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Competition Policies for the Telecommunications Industry in Korea

Il Chong Nam

12.1 Introduction

In the past fifteen years or so, the world has been witnessing a fundamental change in the way the telecommunications industry operates. For many countries, introducing competition into the telecommunications industry has proved to be much more than allowing additional firms into the industry. It requires the transformation of a monopolistic government business into a competitive industry, which in turn demands the redefinition of the role of the government, creation of a proper regulatory regime, a new set of rules governing who can participate in what parts of the new business opportunity, rules to set rates and access charges, and so on. The process of transformation in Korea has not always been orderly and is still unfolding.

The Korean experience seems to present a unique example of telecommunications deregulation. First, the role of the government has not been clearly redefined. The government opted to allow some private firms into the telecommunications industry while at the same time retaining control of Korea Telecom, which was a monopolistic public enterprise before deregulation.[1] Thus the government put itself in a position to provide ser-

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1. A note on public enterprises in Korea is in order. Public enterprises in Korea differ from, say, state-owned enterprises in New Zealand. While state-owned enterprises in New Zealand are commercial companies whose ownership happens to be in the hands of the government, public enterprises in Korea are more like the New Zealand government's business units. They are not allowed to pursue commercial objectives and are required by law to

vices in competition with private entrants. This is in sharp contrast to the comparable cases in the United Kingdom and New Zealand. Second, the regulatory regime has not changed much from the days of government monopoly. Third, omnipresent industrial policies, whose objectives are sometimes ambiguous, have allowed the government to intervene in the industry extensively during the whole process.

The primary purpose of this paper is to evaluate the deregulation of the telecommunications industry in Korea. I also attempt to explain why the deregulation process has produced the outcomes it has. The analysis will also shed some light on how industrial policies affect competition policies in general in Korea. After summarizing major events in the deregulation process, I will analyze the effects of several key policies that have been employed by the Korean government, from the policy toward Korea Telecom, to the policy on entry, rates, access charges, and the regulatory regime. I also discuss the industrial policy of promoting the equipment manufacturing industry.

The paper is organized as follows: In section 12.2 I summarize the history of the industry from government monopoly to its current state. In section 12.3 I evaluate the deregulation process and current policies toward the telecommunications industry in Korea. This section focuses on the effects of past and current policies regarding privatization, entry, rates, access charges, and the regulatory regime. Section 12.4 draws conclusions.

12.2 An Overview of the Deregulation of the Telecommunications Industry in Korea

Telephone services were provided by the Ministry of Communications (MOC) until 1980, when the government created a separate corporation to control telephone services. However, unlike the case of corporatization in New Zealand, this change was made as a restructuring effort within the government and had little to do with market-oriented reform. The resulting public enterprise, Korea Telecom (KT), was viewed as a tool to execute the policies determined by MIC and not as a firm whose objective was to seek profits.[2] MIC's policy at the time was to accomplish universal service as quickly as possible. KT followed the directions given by MIC and achieved universal service in record time. By the end of the 1980s, KT had a monopoly in the international, domestic long-distance, and local exchange markets as well as in the mobile telephone market. However, KT was essentially a government business unit rather than a firm.

serve public objectives. In practice, they are close to subsidiaries of the ministries that oversee the industries to which they belong.

2. MOC changed its name to the Ministry of Information and Communication (MIC) in 1996. To avoid confusion, I will henceforth refer to MIC unless there is a need to use the name MOC.

Table 12.1 International Telephone Traffic and Sales of DACOM

Measure	1991	1992	1993	1994	1995
Telephone traffic (thousand calls)					
Outbound	754	17,991	26,517	32,253	36,639
Inbound	–	13,165	26,617	34,949	39,540
Sales (hundred million won)					
Outbound	30	714	1,008	1,224	1,422
Inbound	–	415	757	927	964
Total revenue	30	1,129	1,765	2,151	2,386
Market share (%)					
Outbound base	1.0	21.2	26.7	27.2	25.9

Source: Ministry of Information and Communication, *Annual Report of Electro Communication* (Seoul, 1996).

In the early 1990s, MIC announced long-term plans to turn its telephone business into a privatized industry and, as a first step, allowed a private firm, DACOM, to enter the international telephone market. At first, DACOM leased most of the lines and other equipment needed to provide service from KT on favorable terms. Further, MIC set the rate of DACOM's international telephone service substantially below KT's rate. As shown in table 12.1, DACOM quickly penetrated the international market and captured a market share of around 25 percent in a relatively short period of time. DACOM's international telephone traffic on the basis of outbound calls increased by 13.6 percent compared with 1995. Sales also increased, by 10.9 percent. Over the past five years, rates for international calls have been adjusted several times, resulting in a decrease in both the average rate level and the rate differential for the two operators. However, the rates have always been set by MIC.

