits. Fee-for-service is not necessarily inflationary (Japan, Canada) if the process by which the level of fees is set builds consensus among the providers, the payors, the consumers and the regulators.

Administrative Inefficiency.

The verticalization and the size of insurance societies cause inefficiency in the administration of the national health insurance. Administrative expense of insurance societies is on average over 10 percent of operating expenses reaching as high as 22 percent. The Blue Cross insurance plans in the US have about 7 percent of operating expenses as administrative expenses, and private insurers in general average 10 percent. The cost of administering health programs as a percent of total health expenditures is 2.5

percent in Canada, 2.6 percent in the U.K. and 5.8 in the US². No comparable figure is available for Korea but it is hypothesized that it would be closer to the US figure.

Membership in sickness funds ranges from 30,000 to 200,000, and larger membership could achieve economies of scale. An econometric study by Yang and Lee (1988) found that administrative costs would be the lowest when each insurance society managed a hypothesized 1.7 million members. Insurance societies have differential administrative costs and it would be fruitful to analyze what efficiency measures account for the differences.

What are the Potential Consequences of Unabated Cost Escalation?

The inflationary behavior of the Korean health economy is already showing undesirable consequences which are likely to be exacerbated in the 1990's unless the Government, in concertation with providers, consumers and the insurance industry, makes some difficult policy decisions. Continuing cost escalation has an economic cost, a financial cost, and a social cost, and remedial action will become more painful as the sum total of these costs accelerates.

The economic cost would be that excessive health care spending could crowd out other investments and ultimately damage exports. Table 4 projects the share of health care spending as a percentage of GDP for the year

2/ The US percentage refers only to the insurance overhead (marketing, claim processing, office space, and profits for the commercial insurers) of the 1,500 private health insurers, and to the administrative costs of the government Medicare and Medicaid programs. This amounted to US\$35.3 billion in 1989 or US\$138 per capita. Woodhandler and Himmelstein (1991) studied total administrative costs and included hospital administration costs, nursing home administration costs, and physician office administration costs (equal to 44 percent of their gross income), and estimated that the total cost for health care administration in the US in 1987 was between 19.3 and 24.1 percent of all spending for health care or US\$400 to 497 per capita. Corresponding figures for Canada were between 8.4 and 11.1 percent or US\$117 to 156 per capita. Yearly financial statements of private insurance companies in Chile, called ISAPRES, also show a high overhead as they disburse only 60 cents for medical care for each dollar of premium received.

2000 based on three scenarios: continuation of the current nominal elasticity of 1.6, a drop to the US and Japan level of 1.3, and reaching the OECD average of 1.1. As a rule, health spending rises faster than national income in all countries. Two figures for the 1989 GDP percentage are cross-tabulated with the three scenarios: 5.6 as estimated by MOHSA and 6.6 as a consensus estimate among Korean health economists. Health care expenditures would rise to 13.5% of GDP under the worst case scenario, and to 6.3% under an unlikely scenario that assumes that the nominal elasticity would suddenly drop from 1.6 to 1.1 in 1990. Annexes 8 and 9 present the detailed calculations for the period 1990-2000. The estimates for the annual increases in GDP from 1990 to 2000 are expressed in current terms and form the basis for the calculation of the relationship between medical expenditures and GDP.

Table 4. Projected Share in the year 2,000 of Korea's Health Care Spending as a Percentage of GDP Under Different Assumptions

		Nominal Elasticities		
		1.6 (KOREA)	1.3 (U.S. & Japan)	1.1 (OECD)
1989	5.6	11.5	8.1	6.3
Estimates of % GDP	6.6	13.5	9.5	7.5

Source: Annexes 8 and 9 prepared by S.Y. Song

The fundamental economic issue here is not so much the percent of GDP but the opportunity cost of continued growth. Health care spending could reduce price competitiveness by soaking up an excess share of investment funds. More worthy public and private projects may be crowded out. In the US, the production cost of a domestic car has 1.2 more health dollars than

steel dollars. In 1990, US companies spent US\$3,161 per employee to cover medical costs which is about 44 percent higher than the estimated US average per capita health spending of about US\$2,200. Limiting the growth of health care spending may free up resources for capital investment and may increase the savings rate (Evans and Stoddart 1990).

