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Competition Policy in Regulated Sectors: Focusing on the Institutional Design of the Relationship between Competition Authority and Sectoral Regulators

규제산업의 경쟁정책: 각 산업의 감독당국과 경쟁당국 간 관계에 대한 제도 설계를 중심으로

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Competition and Regulation in the Korean Medical Service Industry

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1. The Regulatory Environment

As in most countries, health service is a heavily regulated sector in Korea. Regulation in health services has been justified by the extensive market failure peculiar to this sector arising from for example, information asymmetry, and demand uncertainty. At the same time, health services is seen as a public good to which all citizens must have equal and easy access at reasonable costs (박윤형·정우진 2005).

The Medical Services Law is the primary law governing health services administered by the *Ministry of Health and Welfare*. Among others, aspects of health regulation that have significant impact on competition involve entry barrier and the payment system.

1) Entry barrier

On the supply side, only medically certified doctors, medical juristic persons, non-profit juristic persons, and government institutions can establish medical institutions. Incorporated medical institutions have to operate on a non-profit basis, even when they are private. Medical institutions established by natural persons cannot own more than one clinic or hospitals, and cannot receive investment from other non-medical persons (권순만·이주선 2005: 32-34).[1] This seriously limits a small hospital's potential to grow.

On the demand side, there is only one dominant payer, the *National Health Insurance Corporation*. The Korean national health insurance was started in 1977, and the many small, quasi-public insurance societies were merged into a single national insurance in 1999 to support some of the financially fragile societies (see Table 1). It is mandatory for all health service providers to participate in this program. Private

[1] The share of for-profit medical institutions is not very high even in countries that allow for-profit medical institutions. In the US for-profit medical institutions take up 10.8% of total incorporated medical institutions in the mid-1990s. This ratio was 8.9% for the UK and 19% for France (강성욱·고정민 2007: 4).

insurance is currently limited, though there is no regulatory barrier restricting its entry (권순만·이주선 2005: 83).

However, private health related insurance policies available from life insurance and indemnity insurance companies are increasing. Insurance premium in the private sector is estimated to be around 5 trillion won as of 2002. (강성욱 외 2004: 1)[2]. Therefore, there is potential competition from the demand side, especially if they begin to contract directly with the health service providers and bargain for price discounts.

2) Price regulation

The Korean medical insurance system grew rapidly to provide universal coverage within 10 years, but with limited budget. This has necessarily meant a “low premium - low coverage” system. The legal rate of co-payment is 20% of the fee, but actual out-of-the-pocket medical expenses can be as high as more than 50% of the fee due to cost shifting towards non-insured services (이규식 1996:54. See Table 3).

The *National Health Insurance Corporation* reimburses providers according to a regulated, fee-for-service system. The level of the fee is set through an annual contract

[2] Premium (contributions) received by the National Health Insurance Corporation was more than 10 trillion won in 2002 (Annual Report on Health Insurance Statistics 2005).

between the *National Health Insurance Corporation* and the medical community.[3] The cost-based fees are widely believed to be much lower than the real costs and act as a de-facto price-cap. This payment system has been widely criticized in the literature as the main culprit distorting incentives in health services provision (김원식 2004).

Under the current Korean system, providers have the incentive to treat as many patients as possible to maximize revenue (physician induced demand) but reduce quality of medical services (eg, short treatment time).[4] Further, given the “price cap,” there is incentive to shift cost to the un-insured (and therefore unregulated) services, and to allocate case-mix towards services with higher profit margins rather than towards the best mix for optimal health care. At the same time, with consumer’s freedom to choose the preferred provider, there tends to be competition based on quality, such as adopting unnecessarily expensive equipments, but also including aspects of quality not directly related to health care (eg, luxury waiting rooms) to attract patients. This tends to raise

[3] The Resource Based Relative Value Scale (RBRVS) policy, which weights each services depending on the inputs involved (such as doctor’s labor time and effort, technical complexities, patient risk, direct material cost and overhead etc), was adopted as a result of the 1999-2000 reforms. Although this payment system contributed lowering medical costs in the US, in Korea it increased medical costs in some services as real costs came to be reflected more accurately. Government efforts to introduce the Diagnosis Related Group (DRG)-based payment following a pilot program, was thwarted by the medical community. A limited number of volunteering providers are based on the DRG policy. Under this system, patients are classified into DRG groups of similar medical treatment and procedures. Fees are fixed for each DRG groups, and reimbursed prospectively. This gives strong incentives for providers to minimize costs (박윤형·정우진 2005: 427-437, Kwon & Reich 2005: 1008).

