

This PDF is a selection from a published volume from the  
National Bureau of Economic Research

Volume Title: Trade in Services in the Asia Pacific Region,  
NBER East Asia Seminar on Economics (EASE), Volume  
11

Volume Author/Editor: Takatoshi Ito and Anne O. Krueger,  
editors

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-38677-5

Volume URL: [http://www.nber.org/books/ito\\_03-1](http://www.nber.org/books/ito_03-1)

Conference Date: June 22-24, 2000

Publication Date: January 2003

Title: Korea's Telecom Services Reform through Trade Negotiations

Author: Nae-Chan Lee, Han-Young Lie

URL: <http://www.nber.org/chapters/c10161>

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## Korea's Telecom Services Reform through Trade Negotiations

Nae-Chan Lee and Han-Young Lie

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### 8.1 Introduction

It has become a fairly common assertion that deregulation in the telecommunication services market around the world has been a clear trend since a couple of decades ago. Obviously, regulatory reform has been legitimized with the beginning of a multilateral governmental response to the Uruguay Round and World Trade Organization (WTO) negotiations on basic telecommunications. The backgrounds and key factors of deregulation markedly differ across the majority of countries according to different policy objectives, so that no single country can be held up as a model case of successful deregulation. Nevertheless, all agree that the objective of deregulation is to improve social welfare by attaining lower service tariffs, higher service quality, and greater efficiency in the market.

Korea has been actively working on deregulating in its telecommunication services market since the 1990s, after it provided basic telephony to the general public in the 1980s. Recognizing the importance of effective competition for the future growth of its telecommunication services market, the Korean government, acting as policy maker, regulator, and largest stakeholder of the dominant service provider Korea Telecom, has played a central role in restructuring the market. It has established the rules of the game on one hand and has controlled the outcomes of it on the other hand. Although less identified, but of great importance for better understanding the

Nae-Chan Lee and Han-Young Lie are senior research fellows of the Korea Information Society Development Institute (KISDI).

The authors are indebted to Dong-Pyo Hong of the KISDI for valuable comments and discussion on the input-output analysis of telecommunication services and to Ki-Joo Yu and Jung-Woo Ryu for their assistance. They also appreciate Takatoshi Ito and Anne O. Kruger's suggestions. Any shortcomings and errors are the authors'.

motivation and process of Korea's deregulation, is the pressure for market opening that has originated from trade negotiations. In particular, WTO negotiations on basic telecommunications have become a watershed for furthering deregulation and accelerating competition in the market.

The purpose of this paper is to examine the implications and lessons of regulatory reform in Korea's telecommunication services market. The next section (section 8.2) reviews the history of the deregulation process. It explains how Korea has been transforming the market since 1990 by taking advantage of the opportunities given by trade negotiations. This is followed in section 8.3 by an overview of the current marketplace. Section 8.4 explores the impact of the most recent regulatory reforms made in conjunction with WTO negotiations on basic telecommunications on market performance with respect to contestability and competition. We especially focus on the implication of introducing voice resale services into the market and the role of foreign investment in facilitating competition in the mobile-services market. Finally, section 8.5 offers concluding remarks.

## **8.2 Impact of Trade Negotiations on the Korea's Regulation**

Korea has made significant progress in the deregulation of the telecommunication services market since 1990. As a result, it has succeeded in enhancing the overall performance of the market through the promotion of competition. It is natural that adequate credit be given to the government's determination in and efforts toward attaining such progress. In a sense, however, the success of deregulation appears to be a legacy of a series of bilateral and multilateral trade negotiations on telecommunications services. Trade negotiations at least provided good momentum for Korean policy makers to effectively manage domestic pressure against opening the market. In the following sections, we examine the development of the Korean regulatory regime in the 1990s with due attention to the trade negotiations in which Korea has been involved.

### **8.2.1 The First Stage (mid-1990–mid-1994)**

The Korean telecommunication services market in the 1980s was characterized by the construction of the Public Switched Telecommunication Network (PSTN). Extremely low teledensity was a chronic problem during those days, so the top policy priority was simply to satisfy the basic needs of the general public for telephone services. The Korea Telecommunications Authority—predecessor of today's Korea Telecom (KT, henceforth)—was exclusively in charge of providing telephone services under the auspices of the Korean government. By 1988, it had barely managed to attain the policy objective of providing a telephone per household. With the basic demand satisfied, the Korean government began to concentrate on other issues such as quality improvement for telecommunication services and the enhancement of KT's managerial efficiency.

In February 1989, a year after Korea managed to satisfy the basic demand for telephone services, the United States designated Korea as a priority foreign country (PFC) based on Section 1374 of the Omnibus Trade and Competitiveness Act of 1988.<sup>1</sup> The purpose of this designation was to open up Korea's telecommunication services market, especially to value-added and mobile services. In addition, the liberalization of the value-added services market was a major negotiation agenda of the Uruguay Round (UR). The Korean government, after a series of bilateral talks with the United States, decided to carry out structural reform of the existing market in July 1990.

It was clear that the U.S. action provided Korea with a direct motivation for both market liberalization and regulatory policy making at the same time. In the reform process, Korea incorporated the U.S. request to eliminate market access limitations (i.e., to permit foreign ownership in the value-added and mobile services segments). However, Korea kept its own stance in streamlining other regulatory policies such as categorizing service providers and applying market entry conditions to each category of service provider.

A key feature of the reform was to divide service providers into three categories: general, specific, and value-added (see table 8.1).<sup>2</sup> General and specific service providers were differentiated from the value-added by virtue of having their own facilities. The business area of general service providers was wired services, whereas that of specific service providers was confined to wireless services. The requirements for market entry were also different: for the general service providers it was the government's designation; for the special service providers, licensing; and for the value-added service providers, registration. Although foreign ownership was not allowed among general service providers, it was allowed up to 30 percent among special and up to 100 percent among value-added.

The differentiation of entry barriers among the service providers can be interpreted as a strategy to treat foreign entry differently according to the degree of pressure for market opening. Korea could resolve the external issues by fully opening the value-added services market and part of the mobile market. Classification of the service providers was useful from the regulatory perspectives, but it entailed a lot of loopholes. In particular, sticking points were the *positive listing system* for the provision of services and the *request for proposal (RFP) system* for licensing. Through the positive listing system, the government permitted the service providers to supply only the services listed in the Telecommunications Business Act. It took a long

1. Section 1374 entitles the USTR to investigate potential foreign telecommunications trade barriers, identify any trading partner with anticompetitive practices as a priority foreign country, and at any time revoke the identification (taking into account relevant criteria, including progress being made).