Inefficiencies contribute to a higher financial cost: high administrative expenses of a splintered insurance system, the treatment of iatrogenic effects of overprescribing drugs, the misuse of skills for lack of a balanced work force with the performance of lesser tasks by highly skilled persons, unnecessary and inappropriate care, and rivalrous and profit maximizing behavior by hospitals, doctors and pharmacists, amongst others.

One major objective of NHI was equitable distribution of resources with access by all to quality medical care. Not achieving this objective could carry a social cost. Present trends point to the strengthening of a two-tiered health system with lower quality and restricted access to people not able to pay the high user fees, special treatment fees and thank you fees. (The military and police medical care system would be a third tier). The medicalization, intensification and technification of care has widened the vertical cost gap, i.e., the cost of curative and life-saving care between the least and most expensive patients. Between 1985 and 1989, the number of insurance claims for more than five million current Won (approximately US\$7,000) increased 580 percent from 920 to 6,256 cases (Annex 10). The cap on benefits, effectively not insuring prolonged hospital care, has put some care out of reach of lower and middle income people.

What Alternative Cost-Containment Strategies are Available to Korea?

A useful paradigm to analyze alternative strategies for controlling health care costs has been suggested by Reinhardt (1990). Options can be classified in a four-celled two-by-two table (Figure 1). Strategies are either: (i) micro or macro management in style; and (ii) supply side or demand side in emphasis.

Micro management demand strategies target patients through cost sharing (deductibles, co-payments, reimbursement caps, exclusions, premiums), and submit providers to prospective or retrospective review of clinical decisions (utilization review, managed care).

Micro management supply strategies encourage technical efficiency (output per employee), and economic efficiency (maximize output per dollar invested) in the production of medical treatments, and enhance effectiveness by minimizing unnecessary and inappropriate care. Economic incentives focus mainly on how the provider is paid for services: capitation fees (the general practitioner in the UK, HMO's in the US), fee schedules (most OECD countries), Diagnosis-Related Groups for hospital payment (DRG's in the US), and on attempts to educate the physician in cost-effective clinical decision-making. A second micro management supply approach is to place legal constraints on the ownership of facilities that produce health services (e.g. physician ownership of pharmacies), or legally separate drug prescription from drug dispensing.

Macro management demand strategies limit physician income from publicly covered funds through expenditure caps, and set prospective global budgets for hospitals. In Germany, fees paid to ambulatory care physicians are limited by a negotiated global budget. If the total of the physicians' bill exceeds the negotiated budget in a given quarter, then the fee per claim is reduced in order to stay within budget. There is an explicit trade-off between volume of service and price paid per service; the higher the volume, the lower the payment per claim; the lower the volume, the higher the payment per claim (Iglehart, 1991). Similarly, if payment to Quebec physicians exceeds the yearly negotiated cap, future fees in the same year are reduced commensurately. France, Canada, and Sweden are among OECD countries that have adopted a global hospital budget system.

Macro management supply strategies limit the physical productive capacity of the health sector, and regional planning assures an equitable distribution of this capacity among regions and social classes. Many developed countries have reduced the supply of acute care hospital beds as

excess beds invite excess inappropriate care³. Manpower planning assures a better geographic distribution of physicians (assignment to underdoctored areas in the UK), and limits the availability of clinical residencies to contain the number of specialists (surgical residencies in the US). The supply of high technology biomedical equipment is controlled as its rapid diffusion would drive up aggregate costs beyond budgeted resources. The American federally mandated health planning structure of the 1970's (Health Systems Agencies under Public Law 93-641, Certificate of Need legislation) was abolished during the Reagan years and institutional planning replaced health system planning. The Resource Allocation Working Party (RAWP) formula in the UK allocates funds between the 14 regions of the English NHS and shifts resources from overfunded areas to underfunded areas to achieve a socially more desirable distribution.