On the mobile side, KT was forced to divest its mobile phone and paging subsidiary, Korea Mobile Telephone (KMT) in 1994, when a controlling interest was sold to one of the major *chaebols*, the Sunkyung Group.[3] KT has not been allowed to participate in the paging market since then and was barred from reentering the mobile telephone market until it obtained a personal communications services (PCS) license in summer 1996 along with two other *chaebols*. During this period, MIC allowed one more cellular operator, Shinsegi Telecom Inc. (STI), to enter the market. STI was not able to provide service quickly mainly because MIC required as one of the conditions of its license that STI use code division multiple access (CDMA) technology, which was still being developed. This requirement not only delayed the timing of the entry by STI into the mobile market but effectively reduced the size and profitability of entry, while it

3. KMT recently changed its name to SK Telecom (SKT) to make it clear that it belongs to the Sunkyung Group. I will refer to SKT henceforth.

prolonged SKT's monopoly. In late 1996, STI finally began service, but it is still not effective in competing against SKT, which is allowed to use the old analog standard as well as CDMA technology.

In 1996, MOC became the Ministry of Information and Communication (MIC). It issued new licenses for several service areas in what was then viewed by many as the last big business opportunity of the twentieth century. Two licenses for PCS services were granted to two consortia headed by two *chaebols*, Hansol and LG. The third went to a consortium controlled by KT, Freetel. All three new operators were required to use CDMA technology. None of the three has yet begun operations. In addition, MIC allowed Onse, a consortium of many firms without a single controlling firm, to participate in the international market and allowed DACOM to enter the domestic long-distance market. Onse is still preparing for its entry. DACOM started domestic long-distance service in early 1997 but has been able to capture less than 10 percent of the market.

Throughout these years, KT was treated essentially as a business unit of MIC even though MIC periodically announced its willingness to privatize KT and sold some KT shares to private investors in several tranches. Currently, the government owns 71.2 percent of the shares; the rest are owned by a few institutional investors and a large number of small investors. KT is still subject to the Korea Telecom Act, which specifies that KT's objective is to achieve public goals and which gives MIC virtually unlimited power to intervene in the management of KT. This implies that KT does not have a profit incentive, nor does it have any incentive to speak against the decisions made by MIC on issues that could have significant effects on KT, such as rates, access charges, conditions for leasing its facilities to its competitors, and so forth. Thus one cannot view KT as a competitor in any meaningful sense.

Several aspects of the deregulation process attract attention. First, the government did not open major markets fully to anyone who wanted to participate but controlled the number of firms in each market and selected the entrants. In the international telephone market, it allowed only one entrant in 1991, maintained a duopoly until 1996, and then allowed one more entrant in 1996. In the domestic long-distance market, the government maintained the KT monopoly until 1996, when it allowed entry of only one firm, DACOM.[4] The government maintained SKT's monopoly on the mobile side as well, allowing only one more entrant in 1994 and three others in 1995.

Second, in selecting new entrants, the government did not auction off licenses but instead employed complicated scoring systems. For instance,

4. DACOM was seen to be adversely affected by Onse's entry into the international telephone market that it had shared with KT. The decision to allow DACOM to enter the domestic long-distance market appears to have been based partly on MIC's concern about the profitability of DACOM. Onse has not started operation yet.

when MIC was selecting three PCS operators, it evaluated, among other things, the plausibility of business plans as well as the desirability of the applying consortia from a social standpoint. In effect, the government chose the firms that could participate in the market. In addition, the government exercised strong influence on the governance structures of new entrants. Except in selling shares of SKT and in allowing DACOM to enter the international market, the government forced potential entrants to form consortia consisting of many firms.

Third, the government apparently intended to secure a portion of the markets for new entrants and safeguard their financial stability by using its control over KT and its strong rein on the industry, which is guaranteed by law. MIC's rate regulation focused on maintaining rate differentials between the incumbent and new entrants while at the same time preventing overall rate levels from falling to levels that would have been realized under full competition. Its policies toward access charges also appear to have been biased in favor of new entrants. It appears that the government's intention was to create the industry configuration that it wanted rather than let the market decide. Thus the telecommunications industry has multiple firms but is not subject to the forces of competition yet.[5]

Fourth, and most important, MIC has been playing three different and conflicting roles: owner of KT, promoter of industrial policies for the telecommunications industry and the related equipment manufacturing industry, and regulator of the telecommunications industry. As a consequence, KT has been run as an instrument of industrial policy rather than a profit-seeking firm. In addition, an independent regulatory framework has not surfaced yet.

12.3 Evaluation of the Deregulation Process and Current Policies

This section evaluates the effect of the deregulation process and current policies, which have not changed much from the early 1990s. Ever since the entry of DACOM into the international market, which started the deregulation process, rates have gone down and new services have become available. Many investors and firms who were able to participate in the newly created markets made handsome profits. For the business community, opportunities to catch a goose that is supposed to lay golden eggs came every two years. The government heralded the coming of the infor-

5. One example that supports this conclusion is the apparent failure of DACOM to achieve superiority in efficiency. Although cost data are not released to the public, leaked pieces of information and the opinions of accountants in this area suggest that DACOM's cost structure is no better than that of KT. Several studies also point out that DACOM managers receive significantly higher salaries than their counterparts at KT. More generally, although not a public enterprise, DACOM is believed by most experts to have serious governance problems, due partly to the protective industrial policies of the government.

mation age. Not surprisingly, there has not been much criticism from the general public of the deregulation process.