2. Before 1990, the only category of the telecommunications service providers in Korea was that of the public telecommunications operators (PTOs).

**Table 8.1** Classification of Service Providers in the First Reform (mid-1990–mid-1994)

Category	General Service Provider	Specific Service Provider	Value-Added Service Provider
Facilities	Own facilities	Own facilities	Leased facilities
Subservices	Fixed telephony, telegraph, telegram, private leased circuits	Wireless services: cellular, radio paging, TRS, wireless data transmission	Database, data processing, data accumulation and transmission, EDI, e-mail, CRS
Market entry condition	Designation	Licensing	Registration
Foreign ownership	Not allowed	Up to 1/3 of the total shares (not allowed to be the largest shareholder)	Up to 100%
Other regulations on ownership	The largest shareholder: up to 10% Equipment manufacturer: up to 3%	The largest shareholder: up to 1/3 of the total shares Equipment manufacturer: up to 1/3 of the total shares (not allowed to be the largest shareholder) Government invested institution: up to 10% (not allowed to be the largest shareholder)	None

Source: Ministry of Information and Communication.

administrative rationing process for the unlisted services to be introduced into the market, which deterred the introduction of new services. Under the RFP system, a company could make a request for a license only on the condition that the government made public notification prior to licensing. The Korean government retained the RFP system until August 1997 as an important policy tool to set a priori limitation on the number of market entrants into any of the service categories.<sup>3</sup>

After the first reform, duopoly competition for international telephone and regional radio paging service segments was introduced. Competition, however, was managed by government intervention through a prior tariff approval system. Price differentials between incumbent and new entrants were kept constant at a level at which the entrants could secure their market shares without being so drastic as to tip the balance too unfavorably toward incumbents.<sup>4</sup> This managed competition systematically guaranteed excessive profits to all of the service providers once they obtained their entry

3. This is one of the typical limitations to market access, the so-called, economic needs test that is specified in the General Agreement on Trade in Services (GATS), article 16.

4. Under the prior tariff approval system, even the entrant without market power, not to speak of the incumbent, has no autonomy to determine its own tariffs. The system was abolished in late 1995.

ticket, but blurred the original policy objective: enforcement of service providers' competitiveness through competition.

### 8.2.2 The Second Reform (mid-1994–mid-1997)

The Korean government had maintained the position, ever since the first reform, that it could manage the telecommunications market structure at will. However, in December 1993 when the UR was concluded, the government realized that its policy stance could not last long. Because it had found basic telecommunications to be one of the service sectors left unresolved by the UR, trading partners agreed to extend the period of negotiations on basic telecommunications until 30 April 1996. The government regarded this situation as a strong message that the existing telecommunication services regime would be radically liberalized sooner or later. Therefore, competition became mandatory for the Korean telecommunication services market, which led to the second structural reform of July 1994.

One of the major regulatory changes made in the second reform was the scrapping of the demarcation between general and specific service providers, which were integrated and dubbed *facility-based service providers* (FSPs, henceforth). The other change was the adoption of the negative listing system. As a result, a company licensed to provide facility-based services was legally able to supply any service. In practice, the government still listed the facility-based services in the Telecommunications Business Act, so that FSPs were under regulation in the process of licensing. However, it was a significant improvement because value-added service providers were allowed to supply all types of services except facility-based services. As regards the foreign ownership restrictions, the restriction on telecommunications equipment manufacturers' ownership in facility-based services was abolished so that they could participate in those services on an equal footing.<sup>5</sup> Table 8.2 summarizes the classification of service providers resulting from the second reform.

The second reform, through the introduction of competition into long-distance service,<sup>6</sup> set up a duopoly structure externally in every licensed facility-based services market. However, because the RFP system in licensing served as a major stumbling block to inducing additional entry in the market, it was not possible to reap the fruits of competition. Asymmetric entry barriers also existed between fixed and mobile services, due to the ownership restriction on the largest shareholder in fixed telephony. While the former general service providers could enter the mobile services market without ownership adjustment, the former specific service providers, par-

5. Additionally, the ownership limitation on the private leased circuits services—which had been kept tight since the first reform by treating the services as a specific service on the basis of the former classification—was mitigated. Therefore, foreigners formerly prohibited from investment could come to invest up to one third of the total shares.

6. The Korean government designated Dacom as the second long-distance service provider in March 1995.

**Table 8.2** Classification of Service Providers in the Second Reform (mid-1994–mid-1997)

Category	Facility-Based Service Provider	Value-Added Service Provider
Facilities	Own facilities	Leased facilities
Subservices	Fixed telephony, telegraph, telegram, private leased circuits, wireless services (cellular, radio paging, wireless data transmission, TRS), and other services specified by the minister	Other than those provided by facility-based service providers
Market entry condition	Licensing	Notification
Foreign ownership	Wired line: prohibited Wireless: up to 1/3 of the total shares (not allowed to be the largest shareholder)	Up to 100%
Other regulations on ownership	Wired line: up to 10% for the largest shareholder Government invested institution: up to 10% (not allowed to be the largest shareholder)	None

*Source:* Ministry of Information and Communication.

ticularly mobile service providers with the largest shareholdings, were obliged to reduce their ownership in order to enter the fixed telephony market. That is to say, there was an asymmetric line of business.

In sum, structural reform in the Korean telecommunication services market was successful to some extent in increasing the number of participants in the market, but not in facilitating the level playing field to enhance the effective competition. However, the practice of managed competition had been continued on the basis of providing appropriate competition in the market, as had been intended at the first stage.

In July 1995, the government announced a blueprint to promote competitiveness in telecommunication services.<sup>7</sup> The main purpose was to establish fair and effective competition in the market, which can be considered a switchover in the policy direction from a managed and progressive competition to a free and full-scale competition.<sup>8</sup> The first step of the action plan was to facilitate the introduction of new service providers in international telephone services, private leased circuits, and various mobile services. The second was to streamline a wide range of existing regulatory measures, including the removal of the RFP system and the reinforcement of an

7. From a political point of view, the announcement of the blueprint might be interpreted as a bandwagon attempt of the newly launched Ministry of Information and Communication (MIC) in December 1994 (the successor of Ministry of Communications [MOC]).