Which one of these four strategies or what combination of strategies would be appropriate for Korea needs further study. The analysis should consider the historical development of the health sector and its cultural context, the present and projected economic environment, and the political acceptability of those strategies that are most likely to contain costs and provide accessible quality health care.

³/The number of hospital beds per capita varies widely among communities in the US. Boston has 4.5 beds per 1,000 people versus 3 beds per 1,000 in New Haven. Per capita spending for inpatient care in Boston is consistently about double that of New Haven. "Most of the difference in resources used is invested in the care of patients listed as having medical conditions for which there is high variation in use rates and for which the rules physicians use to determine the need for hospitalization - their clinical thresholds - depend on the supply of beds" (Wennberg 1990).

FIGURE 1

ALTERNATIVE COST-CONTAINMENT STRATEGIES IN HEALTH CARE

	MICRO MANAGEMENT	MACRO MANAGEMENT
DEMAND SIDE STRATEGIES	Financial incentives: Patients: deductibles, co-payments, reimbursement caps, exclusions, premiums. Providers: review of clinical decisions, managed care, utilization review.	Limit physician income through expenditure caps; Set Prospective global budgets for hospitals.
SUPPLY SIDE STRATEGIES	Financial incentives: capitation fees, DRG's, fee schedules, educate doctors in cost-effective clinical decision making Legal constraints on ownership of facilities and on drug dispensing	Regulate physical productive capacity of health sector; Implement sector plans to assure equitable distribution of sector capacity among regions and social classes.

Adapted from Reinhardt (1990)

Regulating the Private Sector and Setting Limits

Policy makers in Korea decided in the 1970's to establish a national health insurance system. Universal health insurance is not the cure-all that is sometimes assumed for dealing with the joint problems of inequity, inefficiency, and low quality. It is an important and necessary first step. Complementary policy decisions are now called for to correct structural sector deficiencies in three areas: (i) achieving equity through ensuring financial access to services for all citizens, and redressing regional imbalances; (ii) containing costs in an economic environment where providers are guaranteed reimbursement for most services provided to an insured population demanding more medical care; and (iii) improving quality of medical care and monitoring the medically justified use of medical resources in a financial environment, where the incentives are to provide more services, even if they are not necessary or proven effective, to prescribe and dispense more drugs, to multiply lucrative diagnostic procedures, to prolong hospital stays, and to request numerous follow-up visits.

A nation can constrain its health system expenditures by either demand side or supply side strategies. Korea chose to use mainly a micro demand side strategy based on the belief in consumer sovereignty. Yet countries that have succeeded in bringing their health care expenditures under control have done so as a direct result of managing sector capacity and budgets, i.e. a supply side strategy. The preferred Korean cost containment strategy is the financial micro management of the doctor-patient relationship: on the demand side through charging user fees, and on the supply side through a national cost-plus fee schedule for hospital and physician services. This approach has not contained costs, improved quality, or made services more accessible. User fees are very high although it could be argued that health care costs would have increased even more if user fees had not been as high. This hypothetical argument cannot be proven or disproven. The fee schedule in Korea favors the providers; it is more a license to earn a generous profit than it is a cost containment measure.

A nationally uniform fee schedule has been credited to be "the single most important factor in determining Japan's health care system" and the "greatest driving force for containing costs" (Ikegami, 1990) even though it is procedure and fee-for-service based. However, fee negotiations in Japan are conducted centrally by a council with eight representatives from the providers, eight from the payers, and four members representing the public interest. A strong hand at the central level, a willingness to accept regulation and to live by it as a daily constraint is the common thread binding countries that have been able to contain health spending and to achieve an acceptable level of equity. Voluntary controls and self-regulation have shown not to be effective. To achieve a financially and socially acceptable form of universal coverage regulation must be imposed from the outside and by political force. Centrally imposed regulation need not equal the imposition of arbitrary political, social or managerial values, or of technocratic values derived from mechanical cost-benefit ratios, but would entail public consultation in a process of argument, persuasion and consensus building.