However, lower rates and the introduction of new services by themselves are not enough when it comes to a telecommunications industry in which the relevant questions should be: By how much should rates go down? How quickly should new services be introduced? How reliable are the services? Increases in social welfare from telecommunications come from two directions, technological innovation and competition, which are themselves positively correlated. The deregulation of the industry in Korea has not taken full advantage of the merits of competition. In fact, the deregulation process has had problems from the beginning, as I argue below.

12.3.1 Policies toward Korea Telecom

The government did not privatize KT as it introduced competition and has maintained KT as a means to achieve government policies. Since KT has been run as a subsidiary of MIC and has been denied profit incentives, it has had no reason to respond to the new environment. Thus the most important part of the market has been excluded from the forces of competition. With no profit-oriented incentive plans and under a hierarchical structure as rigid and bureaucratic as the government itself, not many KT employees would attempt to improve the efficiency of their organization.

The decision to keep KT as a vehicle of industrial policy when competition was being introduced is in sharp contrast with the cases of the United Kingdom and New Zealand, which privatized British Telecom and Telecom New Zealand, respectively, prior to the introduction of competition. The decision by the Korean government not to privatize KT or to give KT a profit incentive reveals its perception of competition. The decision to keep KT as a vehicle of MIC policy goes directly against the goal of turning the telecommunications market from a government business into a competitive industry. DACOM's entry into the international market in 1991, without a change in KT, signaled the start of an era in which a competitive industry was handmade by the government. After six years of competition, KT is still not allowed to follow commercial objectives.

12.3.2 Regulatory Regime

As the government introduced competition in the telecommunications industry, a need arose for an independent regulatory body. However, no such body has been created. MIC was given the authority to oversee competition policies for the telecommunications industry while continuing all of its original functions. The realm of competition policies in the telecommunications industry has not been clearly defined. This ambiguity has caused tensions between MIC and the Korean Fair Trade Commission. However, MIC was given the authority to draw up and execute the policies concerning entry and exit, operating conditions, rates, and access charges.

It is also widely accepted within the government that MIC, and not the Fair Trade Commission, is primarily responsible for regulating anticompetitive behavior by telecommunications operators. Thus MIC has been playing the three different roles mentioned in section 12.2.

As pointed out in section 12.2, MIC's dual role as the owner of KT and competition authority could lead to conflicts of interests that jeopardize the performance of MIC in both areas. The third function of MIC, to promote industrial policies, further complicates matters. There is no agreement on what the industrial policies are for the telecommunications industry, even among bureaucrats.[6] It appears that the government has chosen the following goals for its industrial policies: (1) making sure that each service is provided by multiple but not too many operators, (2) making sure that each firm has sufficient market share, (3) letting no firm lose money, (4) making Korean operators big enough to be able to compete with foreign operators once the Korean market opens to foreign operators, (5) prohibiting any single party from claiming control of a major operator,[7] and (6) helping related equipment manufacturing firms to become competitive in the world market.

What are the policy variables? The policy variables that the government can employ in pursuing the above objectives include its control over entry, rates, access charges, conditions for operation, and technical standards and its control over the management of KT as the majority shareholder. To promote the equipment manufacturing industry, the government has been using its discretion in the choice of technical standards and R&D subsidies. As one can easily see, some of the objectives of industrial policies overlap with the objectives of competition policies. Further, some industrial policy variables, such as the regulation of rates, access charges, entry, and operating conditions, are the same control variables that an independent competition authority would use to regulate the telecommunications industry.

Consequently, the industrial policies of the government often conflict with its own competition policies. For instance, the government apparently saw that giving DACOM a certain market share within a certain period of time was desirable from the viewpoint of its industrial policy, so

6. This ambiguity surrounding industrial policies is not unique to the telecommunications industry. Generally, industrial policies for an industry are the policies pursued by the ministry in charge of the industry. Often, what a ministry should pursue in an industry is not quite clear. Industry acts that empower the relevant ministries to intervene in an industry state the objectives of policies too generally. Typically, the acts only name "development of the industry" or "preventing disorder in markets" as the objective. As a consequence, the ministries in charge of specified industries enjoy wide discretion and tend to justify their policies or decisions by simply saying that they serve the objectives of industrial policies, which is somewhat tautological.