8. Another purpose was to provide KT with greater managerial independence by overhauling existing regulations arising from its status as a government-invested institution, and by permitting participation in the new service markets (such as the mobile market).

independent regulatory body's role.<sup>9</sup> The third was to extend the scope of competition from domestic to international based on the outcomes of the WTO negotiations on basic telecommunications.

At the end of 1995, the government changed its stance dramatically on the regulation of prices by abolishing the prior approval system, under which it had approved all tariffs except local telephony of KT and mobile services of SK telecom, because the two service providers were regarded as assuming market power in each market.<sup>10</sup> As a result, most service providers gained the autonomy to determine their own tariffs, so that a notification alone was enough for any changes in tariffs.

### 8.2.3 The Third Stage (mid-1997–)

#### *WTO Negotiations*

As an initial step toward full-scale competition, the government issued licenses to twenty seven new service providers in 1996 in such services as international telephone (one as the third-service provider), private leased circuits (two), personal communications services (PCS; three), trunked radio services (TRS; six), radio paging (one), wireless data transmission (three), and second generation cordless telephony (CT-2; eleven). It was not until a few months after the conclusion of the WTO negotiations that the government took practical and legal actions for the other regulatory improvements planned in the blueprint. The WTO negotiations on basic telecommunications, after a long series of the consultations, reached its final conclusion on 15 February 1997, with the agreement going into force on 5 February 1998. The main achievements comprised a wide range of binding commitments on market access and a package of procompetitive regulatory principles (the so-called Reference Paper).<sup>11</sup>

Korea made its final commitments on market access for all segments in telecommunication services on 14 February 1997. Foreign ownership was limited to 33 percent in facility-based services by the end of 2000, and was to be raised to 49 percent beginning 1 January 2001. For individual shareholders, it was limited to 10 percent for wired line services and 33 percent for wireless, respectively.<sup>12</sup> Foreign ownership in KT was limited to 20 percent

9. The Korea Communications Commission (KCC) was originally created as a regulatory body in March 1992. However, being under the auspices of the MIC, KCC played a limited role in regulatory functioning.

10. The Korean government is further considering the introduction into the local telephony of a price-cap system, which is believed to be better than the prior approval system in facilitating cost-oriented pricing and in improving efficiency in the market. In addition, the price-cap system seems advantageous in that it is not subject to non-sector specific consideration and political interference.

11. For details, see Sherman (1998).

12. Limitation on individual shareholdings applied to both domestic and foreign persons in a nondiscriminatory manner.

**Table 8.3** Summary of Korea's Existing Regulations and Scheduled Commitments (as of February 1998)

Category	Existing Entry Barriers	Scheduled Commitments
Facility-based services	Aggregate: Wired line: prohibited; wireless: 33%; KT: prohibited	Aggregate: Wired line: 33%, 49% from 2001; wireless: 33%, 49% from 2001; KT: 20%, 33% from 2001
	Individual: Wired line: 10%; wireless: 33%; KT: 1%	Individual: Wired line: 10%; wireless: 33%; KT: 3%
Voice resale services	Aggregate: Prohibited	Aggregate: 49% from 1999; 100% from 2001
Regulatory principles	Domestic legislation	Reference paper
Numerical restriction	RFP	None

by the end of 2000, and to be raised to 33 percent beginning 1 January 2001, with individual shareholdings limited to 3 percent.<sup>13</sup> In telephone services on a resale basis (so-called voice resale), foreign ownership was allowed up to 49 percent on 1 January 1999, and was to be raised to 100 percent beginning 1 January 2001.<sup>14</sup> Korea also included in its schedule additional commitments to underpin those on market access by adopting the Reference Paper. Table 8.3 summarizes Korea's telecommunication market regulations before and after the WTO negotiations on basic telecommunications, and table 8.4 shows the classifications of service providers resulting from the third reform.

Korea's schedule could be considered insufficient in that it basically phased-in liberalization without allowing foreigners' majority shareholdings in facility-based services, including KT. Nonetheless, it was a significant improvement not only for Korea but also for other trading partners. Aside from its mitigation of foreign ownership restrictions, it was a clear departure from the status quo of the telecommunication services market, particularly in two respects. One was the elimination of the RFP system, which had been a major obstacle to free and full-scale competition in (and a definite limitation on foreign-market access to) the Korean market.<sup>15</sup>

The other enhancement was the introduction and, at the same time, the liberalization of voice resale. Its implication was that the Korean government would systematically induce price competition between the existing FSPs and the newly participating special service providers (SSPs) within

13. It was not permitted for a foreigner to be the largest shareholder in KT.

14. Foreign ownership in the other resale-based services was allowed up to 100 percent as of 1998.

15. It is still legitimate for any government to limit the number of service providers subject to the availability of radio frequencies, in accordance with the consensus made in the WTO negotiations on basic telecommunications.

**Table 8.4** Classification of Service Providers in the Third Reform (as of February 1998)

Category	Facilities-Based Service Providers	Special Service Providers	Value-Added Service Providers
Facilities Subservices	Own facilities Fixed telephony, telegraph, telegram, private leased circuits, mobile services, and other services specified by the minister	Leased facilities Type I (switched reseller): Voice resale, IP-based telephony, international call-back, etc. Type II (switchless reseller): Aggregator, rebiller, etc. Type III: in-building: Communication services	Leased facilities All value-added telecommunication services
Market entry condition	Licensing	Registration	Notification
Foreign ownership	Aggregate: Wired line: 33%, 49% from 2001; wireless: 33%, 49% from 2001; KT: 20%, 33% from 2001 (prohibition of foreign largest shareholding)	Aggregate: 49% from 1999; 100% from 2001	Up to 100%
Other regulations on ownership	Individual: Wired line: 10%; wireless: 33%; KT: 3%	None	None