[4] According to 고수경 외 (2002), Korean consumers show fairly low price elasticity (-0.11), which is comparable to that estimated for other OECD countries. They therefore warn that the high co-payment policy probably will not be effective in reducing consumer moral hazard. They also show that quantity demanded mainly depends on medical needs and price, and that there is little sign of physician induced demand. However, their paper suffers from various data constraints, and depends on a very limited survey.

overall medical expenses, in the typical “medical arms race” pattern.[5]

Indeed, one of the key issues in health service industry has been whether competition increases or decreases quality, and whether the social welfare is improved as a result. Economic theory is clear with respect to the effect of competition on quality under price regulation (ie, when there is no price competition). When price is greater than marginal cost, increasing competition increases quality, but when price is below marginal cost, increasing competition lowers quality. Consumer welfare increases with quality, but under insurance, increased cost due to increased quality maybe higher than the marginal benefits from quality increased, and may result in over-supply of quality, thus lowering net social welfare. That is, if price is higher than marginal cost, lower competition (and lower quality) may improve social welfare (Gaynor 2006).

When there is no price regulation and both price and quality competition is possible (ie, the firm sets a pair of price and quality), theoretical predictions are ambiguous. Results depend on whether the price elasticity of demand is greater than quality elasticity of demand. If price elasticity of demand is greater, competition will lead to lower quality and lower price, but if quality elasticity is greater, competition will lead to higher quality but also higher costs and prices. Empirical analyses give conflicting

[5] Although illegal, hospitals already compete on the basis of price through discounts on non-insured services (E-Daily. April 11, 2007). However, there is no systematic information on the extent of price competition in the unregulated sector.

evidence as to which effect is greater.[6] Further, these studies can only show the direction of the impact of competition on quality. It is difficult to interpret whether the increased or decreased quality enhances net social welfare or not (Gaynor 2006).

The current Korean situation seems to support theoretical predictions well. Quality is low for insured services, for which regulated price is likely to be below marginal cost. On the other hand, there seems to be excessive quality competition in uninsured services, where firms are likely to set prices above marginal cost (especially to compensate for losses incurred on insured services). This is the nature of competition depicted in the general health economics and policy literature. There are however, few quantitative studies that confirm the popular observations. A study by 류동걸·양동현 (2006) show that consumers do respond to quality, and that quality and profit is positively correlated. This implies that less price competition would lead to higher quality. This study, however, does not distinguish between the insured and the uninsured services, nor does it show whether the provided quality is the optimal level (ie, whether marginal benefits equal marginal costs).[7] Short of a full-fledged empirical study, the next section reviews the general characteristics of the market structure and attempts to

6 For details, see a recent, comprehensive survey by Gaynor (2006).

7 정동준 외 (2006) and 박선희 외l (2005) both show that consumers respond to quality of medical service, especially to the quality of medical manpower (doctors, nurses). Increased consumer information would therefore be very important in aiding consumers to choose the optimal kind and level of medical service quality.

measure level of competition in the Korean health service industry.

2. The Competitive Landscape

1) General Characteristics

The health service industry in Korea has increased rapidly with rising income, extension of insurance coverage, and growing proportion of the elderly in the population. The share of total health expenditure in GDP was 5.6% in 2004. Although this is only around half of those in most OECD countries, the average annual growth in health expenditure has been rapid, growing at approximately 17% per year during the reform period of 1999-2001 (OECD Health Data 2006).

Despite the emphasis on health services as a public good, and despite prohibition of for-profit hospitals, Korea relies mainly on private medical institutions. More than 80% of total hospitals were private as of 2005. In 2002, only around 50% of national medical expenses came from public sources, which is much lower compared to most OECD countries, where public sources account for more than 70% (강성욱·고정민 2007: pp).