The corollary of regulation is the need to set limits on freedom of choice. Achieving an equitable, affordable medical care system of acceptable quality implies rationing health care and limiting the choices that can be made by patients and providers. Shifting resources between population groups implies reducing or denying some services to one group for the benefit of another group. Restricting freedom of choice means that patients cannot demand how much care they want and where they want it; that physicians are constrained in their diagnostic and therapeutic choices; and that hospitals cannot offer the range of services that they would like to⁴. It also means setting limits on the introduction and diffusion of medical technologies,

⁴/The federally controlled Medicare program in the allegedly US "private system" effectively reduces the clinical autonomy of the physician, establishes the purchase price of standardized products, refuses to pay hospitals for patients deemed inappropriately admitted, and establishes minimum volume levels per hospital for specific surgical procedures.

which is a relatively easy process when the technologies have been proven to be ineffective, but is painful for effective but unaffordable technologies⁵

Conclusion

Korea's gradual expansion of medical insurance over a twelve year period achieving universal coverage has been a major social policy accomplishment. This courageous first step is part of an evolutionary process. The country now needs to make difficult policy decisions aimed at managing the sector's productive capacity and its budgets in order to guarantee the goal of making affordable quality medical care accessible to all citizens. The first step was unopposed but the next steps will threaten interest groups with acquired rights and strong financial stakes, and are likely to be strongly resisted. No country has found it easy to balance equity concerns with reasonable costs and acceptable quality, and none has predictably succeeded completely because of built-in conflicts in the objectives of these three goals. What is important in this evolutionary process is to reach consensus among all interested parties on the direction in which the system should move by defining the strategic goal. The speed at which the process will approach this goal is subject to - often unforeseeable - political, social and economic events.

⁵/The State of Oregon, in an attempt to develop an explicit system of rationing health care, is withholding treatment from Medicaid patients with diseases for which there are effective but expensive treatments. A young Medicaid patient with leukemia (Coby Howard) was denied a bone marrow transplantation on the grounds that it would be more cost-effective for the State to spend limited resources on preventive programs, such as prenatal care. The decision-making process for Medicaid patients changes the ground rules from who is covered to what is covered, and excludes patient-specific criteria. However, if the patient had been 65 years of age or older, then Medicare would have paid for the transplant. Young Coby Howard's death may be the first one in the US attributable to explicit rationing (for the poor) on the basis of cost-effectiveness analysis (Wennberg, 1990; Klein, 1991; McBride, 1990).

**National Health Expenditures as a Percentage of GDP
Korea, Japan and USA, 1960-89**

	<u>Korea</u>	<u>Japan</u>	<u>USA</u>
1960	N/A	2.9	5.2
1965	N/A	4.3	6.0
1970	N/A	4.4	7.4
1975	2.8	5.5	8.4
1980	3.0	6.4	9.2
1985	5.2	6.6	10.6
1986	5.4	6.7	10.9
1987	5.5	6.8	11.2
1988	5.6	---	11.5
1989	6.6	6.7	11.8
1990	7.3		

Per Capita in US\$

290 (1989) 1,137 (1987) 2,354 (1989)

Sources: Health US 1990; Ikegami, 1990; The Korea Bank, Industrial Annual Statistics for 1975-85; Kwon, 1990

**Infant Mortality per 1,000 Live Births:
Korea, Japan and USA, 1960-1987**

<u>Year</u>	<u>Korea</u>	<u>Japan</u>	<u>U.S.</u>
1960	N/A	30.7	26.6
1965	N/A	18.5	24.7
1970	53.0	13.1	20.0
1975	38.0	10.0	16.1
1980	17.3 (36.8)*	7.5	12.6
1985	13.3 (32.6)	5.5	10.6
1986	12.5	5.2	10.4
1987	12.5	5.0	10.1
1988	12.5		10.0
1989	11.0		

Sources:

1. OECD Health Data File, 1989; Health US 1990
2. Republic of Korea, MOHSA Statistical Yearbooks 1981, 1986 and 1989

* Official data sources after 1986 give the lower rates: the higher rates were official until 1986 when the time series was revised and adjusted. IMR changed from 34.2 in 1983 to 15.7 in 1984

Life Expectancy at Birth: Korea, Japan and USA, 1960-1989

	<u>Korea</u>		<u>Japan</u>		<u>US</u>	
	male	female	male	female	male	female
1960	51.1	53.7	65.4	70.3	66.7	73.3
1966	59.7	64.1	68.4	73.6	66.7	73.8
1970	59.8	66.7	69.3	74.7	67.2	73.7
1979	62.7	69.1	73.5	78.9	70.0	77.8
1983	63.8	72.2	74.2	79.8	71.0	78.3
1985	64.9	73.3	74.8	80.5	71.2	78.2
1987	66.0	74.1	75.6	81.4	71.5	78.3
1989	66.9	75.0				

Sources: 1. Republic of Korea, Economic Planning board, 1990
2. OECD Health Data File, 1989

Number of Persons Per Practicing Physician in
Korea, Japan and USA, 1960 - 1989

<u>Year</u>	<u>Korea</u>	<u>Japan</u>	<u>U.S.</u>
1960	3,022	971	714
1965	2,645	960	637
1970	2,159	916	641
1975	2,100	885	575
1980	1,690	785	508
1985	1,379	678	450
1987	1,216	638	442
1988	1,139	N/A	429
1989	1,066		

- Sources:
1. Social Indicators in Korea, 1990; National Bureau of Statistics, Economic Planning Bureau
 2. OECD, Health Data File 1989; Health US 1990

Selected Medical Equipment Per Million Population: Korea and Japan

<u>Type of Equipment</u>	<u>Korea</u>	<u>Japan</u>	<u>USA</u>	<u>Canada</u>	<u>Germany</u>
	(1989)	(1987)	(1987)	(1989)	(1987)
CT Scanner	3.5	37.5	N/A	N/A	N/A
MRI	0.2	1.0	3.7	0.46	0.94
Linear Accelerator	0.7	3.1	N/A	N/A	N/A
Lithotripter (ESWL*)	0.7	N/A	0.9	0.16	0.34

* Extracorporeal Shock Wave Lithotripsy

Sources: Korea: MOHSA (1990)
Japan: MHW, Medical Care Facilities Survey, 1989
USA, Canada, Germany: Rublee (1989)

KOREA: Production and Import of Drugs 1983 - 88 (Index 1985=100)

<u>YEAR</u>	<u>PRODUCTION</u>	<u>IMPORT</u>
1983	79.1	89.6
1984	93.3	99.3
1985	100.0	100.0
1986	113.2	95.8
1987	132.1	139.6
1988	158.5	240.6
	(US\$4,568 million)	(US\$560 million)

Source: MOHSA - Yearbook of Health and Social Statistics 1989

Note: Between 1980 to 1985 production of drugs increased from 100.0 (index 1980) to 251.5 in 1985. The corresponding figures for import of drugs are 100.0 and 167.5

**Korea: Trends in Inpatient & Outpatient Volume & Cash Flow in
Urban Hospitals for the last six months of 1989 versus the last
six months of 1988**

	University Hospitals	Multi-Specialty Hospitals	General Community Hospitals
Sample Size	25	169	251
Average Bed Size	782	318	97
<u>Percentage Change in:</u>			
Inpatient Discharges	8%	15%	24%
New Outpatients	-14%	16%	9%
Outpatient Revisits	7%	4%	20%
Total Outpatient Volume	- 6%	17%	32%
Outpatient Revenue	10%	21%	N/A
Inpatient Revenue	19%	33%	N/A

Source: MOHSA September 1990 printouts.