7. On this point, the government has been inconsistent in the past. While it applied this principle to DACOM and Onse, it permitted *chaebols* to take controlling interests of mobile operators.

it prohibited further entry and set rates in such a way that DACOM would achieve this goal. Another example involves the policies concerning vertical integration between the telecommunications and the equipment manufacturing industries. Up until 1996, when MIC issued PCS licenses to Hansol Telecom and LG Telecom, affiliated with the Hansol Group and the LG Group, respectively, both of which have telecommunications equipment manufacturing subsidiaries, vertical integration in either direction had been prohibited.

The entry of Hansol and LG into the mobile market removed the ban on forward integration as a by-product. However, the ban on backward integration remained. While the policy on vertical integration could have been used as a competition policy, it has been employed as an industrial policy, whose objective was to help some manufacturers. To this day, no explanation has been given for the prohibition on backward integration that selectively applies only to carriers that did not previously have manufacturing subsidiaries. An explanation, if provided, would be based at least partly on assessments of the possibility and the effects of foreclosure.

Industrial policies will work well when the government has all the information about demand and the cost structure of each firm, as well as those of potential entrants, and uses the information to achieve the social optimum. In such an environment, the government will choose the right number of firms and the best firms as participants, choose the optimal size for each firm, and set the most efficient rates and access charges. But this scenario is not about a competitive industry. Rather, it is closer to the old government monopoly. Of course, it was exactly the failure of the government-managed system that led to the transformation of the telecommunications industry into a competitive one worldwide. By not establishing an independent competition authority, the government has failed to create an environment that is consistent with competition in the telecommunications industry.

Another characteristic of industrial policies that deserves attention is that they frequently fail to distinguish between firms and their owners. When large projects are undertaken, they usually involve high sunk costs for which funds must be committed in the early stages of operation, before many uncertainties are realized.[8] However, at the time the uncertainties are realized, the sunk costs are no longer relevant and should not influence the decisions of the firm or the government. For instance, suppose that the government issues a firm a license to operate in the long-distance market, in which there are two incumbents, and that the entrant invests $100 million in facilities that have no opportunity cost, once the investment is

8. The telecommunications industry is an example. Building a national network could involve huge costs, and a large part of them may not be of much value for other uses. Many network industries share this property.

made. Suppose also that the marginal cost of each firm is substantially below the range of prices that would prevail as uncertainties about demand and other factors are realized once the entrant starts operation. In such an environment, all three firms will operate and will earn positive economic profits in equilibrium.[9]

However, depending on the realization of the uncertainty, the entrant could find the realized profit significantly smaller than the opportunity cost of $100 million that was available before it committed itself to the facilities. If a large part of $100 million was financed by borrowing, the entrant firm could even go bankrupt though it earns a positive economic profit after entry. In a well-functioning economy, this will not cause any problems.

The firm will continue to operate because it is making a positive economic profit. Only the firm's shareholders will take a loss on the unfortunate investment if the firm can still pay the interest on borrowed capital. If the operating profit, before deducting interest payments, is smaller than the interest payments, banks too will have to take a loss. However, all these losses have nothing to do with economic efficiency and involve only the financial well-being of the shareholders and creditors. There is no reason for the firm to deviate from the level of operation in equilibrium. There is no need for the government to intervene either.[10]

However, industrial policies in Korea frequently call for government intervention when realized profits are smaller than the levels expected at the time of entry.[11] A popular method used by the government is to limit competition and secure financial stability for the entrant.[12] The government claims that such interventions are necessary to ensure a strong domestic industry and sometimes goes as far as to say that they are necessary to induce competition in the industry in the long run, although such intervention only affects investors' financial well-being and has no impact on efficiency in the post entry game, as shown above. Limiting post entry competition may have an effect on the efficiency of investment prior to the entry decision. As potential entrants see that the government will help their profitability in the post entry game if the realization of uncertainties is unfavorable, they have incentives to overinvest.

Such industrial policies have a long history in Korea. While interventionist industrial policies generally are fading in Korea, they started only

9. This can be shown in a noncooperative game model in which firms first commit to investment under uncertainty and play a Cournot-type game with capacity constraints after the uncertainties are realized.

10. Except possibly to reduce transactions costs involved in reorganization once insolvency occurs.

11. I.e., before the realization of uncertainties.

12. Another widely used method is to force banks to ease the conditions on lending. This policy has been used extensively since the modernization drive started in the early 1960s and has resulted in huge problems for the financial sector.

a few years ago in the telecommunications industry and are showing no signs of diminishing in either scope or strength. The remainder of this section will investigate in more detail the effects of the government's policies on the efficiency of the telecommunications industry in the areas of entry, rates, access charges, and vertical integration.

12.3.3 Entry, Rates, and Access Charges

The government's policy on entry can generally be characterized as "one entrant each time, guaranteed market shares and profitability." Such a policy is bound to affect not only entry itself but rates, access charges, and other relevant variables. Tables 12.2 and 12.3 below provide information about the rate regulation that has been applied to the international market since the entry by the second carrier, DACOM. As shown in table 12.3, MIC initially set DACOM's rates 5 percent lower on average than KT rates, reduced the differential to 3 percent as DACOM's market share came close to 30 percent, and reduced it again to 1 percent.