2) Market Structure

Medical institutions are categorized on the basis of their capacity and type of service. General hospitals should have more than 100 beds and offer services in more than 7-9 therapeutic areas. Hospitals should have more than 30 beds. Clinics are mostly intended for out-patient treatment. Tertiary hospitals are large hospitals that have greater than 500-700 beds, have high medical quality, and undertake educational and R&D functions.

Despite claims to low profitability and high rates of bankruptcy, at least until 2005, Table 3 shows that number of medical service providers has been generally on the increase. Noticeably, while the number of public health centers and tertiary hospitals peaked in 1998 and 1999 respectively, other medical institutions generally show a consistent increase from 1997 to 2005. Health care services, therefore does not seem to be “bad business” for private hospitals.

Except for tertiary hospitals, all categories of medical institutions can provide primary health care, and therefore are open to competition with each other. However, clinics are primarily designed to treat out-patients, and offer limited therapeutic areas.

They are also likely to compete very locally. Therefore, they can be considered to belong in different markets from hospitals. In the following, I focus mainly on competition at the level of the hospital.

Table 4 shows that in terms of number of institutions, the small and medium hospitals were the most numerous, accounting for more than 66% of the total. In terms of number of beds and per visit-day benefits, tertiary hospitals and then, the larger general hospitals took up the greatest share. Tertiary hospitals and general hospitals also had higher number of medical equipments per hospital. These figures imply that the market structure is quite polarized into a large-highly equipped hospital group and a group of many smaller hospitals. This suggests that market concentration would tend to be quite high. Using the sales data from the Services Census (2001)[8], the top-three concentration ratio and the Hirschman-Herfindal Index were calculated for hospitals in the seven large cities. The concentration indices show that CR3 can be fairly high in some cities, but that HHI which reflects market share of all providers, is generally not very high (see Table 5). That is, there may indeed be high concentration at the top but there is also a high level of competition in the remaining market. Interestingly, the level of concentration differs considerably between cities. Seoul and Busan are the most

[8] The Services Census is taken by the National Statistical Office every 5 years.

competitive, and Ulsan is the least competitive. Then, it would be helpful to compare the difference in quality of hospital service in cities with a low level of concentration and cities with a high level of concentration to explore the impact of concentration (ie, lack of competition) on hospital performance.[9] However, Table 6 suggests that profit rates and other hospital characteristics do not seem to show any particular pattern with respect to concentration. A more rigorous study at a lower level of aggregation would be necessary.

In a preliminary fashion, a very simple regression was estimated to explore the impact of competition on profit levels. All medical institutions in the Services Census, were used, with HHI calculated for each category of providers in their respective cities (or provinces). Results show profit rate to be significantly and negatively correlated with concentration, number of employees, and availability of homepage, but positively correlated with computer equipment (see Table 7). Here, number of employees is used as proxy for size (information on number of beds is not available from the census data), computer equipment is used as proxy for quality competition, and homepage availability for advertising. The result seems to indicate that greater competition (ie, lower concentration), smaller size, less advertising, and greater quality lead to higher

[9] It is possible that higher concentration levels in provincial cities may be due to higher rates of bankruptcy in these cities compared to Seoul.

profit rates. This implies that medical institutions are indeed mainly engaged in quality competition and that as competition increases, quality, price, and costs all increase, but since profit is greater, price increase must be higher than cost increases. This leads to the conclusion that competition will not necessarily lead to lower medical costs, unless consumer information is sufficiently increased.

The regression also included ownership dummies. Coefficients estimated for the ownership dummy show that individually owned hospitals or clinics (ie, for-profit providers) have the highest level of profits while government institutions recorded the lowest level of profit rate.

Indices for quality directly related to the medical services such as mortality rate or readmission rate for a particular disease would provide greater information for a better defined service market. In future studies, it should also be helpful to separate the effects of competition on price and quality between the insured and the uninsured markets as the nature and effects of competition is likely to differ in the two cases. Such a study should also take into consideration the interaction between the two markets, as health care providers seem to be actively engaged in compensating losses in one market with profits from the other. As Gaynor (2006) notes, such a study should be designed to address whether the changes in quality due to changes in competition is social-welfare enhancing or not, rather than merely showing quantitatively whether the correlation between competition and quality is positive.