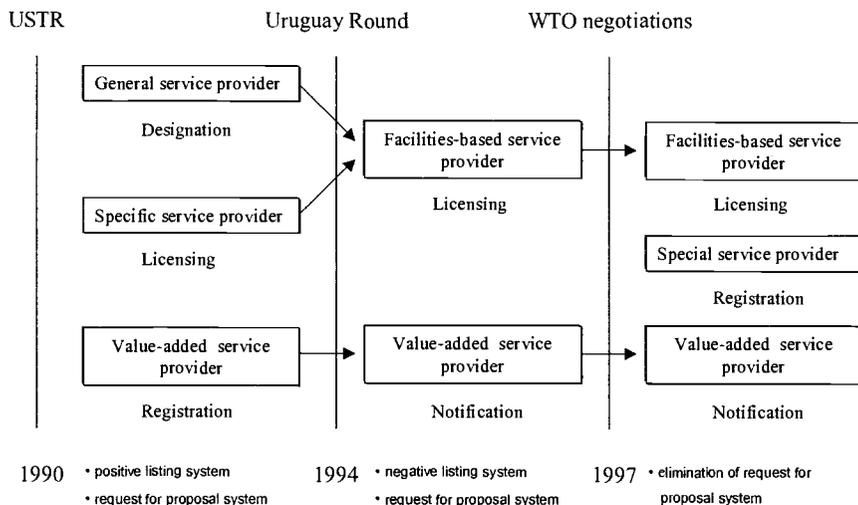
Source: Ministry of Information and Communication.

the market. It was also a major advancement for Korea to bind itself in fulfilling its regulatory functions through adopting the multilateral obligations of the Reference Paper.

Korea embarked on a third structural reform after the conclusion of the WTO negotiations on basic telecommunications. The motivation was largely twofold: one was to saturate the market with as many domestic providers as possible before the market opening, and the other was to make its laws and regulations conform with the scheduled commitments. In June 1997, the government selected nine new service providers in five service areas such as local, long-distance, private leased circuits, radio paging, and TRS. The meaning of the action was considerably symbolic in Korea, since competition was introduced even in the local service market, which had been exclusively dominated by KT. That was little more than the completion of introducing competition in all segments of the Korean telecommunication services market.

#### *Autonomous Deregulation*

The regulatory regime experienced a significant change in August 1997 in accordance with the amendment of the Telecommunications Business Act.



**Fig. 8.1** Deregulation of market entry condition

Aside from the mitigation of foreign ownership restrictions and the elimination of RFP,<sup>16</sup> one of the most important changes occurred in the classification of service providers. According to the commitments made in the WTO agreement on basic telecommunications, the government newly introduced a category of resale-based services in licensing—so-called *special services*—most of which had never before been legally permitted in Korea. The category was created by a simple decomposition of the former FSPs in the second reform, on the basis of the existence of own facilities and the type of services for provision. The method of classification in Korea became similar to methods in other developed countries. Service providers were classified as facility-based, special, or value-added service providers. They were differentiated by the respective market entry conditions: licensing for facility-based service providers, registration for special service providers, and notification for value-added service providers. (Figure 8.1 shows how the market entry conditions were deregulated.)

Meanwhile, Korea undertook an autonomous liberalization in 1998 and 1999 to facilitate the inflow of foreign capital, the better to cope with its late-1997–98 financial crisis. In accordance with the revision of the Telecommunications Business Law on 17 September 1998, Korea accelerated the removal of other ownership restrictions. The limitation on the foreign ownership of KT was raised from 20 percent to 33 percent as of 17 Sep-

16. Nonetheless, the government still has room to improve in that it files license applications only on a periodic basis in March and September. The reason is that the periodic licensing itself imposes a limitation to seasonable market entry.

**Table 8.5** Current Status in Foreign Ownership Regulations (as of April 2000)

Category	Facility-Based Service Providers	Special Providers	Value-Added Service Providers
Foreign ownership	Aggregate: Wired line: 49% as from July 1999; wireless: 49% as from July 1999; KT: 33% as from September 1998 (prohibition of foreign largest shareholding)	Aggregate: 49% as from September 1998; 100% as from 2001	Up to 100%
Other regulations on ownership	Individual: KT: 15% as from January 1999	None	None

Source: Ministry of Information and Communication.

tember 1998 (the previous date had been 1 January 2001). A 33 percent (10 percent, in the case of wired line services) limitation on individual shareholding for a facility-based service supplier, except KT, was removed as of 17 September 1998. The foreign ownership of a supplier of voice resale services was permitted up to 49 percent as of the same date—which was earlier than the previously scheduled time of 1 January 1999. Furthermore, the limitation on individual shareholdings in KT was expanded from 3 percent to 15 percent as of 1 January 1999. With another revision of the law on 24 May 1999, the limitation on foreign ownership of a facility-based service supplier (except KT) was expanded from 33 percent to 49 percent as of 1 July 1999 (as opposed to the previously scheduled date of 1 January 2001). Table 8.5 summarizes the present state of foreign ownership regulations in Korea.

### *Competitive Safeguards*

It is often said that market entry regulation is justified when the scarce resource of the frequency spectrum should be allocated in an efficient way for wireless services, when economies of scale or scope prevail, and when inefficient duplication of investment may be precluded.

There are several competitive safeguards in Korea for ensuring fair competition between incumbent and new entrants once market entry is accomplished, and for the protection of consumer rights such as interconnection, preselection, telecommunications performance monitoring systems (TPMS), merger and acquisition guidelines, and a universal service fund (see OECD 2000).

Korea Telecom, as an owner of bottleneck facilities such as local loops, is obligated to the mandatory and prompt provision of interconnection, cost-orientation through rate-of-return regulation, and separate accounting. As of 2000, the scheme was extended to mobile FSPs—including SK

Telecom—because of the increasing importance of mobile services and increasing interaction between fixed and mobile networks. Preselection guarantees parity in dialing among long-distance FSPs by allowing users to choose in advance which FSP's service to use. It was first applied in 1997 to Dacom and extended to Onse in 1999. For the purpose of providing users with information about FSPs' quality of services (QoS) and inducing quality competition among FSPs, the government introduced TPMS in 1999, by which several QoS indicators of fixed and mobile services are announced periodically. The scheme was extended to high-bandwidth Internet services including accelerated digital subscriber lines (ADSL) and cable modem in 2000. Mergers and acquisitions (M&A) among FSPs in the telecommunications market are under the auspices of the Ministry of Information and Communication (MIC) and the Korea Federal Trade Commission, which perform separate roles through the M&A guidelines for testing would-be anticompetitive effects of M&A. In addition, a universal service fund to make up for deficits generated from local charges below costs was scheduled to be implemented in 2000.