In addition, MIC maintained rates for international call services at levels far higher than the standalone costs of providing them. This, combined with the asymmetric rate regulation explained above, enabled DACOM to secure the market share needed for profitable operation.

Table 12.2 **Sales Revenue and Market Share Trends (billion won)**

Company and Measure	1992	1993	1994	1995
Korea Telecom				
Total sales revenue	4,487.6	4,907.6	5,389	6,361.5
International services revenue	444.8	420.5	505	580.5
International services market share (%)	86	70.4	70	70.8
DACOM				
Total sales revenue	227.5	325	345	369.8
International services revenue	71.6	176.5	215	238.7
International services market share (%)	14	29.6	30	29.2

Source: Korea Information Society Development Institute.

Table 12.3 **Effect of Competition on International Service Price Index of Korea Telecom**

Measure	1988	1989	1990	1991	1992	1993	1994	1995
International service price index	190.32	140.05	129.02	129.02	129.02	104.32	104.32	100
Price differential between Korea Telecom and DACOM (%)	–	–	–	–	5	3	3	1

Sources: Ministry of Information and Communication and Korea Telecom.

Table 12.4 **Comparison of Long-Distance Call Rates (won per three minutes)**

Measure	Within 30 km		Within 100 km		Over 101 km	
	DACOM	KT	DACOM	KT	DACOM	KT
Basic rate	41.6	41.6	164	182.6	250	277.3
Difference between rates (%)	–		11.3		10.8	

Source: DACOM.

Table 12.4 shows the differences in call rates based on distance in the long-distance call service market. While the government has claimed that rate reductions became possible as a result of introducing competition, rate reductions were actually caused by its decisions about rates.[13] There was no price competition since the rates for each firm were set by the government. It is also worth noting that the government forced KT to lease the facilities needed for DACOM's rapid expansion on favorable terms. Consumers also contributed to DACOM's growth by paying higher rates.

Rates of essentially all the major telecommunications services are set by MIC.[14] Traditionally, rates for international and domestic long-distance calls have been set at levels higher than the standalone costs of providing those services, and rates for local calls have been set lower than their accounting costs.[15] Although no reliable figures are available, it is generally believed that the rate for local exchange service in Korea is substantially below those in the other OECD countries while the rates for international and domestic long-distance calls are significantly higher. As one can see from table 12.5, the ratio of the rate for a long-distance call to the rate for a local call in Korea is much higher than the ratios in other countries.[16] This suggests that the size of the subsidy from the long-distance market to the local exchange market is much larger in Korea than in the other countries.

Considering that the rates for international and domestic long-distance calls are set by the government and that the government has maintained a rate differential between KT and DACOM, past and current rate policies

13. The government could have made the rate reduction much bigger by simply ordering KT to reduce rates without introducing DACOM into the market.

14. MIC officially regulates only rates for services of dominant carriers. These consist of KT's local exchange, domestic long-distance, and international calls and SKT's cellular calls.

15. There is a subtle point in discussing costs of local calls. Accountants claim that they can separate the costs of local calls by allocating joint costs to different services. However, their claim has little truth. If a cost is separable, it would not be a joint cost. However, one may say that KT's local exchange operations are not profitable in the sense that if its international and long-distance divisions had no profits, KT would face a big loss from its local exchange operations at current prices.

16. Here the rate for a long-distance call made to destinations within 30 km is used as a proxy for the rate for a local call.

Table 12.5 **Differences in Telephone Rates Due to Distance**

	Korea	United Kingdom	United States	Japan	Germany	Australia
Ratio[a]	7.8	1.4	1.4	4.5	3.0	3.0

Source: Korea Information Society Development Institute.

[a]Ratio of long-distance call rates (over 101 km / within 30 km) in each country.

must have created ample room for DACOM's profit. Since DACOM took away a sizable portion of the lucrative market that used to subsidize the local exchange operation and other money-losing businesses required by the government, KT's profit levels have been decreasing.

On the mobile side, SKT has been enjoying a monopoly position aided by the policy on technical standards that requires newcomers to use the CDMA system.[17] The rate regulation on SKT appears to have been more generous than the rate regulation on KT.[18] Although SKT is much smaller than KT in size and in the amount of capital initially invested, it earned greater profits than KT did last year. Since the second mobile carrier started operation this year and three more PCS operators are still in the preparatory stage, it is hard to discuss policies on mobile service rates.

The final topic of our discussion of rate regulation is predatory pricing. The rationale behind the rate regulation described above, according to MIC, is the possibility of predatory pricing. In other words, MIC argues that if it does not set rates, the incumbent will set rates below costs and drive the new entrant out of the market. Predatory pricing is illegal according to Korean antitrust laws. Predatory pricing, if found to have occurred, would be punished by the Korean Fair Trade Commission. Thus MIC's rate policies, designed to prevent predatory pricing in advance, are somewhat ad hoc. In other oligopolistic industries, one would normally be more concerned about the possibility of collusion than that of predatory pricing. In our view, MIC's rate regulation has more to do with its industrial policy goals than with the competition policy goal of preventing predatory pricing.