3) Exposure to Foreign Competition

The health service sector was liberalized as a result of the Uruguay Round in 1995.[10] *The Foreign Investment and Foreign Capital Inducement Act* was amended to allow FDI entry into health care services. Due to the requirement to hold domestic medical license, to be non-profit, and to comply with other regulations, no foreign owned hospital has entered the domestic market to date. Only a couple of technical alliance agreements have taken place as of 2003 (김준동 외 2003: 64).

However, attracting foreign investment and foreign patients form an important part of the government drive to make the bio-medical industry nexus into the next generation growth engine. Government efforts to promote this industry and attract foreign investment are evident in the *Act on Designation and Management of Free Economic Zones*. Under this law, foreigners[11] can establish hospitals in the Free Economic Zones, with the approval of the *Ministry of Health and Welfare*. They are exempt from many

[10] However, Korea did not offer either medical professional services or hospital services in the WTO GATS list. (김준동 외 2003: 60).

[11] Includes natural persons and juridical persons (법인)

regulations required of domestic health care providers. For example, they are exempt from participating in the national health insurance system, and they can be for-profit, despite its prohibition under the *Medical Service Law*. Another special act detailing the operation of foreign hospitals in Free Economic Zones is currently submitted for public comment. The draft Act includes deregulation in various aspects of operating foreign hospitals, such as explicit allowance of recruiting foreign patients on for-profit basis, and special exemptions from regulations regarding imports of medical equipments and pharmaceuticals.[12]

While Korean medical institutions are not exposed directly to foreign competition within the domestic market, this sector is said to show a chronic trade deficit. According to the Federation of Korean Industries, health related services constituted more than 13% of total services trade deficit of 7,400 million won in 2002.[13] According to the Input-Output Table of the Bank of Korea, the "medical, health, social insurance services" sector showed a deficit of 13,398 million won in 2000, whereas it showed a surplus of 21,189 million won in 2003.

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12 On the other hand, 15 Korean medical institutions have established hospitals abroad as of 2004, mostly in China (Korea Health Industry Development Institute 2004).

13 According to the same source, it is estimated that approximately 10,000 patients, using around 1 trillion won, annually seek medical treatment abroad (Federation of Korean Industries 2003: 4). However, the 1 trillion won estimate was later proven to be over blown. The Korea Health Industry Development Institute put Korean utilization of US medical services to be around 100 billion won (이진석 2005: 10). The author could not find accurate and comprehensive time series data on exports and imports of health services.

3. Competition Policy Issues

In an effort to mitigate some of the problems discussed above, a major reform bill is currently under consideration in the *National Assembly.* The bill purports to allow greater for-profit operations (eg catering, funeral services, foreign patient treatment), provide mechanisms for hospital-mergers, adopt free-lancing by doctors so that doctors can practice at multiple medical facilities and allow networking with oriental and dental hospitals. It also imposes greater responsibility on medical institutions to provide information about the disease and the treatment process to patients, and publicly notify treatment prices for non-insured services (newspapers, various).

If adopted, these changes are likely to increase cooperation between hospitals and medical professionals, sometimes leading to mergers. On the other hand, reforms will increase competition due to greater consumer-information. This is a welcome move, as increased consumer information will likely lead to better quality of "quality competition," and help to lower prices. Since the expected reform does not affect the payment system however, it is doubtful whether the reforms will have much impact on the fundamental nature of competition in this industry.

From competition policy point of view, it seems that merger reviews is the most immediate task the competition authority needs to be prepared for. The key issue in hospital mergers will be to determine whether mergers take place to avoid competition, and whether decreased competition may actually enhance social welfare. As discussed in earlier sections, simply increasing competition does not necessarily increase social welfare, especially under regulation and price controls. Some ways to introduce price competition and letting the market find the true cost should be the first step, and it is disappointing that the latest reform bill does not include changes in the payment system.