### 8.3 Snapshot of Korea's Recent Marketplace

As outlined in section 8.2, harnessed mainly by trade negotiations, the Korean government has enforced step-by-step regulatory reforms to dismantle unnecessary obstacles, especially market entry barriers that deter vigorous market competition. Through a series of deregulation processes, Korea's telecommunication services market has achieved unprecedented growth. This chapter reviews the status quo and dynamics of the marketplace.

#### 8.3.1 Market Participants

The variety of services and the number of market participants are one of the significant barometers for measuring a degree of competition. As of April 2000, 52 FSPs and 229 SSPs were operating businesses in each relevant service market, whereas the value-added service providers totalled 3,729.<sup>17</sup> There are nine major facility-based telecommunication services, including traditional fixed telephony and wireless services. KT, Dacom, and Onse are three major players in long-distance and international service markets, whereas most Type I SSPs have been doing business in the wireless sector ever since voice resale service was permitted in 1998. In April 1999 Hanaro, focusing mainly on the deployment of ADSL for high-bandwidth Internet services, launched its business in the last ten miles of local loops that have long been regarded as an impregnable fortress of KT. Eleven FSPs are operating in the leased-line market. Table 8.6 lists the numbers of FSPs and SSPs as of April 2000.

The mobile service market consists of five competitors: two cellular pro-

17. Different services of the same FSPs and SSPs are double-counted.

**Table 8.6** Number of FSPs and SSPs (as of April 2000)

	Wired				Wireless				
	Local	Long Distance	International	Leased Line	Cellular	PCS	Radio Paging	Wireless Data Transmission	TRS
Number of service areas	2	3	3	11	2	3	14	3	11
				Type I			Type II		Type III
Number of classifications of SSPs				30			177		22

Source: Ministry of Information and Communication.

viders (incumbent SK Telecom and Shinsegi Telecom) and three PCS providers (KT Freetel, LG Telecom, and Hansol M.Com). A nationwide radio paging FSP, SK Telecom competes with thirteen regional FSPs in the radio paging service market. Three providers are in the wireless data transmission service market and eleven in the TRS market, where they are in infancy, but about to burgeon.

### 8.3.2 Subscribers

As of February 2000, the number of fixed telephony subscribers exceeded 21 million and of mobile subscribers amounted to 25 million. KT remains dominant in the fixed service market, whereas the market share of new entrant Hanaro, in its infancy, is less than 1 percent. In the mobile service market, the leading FSP—SK Telecom—accounted for 42.8 percent of the total number of mobile subscribers, whereas the share of Shinsegi Telecom amounted to 13.8 percent. The remaining 43.4 percent belongs to three PCS providers.

The high penetration ratio of fixed telephony service is mainly due to the government's effort to expand the PSTN infrastructures by means of telegraph and telephone bond, and to maintain local-call charges below costs in the context of the general public interest by prior tariff approval systems. Teledensity presently exceeds 50 percent and seems to be reaching a saturation point. In contrast to the fixed telephony market, the growth of the mobile service market has been propelled solely by commercial motives. Ever-diminishing purchase costs of terminal equipment removed entry barriers for customers and accelerated the increase in the number of mobile subscribers exponentially. As of June 1999, the number of mobile subscribers per 100 inhabitants ranked fifth among OECD member countries and surpassed the number of fixed service subscribers in September 1999. The number of mobile subscribers was expected to grow to 29 million by late 2000.<sup>18</sup>

18. The quadratic logistic function is applied to estimate the value. The saturation ratio is assumed to be 65 percent and monthly data from January 1996 to December 1999 are used.

Competition among mobile FSPs for leftover subscribers (consisting mainly of teenagers or individuals in their twenties) is still going on fiercely with the goal of preserving as many customers as possible, aiming at IMT-2000 licenses that were scheduled to be granted in late December 2000.

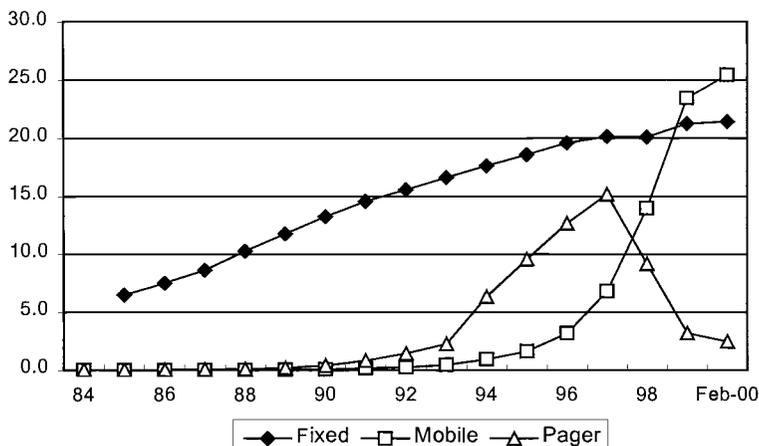
On the other hand, the number of users of radio paging services reached an apex of 15 million in late 1997, but have been drastically declining since then, and were fewer than 3 million in January 2000. As a result of market shrinkage, origination-only CT-2 service, formerly provided by the nationwide service provider KT and ten regional FSPs, was shut down in January 2000.

Table 8.7 and figure 8.2 summarize the numbers of subscribers in the Korean telecommunication services market.

**Table 8.7** Number and Shares of Subscribers (as of February 2000)

FSP	Korea Telecom		Hanaro			Total
Fixed subscriber (in millions)	21.43		0.19			21.62
M/S (%)	99.1		0.9			100.0
	SK Telecom	Shinsegi Telecom	KT Freetel	LG Telecom	Hansol M. Com	Total
Mobile subscriber (in millions)	10.89	3.51	4.61	3.02	3.41	25.44
M/S (%)	42.8	13.8	18.1	11.9	13.4	100.0

Source: Ministry of Information and Communication.



**Fig. 8.2** Number of major telecom service subscribers (millions)

Sources: Ministry of Information and Communication, mobile FSPs

### 8.3.3 Dynamics of the Marketplace

A significant feature of changes in trends in voice services markets is that traditional fixed telephony services markets (including local, long-distance, and international services) have been nearly saturated or have even shrunk, whereas mobile service has grown by leaps and bounds. In 1999, the total revenue for wired services amounted to 6,430 trillion won, and that of wireless services, 9,715 trillion won, adding up to 16,145 trillion won (see table 8.8). The mobile turnover caught up with traditional fixed telephony services in 1999, proving that mobile services are no longer supplemental to fixed telephony services.