17. SKT would have preferred the group special mobile standard, which is far better than CDMA in terms of the cost of investment and quality, had there been no competitor in sight. But STI had obtained a license and was preparing to enter the mobile market. The government's decision to allow only CDMA technology as the digital standard for mobile services would both delay STI's entry and reduce the magnitude of its entry, in addition to increasing its costs. SKT recognized that the benefits from the adoption by the government of CDMA technology would far outweigh the costs it would entail. Consequently, SKT actively advertised the need for the country to adopt the CDMA standard even though it would increase its own costs substantially.

18. It is believed that regulation of SKT has been generous because it is providing a new service that many view as a luxury good and also because there had been excess demand for quite a while. On the other hand, KT's rates for local calls were much harder to raise due to political constraints.

Let us now turn to the policy on access charges, probably the single most important factor in regulating the telecommunications industry. The nature of the access charge problem depends on the relationship between KT and the firm that wants to access KT's local network. DACOM's services are substitutes for the services provided by KT, while SKT's services are by and large complementary. By providing access to DACOM, KT loses revenue from its long-distance and international businesses. On the other hand, the mobile market is a market that neither SKT nor KT can profit from alone. Consequently, KT and SKT are in a joint-venture bilateral monopoly situation in which each needs the other to take advantage of a new opportunity.

MIC's approach to access charges between DACOM and KT was initially based on the retail tariff rate but changed to a fully distributed cost approach in 1994. On the other hand, MIC's handling of access charges between KT and SKT has proved more difficult. Access charge settlement between KT and SKT was "bill and keep" initially. In 1993, however, MIC changed the rule and required that access charges be determined based on historical fully allocated cost, as between KT and DACOM since 1994, through its decree on interconnection. As the problem with this new rule became evident, MIC gave up this approach and has been trying to come up with yet another method.[19] As a consequence, KT and SKT have been giving access to each other in the land-to-mobile and mobile-to-land markets without any agreement on how they settle on access charges. Table 12.6 shows the trends of access charge rates between KT and SKT, STI, and DACOM.

The problems with accounting-cost-based access charges are well known. They do not reflect true costs or demand conditions. Further, they leave too much to the arbitrariness of bureaucrats and accountants. In addition to these general problems, MIC's access charge policies may have been affected by its industrial policies favoring new entrants. Although much of the cost data are confidential, and the process of determining access charges is not open to the public, experts generally believe that charges have tended to favor firms other than KT. It is worth mentioning that no economic approach, such as an efficient component pricing rule (ECPR) or a global price cap, has been considered by the government thus far.[20]

Access charges between KT and SKT should be interpreted as a profit-sharing rule in a joint venture. However, MIC refused to accept this interpretation and chose to set access charges based on the accounting costs of providing access services. In the early stage, when accounting-cost-based

19. The problem is explained below. The explanation will provide a good example of how wrong accounting-cost-based access charges can be.

20. ECPR and its properties are well summarized in Baumol and Sidak (1995), Economides and White (1995), and Laffont and Tirole (1996). Laffont and Tirole (1996) also suggest an approach that can be viewed as a generalization of Ramsey-Boiteux pricing.

Table 12.6 **Access Charge Rate Trends (won/minute)**

Year	SKT			STI	DACOM	
	Type[a]	Land to Mobile	Mobile to Land	Land to Mobile	Type	Interconnection
1992					Per call	25
1993					Per call	30
1994	Local	13.33			Per call	40
	Long distance	49.42	45.03			
1995	Type A	Undecided	32.04		Local	26.34
	Type B	Undecided	46.83		Long distance	45.03
	Type C		3			
1996	Type A	22.52	22.52	13.27	Long distance	25.02
(expected)	Type B	35.06	35.06	23.67	International	25.08
	Type C		3			

Source: Marketing Division of Korea Telecom.

[a]Translation type.

Table 12.7 Estimates of Korea Telecom's Access Charge Revenue, 1996

Company	Access Charge (hundred million won)				Ratio of Share of Expenses to Sales (%)
	Charge for Local Call	Charge for Long-Distance Call	NTS Share of Expenses Compensating Deficits[a]	Total	
KT					
Long distance	4,116	0	4,970	9,086	58.75
International	87	116	107	310	4.33
DACOM					
Long distance	525	490	Exemption	1,015	41.08
International	25	33	30	88	3.34
SKT	453	497	556	1,506	5.96
STI	24	38	Exemption	62	4.65
Total	5,230	1,174	5,663	12,067	22.20

Source: Marketing Division of Korea Telecom.