In health services however, it is difficult to foresee complete deregulation due to the quasi-public goods nature of this sector. Ensuring adequate public health services, especially to low income groups, needs to be an essential part of the overall reform-debate in Korea where public health service is extremely under provided. As OECD (2006) correctly notes, effective competition can be introduced through a “number of different incentive mechanisms,” under a different mix of regulation-competition settings, and complete “free market” style competition need not be the only alternative.

A major problem in dealing with competition policy issues in the Korean health care provision system is the asymmetry of regulation, which tends to complicate the effects of competition. Currently, asymmetry of regulation exists between hospitals and clinics (regarding ability to undertake for-profit operations and other safety related regulations), between domestic and foreigner owned hospitals in Free Economic Zones (although so far there are no foreigner owned hospitals), between insured and uninsured services, and between diagnostic groups. Reduction of such regulatory asymmetry will make the competition process more transparent and establish equity between different interest groups.

In the manufacturing sector, liberalization has been used as an effective way of introducing greater competition, new managerial know-how and transferring technology. So far, foreign competition has not played a significant role in the Korean health care service sector. However, the role of FDI in this sector is probably not the same as in manufacturing. The greatest issue in health services is not lack of competition or innovation due to insulation from foreign competition, but that of regulatory design to satisfy both efficiency and public interests.

It seems that FDI in health care service (including insurance) has been viewed by the government parochially, simply as an agent to attract foreign demand within the government's overall framework to promote the bio-medical industry. On the other hand, interest groups have approached the FDI liberalization issue with a view to stimulating overall deregulatory reforms in the domestic sector. It is probably time for viewing FDI in health care services in a more comprehensive way, including an assessment of their full impact on the users and providers of health care, as well as on the National Health Insurance system.

The reform debate has so far been mostly in the hands of the interest groups. It would be helpful to encourage a broader participation of the public at large, including the competition policy community. Providing greater consumer information and consumer education would seem especially important in making health service market to be competitive and guiding future reforms to a desirable direction.

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Table 1. Benchmark Events in Health Services Regulation

Year	Events
1977	- Beginning of the *National Health Insurance* - Adoption of fee-for services payment system
1989	- Universal coverage
1994 ~	- Financial support provided based on performance evaluation by the *Health Insurance Review Agency*
2000	- Merging of regional, educational, and employee insurance societies into a single *National Health Insurance*. - Separation of drug prescribing and dispensing - Adopt the contract-system to determine services fee level
2002	- Pilot DRGs-based prospective payment system 1998~2000. Implementation of DRGs-based payment in volunteering medical institution.
2007	- *Medical Service Law* reform bill being considered in the National Assembly - Law allowing for-profit foreign owned medical institutions in free economic zones submitted for public comment

Source: Compiled by the author from various sources.

Table 2. Number of Medical Institutions by Kind and Year (2005)

Year	Total	Tertiary hospital	General hospital	Hospital	Clinic	Dental hospital	Dental clinic	Oriental health hospital	Oriental health clinic	Public Health Centers
1997	35,984	41	228	521	15,998	20	9,280	101	6,204	3591
1998	37,969	42	230	571	17,172	33	9,742	116	6,489	3574
1999	40,360	44	233	626	18,737	44	10,204	127	6,845	3500
2000	42,120	43	245	681	19,688	60	10,592	141	7,243	3427
2001	44,274	43	234	705	21,342	72	10,783	140	7,563	3392
2002	46,740	42	241	783	22,760	90	11,157	149	8,128	3390
2003	48,628	42	241	871	23,559	103	11,556	152	8,699	3405
2004	50,493	42	241	970	24,301	108	12,083	156	9,176	3416
2005	**52,573**	**42**	**249**	**1,112**	**25,166**	**124**	**12,548**	**149**	**9,761**	**3422**

Source: *Annual Report on Health Insurance Statistics, 2005.*

Table 3. Payment Received by Medical Service Providers (2005)