The revenue of local services has increased annually by 1.1 percent, on average, since 1996, and amounted to 3,078 billion won in 1999. In order to guarantee universal access for the general public to local telephony services, local-call charges have been maintained at the level below costs incurred. The resulting deficits have been cross-subsidized by such surplus sectors as long-distance and international sectors, which have brought about *de facto* transfers of wealth from heavy users to light users. To address this unfair practice, tariff rebalancing has been executed eight times since 1981 and is expected to continue. Nevertheless, considering that the subscriber market appears to be saturated, with no potential for new demand-inducing packages, market expansion cannot be anticipated.

Worse still is the case of the long-distance service market. Its revenues

**Table 8.8 Revenues of Wired and Wireless Services (billions of won)**

Service Area	1996	1997	1998	1999
<b>Wired</b>				
Local <sup>a</sup>	2,984	3,049	3,072	3,078
Long distance	2,176	2,487	1,573	1,334
International	753	728	590	653
Public pay phone	613	260	502	327
Leased line	622	791	874	1,038
Subtotal (a)	7,148	7,315	6,611	6,430
<b>Wireless</b>				
Mobile <sup>a</sup>	2,254	3,582	5,322	9,118
Paging	1,163	1,511	1,168	550
TRS	3.4	7.2	7.1	12.2
Wireless data transmission	—	0.2	0.7	20.5
CT-2	—	52	43	14
Subtotal (b)	3,420	5,152	6,541	9,715
Total (a + b)	10,568	12,467	13,152	16,145

Source: Computer and Communication Promotion Association of Korea.

<sup>a</sup>Revenues include interconnection revenues.

recorded a peak in 1997, but steeply declined in 1998. It remained on the wane in 1999, accounting for 1,334 billion won. A major reason for the sharp drop was certainly the financial crisis, but what seems more important is that demands for long-distance calls were satisfied by mobile calls. Mobile FSPs, not differentiating services and tariffs by distance, can deliver long-distance calls. Even though long-distance service is generally more economical than mobile service for long conversations, customers appear to prefer using mobile phones partly because they might not recognize this fact, or partly because they are used to the convenience of mobility, resulting in a so-called ratchet effect.

The trend of revenue in international services is similar to that in long-distance service. Although the market size is the smallest of the three traditional fixed telephony services, the market mechanism, including the international settlement regime, is the most complicated, and is an exemplary case in which positive effects of liberalization have been manifested (as will be analyzed in the next section in detail).<sup>19</sup>

The ups and downs of wireless markets, especially mobile and radio paging service markets, reflect trends not only in the number of subscribers but also in amount of revenue. The mobile market has continued to grow from 5,322 billion won to 9,118 billion won in 1999, an increase of more than 40 percent, whereas the radio paging market amounted to 550 billion won in 1999, a 50 percent decrease from the previous year. Radio paging services lost their price competitiveness with mobile services as costs of mobile terminal equipment continued to decline and as the demand for such services as VMS (voice mail service) and SMS (short messaging service) gradually increased, blurring the line of business between them.

Several points in the changing trends are worth noticing. First, although mobile services have grown enough to substitute for some portion of long-distance services, they also have facilitated the expansion of LM (land-to-mobile) calls out-bounding from KT's network to mobile FSPs, to which no one had seriously paid attention only a few years ago. The turnover of LM service in 1999 amounted to 597 billion, twice as much as that of the previous year. Although the mobile-inducing effect could also be observed in public pay-phone service, the ratchet effect of convenience for using mobile service dominated it, resulting in deficits.<sup>20</sup>

Second, traditionally voice-oriented markets are shifting to datacentric ones, which have an impact on leased line services and dial-up Internet interconnection. The revenue of leased line services, quite a portion of which comes from the demand of business customers for constructing intranets and connecting them to the Internet, increased 18.6 percent a year on aver-

19. Numeric values in the table do not contain international settlement deficits.

20. For more details on the interaction between fixed and mobile FSPs from the perspective of the interconnection regime, see Lee (1999).

**Table 8.9** Revenues of LM and 014xy Services (billions of won)

Service Area	1996	1997	1998	1999
LM <sup>a</sup>	n.a.	n.a.	1,386	2,510
014xy	n.a.	71	122	242

Source: Korea Information Society Development Institute 1999, 2000.

<sup>a</sup>Revenues include interconnection revenues.

age and recorded 1,038 billion won in 1999.<sup>21</sup> This number was also boosted by the spread of so-called Internet plazas, which are furnished with personal computers providing services such as Internet access and computer games to an unspecified number of users.<sup>22</sup>

On the other hand, residential customers use the dial-up method by which they can connect with the Internet via KT's local switches. A local-call charge is then paid to KT in addition to a flat fee to an ISP (Internet service provider). As a result, some portion of the local service revenue includes dial-up interconnection.<sup>23</sup> There is a peculiar dial-up service in Korea called *014xy service*. This service was introduced by the government in 1994 to facilitate the data services market with a 40 percent discount on local-call charges. For ISPs to qualify as 014xy service providers and obtain identification numbers they must have more than five nodes equipped with routers and relevant facilities nationwide. The increase in demand for data services is reflected in the trend of 014xy revenue, which has nearly doubled annually and accounts for 242 billion won (see table 8.9 for a summary of LM and 014xy revenues, and figure 8.3 for an illustration of how the various telecom services interact).

#### 8.4 Triggering New Games

The liberalization and opening of Korea's telecommunication services market, spurred by a series of trade negotiations, has gradually evolved through the deregulation of market-entry conditions and the mitigation of the foreign ownership ceiling. However, the strongest impact on domestic markets has been the WTO agreement on basic telecommunications. First, it has facilitated contestability of the international service market by allowing voice resellers to enter. Second, it has not only provided a foothold for late-coming mobile FSPs to raise investment funds, thus enhancing competition in the mobile sector, but has also accelerated the privatization of KT by issuing foreign Depositary Receipts.

21. Demands for the leased line also come from FSPs' network construction, e.g., connections of mobile FSPs' switches and base stations.

22. As of January 2000 the number of Internet plazas amounted to about 14,000.

23. Considering that local service revenue maintained the status quo, it might be guessed that the revenue from pure voice use will be diminishing.