WORLD: Projection of Medical Expenditure / GDP Ratio

	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
GDP growth (nominal, %)		17.6	15.3	11.8	11.7	11.7	11.8	11.9	11.9	11.9	11.9	11.9
GDP	100.0	117.6	135.6	151.6	169.3	189.1	211.5	236.6	264.8	296.3	331.5	371.0
1. Medical expenditure growth Korea elasticity = 1.6 (nominal, %)		28.2	24.5	18.9	18.7	18.7	18.9	19.0	19.0	19.0	19.0	19.0
Medical expenditure	5.6	7.2	8.9	10.6	12.6	15.0	17.8	21.2	25.2	30.0	35.7	42.5
Medical exp. / GDP (%)	5.6	6.1	6.6	7.0	7.4	7.9	8.4	9.0	9.5	10.1	10.8	11.5
2. Medical expenditure growth Japan & US elasticity = 1.3 (nominal, %)		22.9	19.9	15.3	15.2	15.2	15.3	15.5	15.5	15.5	15.5	15.5
Medical expenditure	5.6	6.9	8.2	9.5	11.0	12.6	14.6	16.8	19.4	22.4	25.9	29.9
Medical exp. / GDP (%)	5.6	5.9	6.1	6.3	6.5	6.7	6.9	7.1	7.3	7.6	7.8	8.1
3. Medical expenditure growth OECD elasticity = 1.1 (nominal, %)		19.4	16.8	13.0	12.9	12.9	13.0	13.1	13.1	13.1	13.1	13.1
Medical expenditure	5.6	6.7	7.8	8.8	10.0	11.2	12.7	14.4	16.2	18.4	20.8	23.5
Medical exp. / GDP (%)	5.6	5.7	5.8	5.8	5.9	5.9	6.0	6.1	6.1	6.2	6.3	6.3

Source: Bank staff estimate based on data provided by Korean Government

KOREA: Projection of Medical Expenditure / GDP Ratio

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GDP growth (nominal, %)		17.6	15.3	11.8	11.7	11.7	11.8	11.9	11.9	11.9	11.9	11.9
GDP	100.0	117.6	135.6	151.6	169.3	189.1	211.5	236.6	264.8	296.3	331.5	371.0
1. Medical expenditure growth Korea elasticity = 1.6 (nominal, %)		28.2	24.5	18.9	18.7	18.7	18.9	19.0	19.0	19.0	19.0	19.0
Medical expenditure	6.6	8.5	10.5	12.5	14.9	17.6	21.0	25.0	29.7	35.4	42.1	50.1
Medical exp. / GDP (%)	6.6	7.2	7.8	8.3	8.8	9.3	9.9	10.6	11.2	11.9	12.7	13.5
2. Medical expenditure growth Japan & US elasticity = 1.3 (nominal, %)		22.9	19.9	15.3	15.2	15.2	15.3	15.5	15.5	15.5	15.5	15.5
Medical expenditure	6.6	8.1	9.7	11.2	12.9	14.9	17.2	19.8	22.9	26.4	30.5	35.2
Medical exp. / GDP (%)	6.6	6.9	7.2	7.4	7.6	7.9	8.1	8.4	8.6	8.9	9.2	9.5
3. Medical expenditure growth OECD elasticity = 1.1 (nominal, %)		19.4	16.8	13.0	12.9	12.9	13.0	13.1	13.1	13.1	13.1	13.1
Medical expenditure	6.6	7.9	9.2	10.4	11.7	13.2	15.0	16.9	19.1	21.6	24.5	27.7
Medical exp. / GDP (%)	6.6	6.7	6.8	6.9	6.9	7.0	7.1	7.2	7.2	7.3	7.4	7.5

Source: Bank staff estimate based on data provided by Korean Government

**Number of Most Expensive¹ Insurance
Claims in Korea, 1985-89**

<u>Year</u>	<u>Number of Cases</u>	<u>Percentage Change</u>
1985	920	---
1986	1130	23
1987	1648	46
1988	4272	159
1989	6256	46

Source: Medical Insurance Statistical Yearbooks 1985-1989; National Federation of Medical Insurance; Republic of Korea

1/ Claims of more than five million Won (current) or approximately US\$7,000.

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