<unit: won, %>

Kind of Provider	Per Visit Day		Per Treatment Day		Percent of Total			
	Treatment Amount	Benefit Amount	Treatment Amount	Benefit Amount	Treatment Amount		Benefit Amount	
Tertiary hospital	111,145	79,045	48,436	34,447	34.81	34.86	24.14	24.36
General hospital	64,965	46,286	33,497	23,866	20.35	20.41	16.70	16.88
Hospital	38,991	28,905	26,487	19,635	12.21	12.75	13.20	13.89
Clinic	14,782	10,720	12,926	9,374	4.63	4.73	6.44	6.63
Dental hospital	27,775	16,917	27,464	16,728	8.70	7.46	13.69	11.83
Dental clinic	19,935	13,999	19,924	13,991	6.24	6.17	9.93	9.90
Health Centers	7,992	6,386	1,721	1,375	2.50	2.82	0.86	0.97
Oriental health hospital	19,318	13,434	16,801	11,684	6.05	5.92	8.37	8.26
Oriental health clinic	14,410	11,089	13,378	10,295	4.51	4.89	6.67	7.28
Total	319,312	226,781	200,633	141,395				
Proportion of Treatment Amount*	58.47%		58.66%					

Source: *Annual Report on Health Insurance Statistics, 2005*.

Note: * [Treatment Amount/(Treatment Amount + Benefit Amount)] x 100.

Table 4. Characteristics by Medical Service Providers

	Total	Tertiary hospital	General hospital	Hospital	Dental hospital	Oriental health hospital
Number of Institutions	1676	42	249	1,112	124	149
% of total		2.51	14.86	66.35	7.40	8.89
Number of Beds	299812	39212	92180	159539	186	8695
% of total		13.08	30.75	53.21	0.06	2.90
per hospital		933.62	370.20	143.47	1.50	58.36
Benefits per visit day	106,359.23	34,447.12	23,865.83	19,635.25	16,727.51	11,683.51
% of total		32.39%	22.44%	18.46%	15.73%	10.98%
Number of Medical Equipments	137,406	24,715	50,751	57,622	939	3,379
per hospital		588.45	203.8	51.818	7.573	22.678

Source: Calculated from *Annual Report on Health Insurance Statistics, 2005*.

Table 5. Hospital Concentration by City (2001)

City	Number of Hospitals	CR3	HHI
Seoul	160	25.056	36.695
Busan	79	29.683	46.125
Daegu	45	50.931	105.329
Daejeoun	36	53.872	128.899
Incheon	32	57.488	136.549
Kwangju	28	59.707	163.767
Ulsan	20	66.283	187.737

Source: Calculated from the *Services Census* (2001) data.
Note: CR3 = CR3 x 100, HHI = HHI*1000.

Table 6. Average Hospital Performance by City (2001)

City	Sales	Number of Employees	Cost of Operation	Rate of Profit*	Building Size	Computer & Related Equipment
Seoul	25688.606	344.419	23221.994	9.60	5329.713	374.169
Busan	13640.076	217.038	12837.291	5.89	3331.392	118.557
Taegu	15811.133	232.067	15022.000	4.99	4144.111	158.289
Taejeoun	14253.750	177.833	13490.694	5.35	3327.222	100.861
Incheon	13455.156	192.406	11561.313	14.08	3370.188	114.844
Kwangju	13683.750	217.679	13007.036	4.95	5068.464	123.179
Ulsan	9738.950	152.200	9013.700	7.45	2496.850	99.300

Source: *Services Census* 2001.
Note: * [(Sales – Cost of operation)/Sales] x 100

Table 7: Effect of Concentration on Profitability

Y = profit rate		Coefficient	Standard Error
HHI		-0.352	0.059**
Employment		-1.679 x 10-4	4.96 x 10 -5**
Computer Equipment		6.71x 10-5	2.90 x 10-5*
Homepage		-0.061	0.005
Constant		0.401	0.002
Ownership	**Corporation**	-0.307	0.038
	Jurisdictional persons other than corporation	-0.245	0.012
	Government Institutions	-0.343	0.012
	Other Institutions	-0.255	0.006
R-squared: 0.066 **F(23, 37931): 4340.23**		**Number of Observations: 37940**	

Note: Region dummies are included but their results are not reported.
* Significant at 5%, ** significant at 1%.