#### 8.4.1 International Service

##### *Competition in the Outgoing-Traffic Market: Realization of Contestability*

*Liberalization of the Voice Resale Market.* By 1997, Korea's international telecommunications market had been operated by KT, Dacom, and Onse. Since voice resale service was first introduced in January 1998 (pursuant to the revised Telecommunications Business Law, which took in Korea's regulatory commitments made in the WTO agreement), more than thirty Type-I SSPs have entered the international services market.<sup>24</sup>

Type-I SSPs are either affiliates of incumbent FSPs experienced in telecommunications businesses or spin-offs of conglomerates beginning with their large demand pool. SSPs either sell prepaid or postpaid cards with individual access numbers, or provide international telephony services to an unspecified number of the general public with identification numbers in the form of 007xy or 003xy. SSPs' services are provided mostly through mobile FSPs' networks and subscribers' handsets.

*Implications of Introducing Resale from the Perspective of Industrial Organizations.* Traditionally, the telecommunication services industry has been regarded as having economies of scale or scope and as prone to being monopolized, resulting in monopoly rents for the incumbent monopolist. It is the conventional wisdom of the contestable market theory, however, that if the market is flexible enough that potential entrants who possess the technology and who provide services as homogeneous as the incumbent's can freely enter all or part of market with lower tariffs than the incumbent's whenever they find such cream-skimming behaviors lucrative, and then can exit the market frictionlessly whenever the opportunity for arbitrage vanishes, then the Pareto optimality or at least the second-best (Ramsey pricing) result of the incumbent might be obtained.<sup>25</sup>

What has been going on in Korea's international services market ever since the liberalization ignited by the WTO agreement could be explained in the jargon of this framework: homogeneity of service, frictionless entry and exit, no universal service obligation (enabling cream-skimming by SSPs), and price advantage of resellers over FSPs (see Lee 1998).

First, SSPs' service is much like that of FSPs. To be sure, SSPs' quality of service might be somewhat inferior to that of FSPs because of multinet network interconnections or technical imperfections, especially in the case of voice on Internet protocol (VoIP) services. However, at least users can achieve

24. Resale of international call service is sometimes called *international simple resale*.

25. This paradigm was developed by such Bell Lab economists as Baumol, Panzer, and Willig, implicitly against the Department of Justice's intentions in the break-up of AT&T during the mid-1970s. For more details on the theory, see Baumol, Panzer, and Willig (1982). Ironically, AT&T was divested into long-distance AT&T and seven Regional Bell Operating Companies in 1984, in accordance with the Modified Final Judgment in 1982.

**Table 8.10** Price Changes in Fixed Telephony Services of Korea Telecom (won per 3 minutes)

	Feb. 10, 1993	July 1, 1993	Aug. 1, 1994	Jan. 1, 1995	Dec. 1, 1995	Dec. 1, 1996	Sept. 1, 1997	Feb. 16, 1998
Local	30	—	40	—	—	41.6	45	—
Long distance								
Zone 1	100	30	40	—	—	41.6	45	—
Zone 2	360	360	200	—	—	183	172	—
Zone 3	675	675	313	—	—	277	245	—
International <sup>a</sup>	-7%	—	—	-5%	-7%	-15%	-12%	14%

Source: Korea Telecom.

<sup>a</sup>Rate of change in average price.

their general purposes of communicating with foreign residents no matter which services they may use. Even if quality matters, choices between tariff and quality are up to the users. This provides a foothold for SSPs to make inroads into the FSPs' realm. Second, SSPs' frictionless entry and exit are guaranteed institutionally. SSPs can easily enter the market through registration that meets the minimum requirements on financial capability and technical personnel. In addition, SSPs can freely exit simply if the customers' rights are protected, whereas FSPs need authorization for both entry and exit. Third, SSPs sometimes target specific groups of customers through the marketing of pre- or postpaid cards, or by focusing only on those countries with plenty of traffic trading (i.e., those that have no obligation toward ubiquitous services such as FSPs).

Finally, SSPs have a price advantage over FSPs partly due to SSPs' capacity for cost reduction, and partly because of the downward rigidity of FSPs' charges. The main drivers for the cost advantage are twofold. First, SSPs incur relatively negligible sunk costs compared to FSPs because they lease the dedicated lines and use the FSPs' networks.<sup>26</sup> Second, they are able to minimize settlement payments to foreign partners by forwarding traffic via the lease cost routes and thus bypassing the existing international transmission facilities used by FSPs.

Reasons for the stickiness of FSPs' charges could be found in both the prior-tariff-approval system and the FSPs' collusive behavior. KT's collection charges—that is, international tariffs—were lowered several times between 1993 and 1997 under the government's prior-approval system (see table 8.10); this was done with a view toward addressing the unfair practice of cross-subsidizing the deficits of the local telephony sector, in which new entrants' charges had been set below KT's with fixed proportions.

This leader-follower behavior in price differentials, in spite of its abolition in 1995, was maintained even when collection charges for major inter-

26. According to the legal definition, SSPs cannot possess their own facilities.

**Table 8.11** Collection Charges of Korea Telecom and SK Telink as of April 2000 (won)

	Korea Telecom				SK TelLink	
	Standard		Discount		Standard	Discount
	First Minute	Additional Minutes	First Minute	Additional Minutes		
United States	14.0	10.5	9.8	7.4	4.8	4.4
China	16.4	12.3	11.5	8.6	6.5	5.9
Japan	24.8	18.6	17.4	13.1	13.0	11.7

Source: Korea Telecom, SK Telink.

national settlement-deficit countries (including, e.g., China) were raised in February 1998 due to ever-worsening traffic imbalances and the devaluation of the exchange rate.