[a]Non-traffic-sensitive (NTS) expense can roughly be understood as the cost of providing universal service.

access charges were being studied, KT and SKT did not pay access charges and simply used the bill-and-keep method, as directed by MIC. This way of settlement was biased in favor of SKT because most calls were made from mobile to land. The new way of settlement based on the accounting cost of providing access, introduced in 1993, defined both KT and SKT as providers of access services and dictated that each firm receive from the other an access charge equal to the average accounting cost of providing access.

However, SKT's average accounting cost of providing the access to KT needed to complete a land-to-mobile call turned out to be higher than the rate for a call. Thus KT, as a seller of land-to-mobile call services, was to pay more in access charges than it receives as the price for its service.[21] SKT and KT are currently negotiating yet another way of settling access charges.

Table 12.7 summarizes estimated access charges for KT, DACOM, SKT, and STI for 1996. The low ratios of access charges paid to revenue for DACOM and SKT seem to confirm our claim about access charges.[22]

21. This may be interpreted as an example of how arbitrary an accounting approach can be. SKT's cost of providing access services can vary widely depending on the way it allocates costs of capital investment, etc. It also seems that accountants have considerable discretion in qualifying acceptable costs.

22. The ratio of the access charges paid by DACOM to its revenues from the international market is extremely low, compared to those of long-distance carriers in the United States, which range from 40 to 50 percent. The ratio for SKT is also significantly lower than ratios in the OECD countries, which range between 30 and 50 percent.

12.3.4 Vertical Integration

The current policy on vertical integration, allowing forward integration by equipment manufacturers while prohibiting backward integration by carriers, seems to have no economic basis. There is little possibility that KT, DACOM, or SKT could become a dominant firm in manufacturing even if backward integration were allowed. Thus the expected loss of efficiency from vertical foreclosure effects that may arise when these carriers are allowed to integrate backward appears insignificant.

On the other hand, from the past behavior patterns of *chaebols,* it is highly probable that LG Telecom and Hansol Telecom will purchase most of their equipment from the telecommunications equipment manufacturing subsidiaries of LG Group and Hansol Group, respectively, thus foreclosing a substantial portion of the markets both upstream and downstream. Thus the current policy on vertical integration regulates the backward integration whose expected harm to the economy is smaller than the expected harm of the forward integration by nonregulated manufacturers.

Another industrial policy pursued by MIC deserves attention when discussing the vertical relationship between the telecommunications industry and the equipment manufacturing industry. MIC has been playing a key role in subsidizing the equipment manufacturing industry through the R&D programs of service providers downstream. The policy, supported by law, requires telecommunications operators to spend a certain percentage of their revenues on R&D, a large part of which has supported R&D in telecommunications equipment, but does not allow them to commercialize the results. This policy has the effect of taxing services and giving the tax revenue to the R&D part of the equipment manufacturing industry.

Before, when vertical integration in both directions was prohibited, the only issue surrounding the policy was the effect on consumers in the telecommunications market and the effectiveness of the subsidy in helping equipment manufacturers to gain competitiveness in the world market for telecommunications equipment. However, the entry by LG and Hansol led to the possibility that the carriers that are not vertically integrated would subsidize their competitors that are vertically integrated. Such a subsidy will undoubtedly distort competition in the telecommunications industry.

12.4 Basis for Reform

As the above discussions demonstrate, deregulation of the telecommunications industry in Korea has been severely constrained by the industrial policies of the government. As a result, effective competition among carri-

ers seeking profits in a noncooperative way has yet to occur. As long as the present regulatory framework prevails, loss of allocative efficiency as well as internal efficiency of the carriers will continue.

If a more efficient, low-cost telecommunications sector is to be achieved, changes in the structure of incentives facing the management of KT are necessary. Privatizing KT would be the best way to achieve this goal. However, privatization could prove to be a long process, as the history of privatization efforts in Korea shows. Thus, before full privatization takes place, it is important that KT be run as a profit-seeking entity even while the government remains a large shareholder.

One way of giving proper profit incentives to KT would be to separate the ownership role of the government from the regulatory role and establish an independent authority for the telecommunications industry, similar to the Office of Telecommunications in the United Kingdom or the Federal Communications Commission in the United States. The regulatory body would then be charged with regulation of entry, rates, and access charges and other related issues such as universal service.

For mobile telecommunications, an alternative to the present policy would be to sell the spectrum, letting an auction determine who could most profitably and efficiently enter the market. For the wired markets, further relaxation of entry regulation may lead to improvement in allocative efficiency, at least in the long-distance markets.

Reform of regulation on rates and access charges is a complex issue. Factors to be considered include the restructuring of rates to minimize cross-subsidies and, at the same time, the provision of a rate structure that would yield an adequate return when firms are efficient. There also are issues with regard to the allocation of access charges to be divided among KT and mobile operators.

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Comment Ramonette B. Serafica

The basic argument of the paper is that telecommunications policies in Korea have not created a competitive industry. Il Chong Nam supports this contention by discussing various forms of government intervention. In particular, several instances of how the Ministry of Information and Communications (MIC) has stepped in to influence market outcomes directly are described. Such an open and honest account of the extent of government intervention is not found in most papers, so the author deserves credit for sharing this information.

To create a more complete and balanced view of the Korean reform program, however, Nam could give some background on the government's motivation for opening up the market. It would be useful to know, for example, what the impetus was for the reform of the sector. Was it due to the immense dissatisfaction of consumers with the old system, or a change in some national or industrial policy goal, or is it simply a response to the changing technologies? What is the rationale for deregulation? Based on the author's discussion, one is inclined to believe that regulation is driven by industrial policies. It would therefore help to know what the actual policy pronouncements of the government are with respect to telecommunications. Thus a discussion of (1) what triggered telecommunications deregulation and (2) what is driving it forward should help the reader gain a view of the forest that is the Korean telecommunications reform program.

After reading through the paper one is convinced that there is indeed a lot of room for the introduction of competitive forces in the industry. Acting as regulator, promoter of industrial policies, and owner of the dominant firm, MIC has been able to use its powers to carve out an environment that guarantees *results* rather than the mere *opportunity* to participate in such a dynamic industry. If this is true, then there is certainly the danger that such a low-powered incentive structure will not encourage optimal behavior from the privileged few.

A case in point is the policy on market entry, which Nam describes as "one entrant each time, guaranteed market shares and profitability." I agree with the author that it is only with perfect information on cost and demand conditions that a central planner has any chance of accurately determining the best candidate. However, as we all know, such a situation does not exist. In fact, as economists have always maintained, it is the process of competition that is the most efficient "discovery procedure" for eventually separating the winners from the losers.[1]

Of course, there is some merit in ensuring the economic viability of new

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1. Snow (1997) provides a good discussion of the debate regarding natural monopoly vs. competition in telecommunications networks.

entrants. It reduces their risks and encourages investment in the sector. But even as a select few are chosen, competitive forces can be introduced into the selection process by adopting competition *for* the market instead of competition *in* the market. Through a bidding process, the candidate that offers the best combination of price, quality, and product variety is chosen to enter the market first. Phasing of licenses can then be used as a stick to discipline an erring operator and as a carrot to entice prospective entrants to offer better, more innovative packages of services as a condition for entry.[2] This option may be explored as an alternative to the current system.

It must be noted that the case for asymmetric regulation in favor of entrants has been stressed in other countries. The British and U.S. experiences show that initial support for entrants was necessary in order to create a credible competitive environment. Based on the actions of MIC perhaps the interventions are aimed at creating a competitive industry, and thus it may be premature for Nam to declare "that telecommunications policies in Korea have not created a competitive industry." The fact that rates have gone down and that new services have become available in international long distance reveals that slowly competition is taking root. As I have said, the author has done a good job of convincing me of the enormous potential for the introduction of competitive forces in Korean telecommunications. As a next step, the author may want to look at how other countries have managed to help new firms in the name of creating a level playing field and still been able to promote efficiency in the process.

The contribution of government or government-run operators in the development of telecommunications networks should also not be totally disregarded. I think that government-run post, telegraph, and telephones (PTTs) were successful in achieving universal service in some countries (and thus government was able to correct a potential market failure under a private monopoly situation). Even Nam acknowledges that this is true for Korea, and chapter 11 on Taiwan can attest to this fact as well. In addition, it is incorrect to claim that "it was exactly the failure of the government-managed system that led to the transformation of the telecommunications industry into a competitive one worldwide." In fact, the single most important impetus for the transformation of the telecommunications industry into a competitive one is the change in the cost structure of providing telecommunications services attributable to technological innovation. Thus "failure of the government-managed system" can perhaps explain the return of PTTs to the private sector, but it is technology that makes competition possible.

Finally, in the last section of the paper, Nam makes several recommendations for restructuring the regulatory framework for the industry. Given

2. See Glynn's (1994) proposal.

the complexity of telecommunications, it would be impossible to provide an adequate treatment of the subject matter in one paper (much less one section of a paper). As a guide, the International Telecommunication Union lists the following as important elements of telecommunications policy, regulation, and legislation:

1. *Market structure:* What are the monopoly services and which ones can be provided under competition?
2. *Ownership of operating entities:* What is the extent of private sector participation and of foreign participation?
3. *Conditions and rules of market entry and exit:* What are the obligations of operating entities, technical standards, rules for interconnection, mechanisms for entry, and so forth?
4. *Pricing principles and cost recovery guidelines:* What are guidelines for monopoly and competitive services, allowable rates of return and so forth?
5. *Institutional roles:* What are the location of authority, the process to establish policy, and the process to monitor and enforce compliance with policy?

Each of these elements needs to be thoroughly studied, individually and in conjunction with the other aspects, in order to come up with a complete and coherent reform program for telecommunications.

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