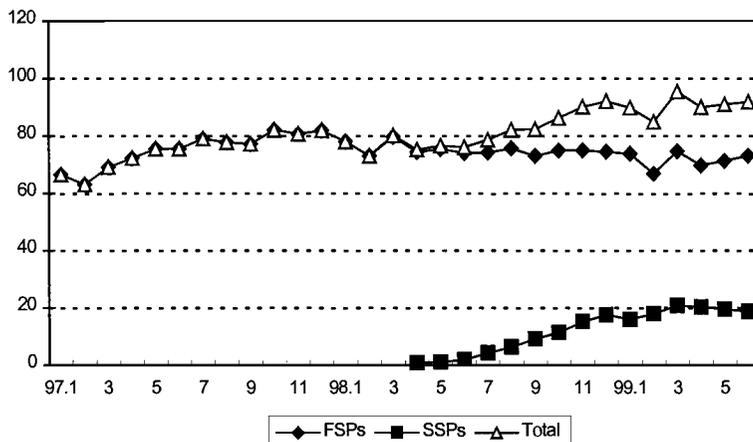
Table 8.11 shows the collection charges of both KT and the leading SSP, SK Telink (an affiliate of the leading mobile FSP, SK Telecom) to the three major countries—the United States, China, and Japan—having the largest volume of traffic with Korea.<sup>27</sup> Note that SK Telink's average charge per minute for these countries is 39 percent lower than that of KT.<sup>28</sup>

*Market Performance.* At first glance the theory appears to go off the mark, because no tariff reductions of FSPs have occurred in a pure sense since resellers first entered the market. However, evaluation of market performance should occur in the context of enhancing the overall welfare via the widening varieties of choice and demand substitutions. Backed up by price advantages, SSPs have expanded their market shares at extraordinarily high rates and have made inroads on the FSPs' market, as evidenced by the trends in outgoing traffic and revenues.

The outgoing traffic for FSPs has grown annually at the average rate of 18 percent from 1995 to 1998. The volume of outgoing traffic peaked in 1997 with 901 million minutes as a result of the boost in economic growth and increases in trade, but it took a downward turn in 1998. Although there was a decline in the FSPs' traffic between the first half of 1998 and 1999, the SSPs' traffic continued to increase, showing definite evidence that users were switching over from FSPs to SSPs. As of 1999, outgoing traffic during the first half of the year accounted for 430 million minutes, whereas the

27. Note that both providers' charges are billed per second on a usage base and discounted for off-peak hours, but that KT's charges differentiate between the first minute and additional minutes.

28. Average charge per minute for each country is calculated as follows: (a) average standard and discount charges, based on four minutes of use, are calculated separately, and (b) they are weighted by standard and discount hours. Then, each country's average charge is weighted by the corresponding share of outgoing KT traffic in 1999.



**Fig. 8.4** Outgoing traffic of FSPs and SSPs (millions of minutes)

Sources: Evaluation of Competitiveness in Facility-based Telecommunication Services Market (1999, 2000), the Korea Information Society Development Institute, and international FSPs

**Table 8.12** Revenues of FSPs and SSPs

Revenue	1996	1997	1998	1999
FSPs (%)	753.0	658.0	593.1 (93.3)	580.5 (81.7)
SSPs (%)	—	—	42.6 (6.7)	130.0 (18.3)
Total (billions of won)	753.0	658.0	635.7	710.5

Source: Computer and Communication Promotion Association of Korea.

Note: Numbers in parentheses indicate revenue shares between FSPs and SSPs.

traffic share for SSPs amounted to 21 percent, compared to 0.95 percent in the first half of 1998 (see fig. 8.4).

Regarding revenues (see table 8.12), FSPs recorded 753.0 billion won in 1996, but since then the revenue had been reduced to around 82 percent annually, on average. In contrast, revenues for SSPs have increased from 42.6 billion won in 1998 to 130.0 billion won in 1999. The total decreased in 1998 but by 1999 had fully recuperated above its 1997 level, thanks to the recovery of the economy and market liberalization. In addition, the SSPs' market share had increased from 6.7 percent in 1998 to 18.3 percent in 1999. The net benefits of customers' switching to SSPs from the time of the start-up of resale to June 1999 are estimated to be worth 52.46 billion won, on the assumption that there is a complete substitution of the FSPs' market by SSPs.<sup>29</sup>

29. Average charges per minute of KT and SK TelLink are used as proxies for FSPs and SSPs, respectively, and calculated in the same way as discussed in note 27.

In response to SSPs' elongation, international FSPs have participated in the international simple resale business and have taken on strategies that differentiate classes of customers by introducing new discount-option pricing packages composed of flat-rate and usage-based charges to retain heavy users.

In sum, the introduction of voice resale services has facilitated the contestability of international telecommunication services, and consumers have become the biggest beneficiaries.

*Bottleneck in Further Deployment.* FSPs' networks are indispensable facilities for SSPs to provide service to an unspecified number of the general public. Most SSPs have provided services mainly through mobile FSPs' networks; KT's PSTN is rarely used. The reason for this can be found in KT's peculiar interconnection arrangement. Whereas interconnection arrangements between FSPs are under the control of the government, those between FSPs and SSPs are left to the parties' own voluntary negotiations. KT had taken a stance of treating SSPs as customers rather than providers and charged user fees higher than interconnection charges available to FSPs with no service of billing. This arrangement inevitably raises costs for SSPs and thus causes a serious bottleneck for FSPs' access to the fixed-line subscribers of KT and for market expansion, although there might be pros and cons in facility-based versus service-based competitions.

*Competition in the Incoming-Traffic Market:  
Dismantling the International Settlement Regime*

*Existing International Settlement Regime.* Although competition in the domestic outgoing-traffic market is a matter of marketing among service providers, the generation of incoming traffic is irrelevant to domestic competition. Nevertheless, service providers compete with each other to get as much incoming traffic as possible because it can yield settlement revenue as remuneration for forwarding calls to the domestic receiving party and for providing facilities.<sup>30</sup>

Although SSPs have been free to arrange settlement methods, a stereotyped international settlement arrangement has recently been applied to FSPs. An overview of the regime is as follows. International FSPs pay settlement rates to their foreign-counterpart FSPs for utilizing their networks when forwarding calls to the receiving party. FSPs first negotiate the accounting rate and then usually split it evenly to determine the settlement rate, which requires outgoing-traffic-excessive FSPs to settle payments with incoming-traffic-excessive FSPs. However, this system has caused a conflict of interest between developed countries, whose outgoing traffic dominates

30. International FSPs regard a deficit in international settlement as a cost driver. Usually, collection charges for deficit countries are higher than those for surplus countries.

**Table 8.13** ITU's Recommendation (by year-end 2001)<sup>a</sup>

Teledensity						
T ≤ 1 (A)	1 < T ≤ 5 (B)	5 < T ≤ 10 (C)	10 < T ≤ 20 (D)	20 < T ≤ 35 (E)	35 < T ≤ 50 (F)	T > 50 (G)
0.327 SDR	0.251 SDR	0.210 SDR	0.162 SDR	0.118 SDR	0.088 SDR	0.043 SDR

Source: ITU.

<sup>a</sup>1 SDR is equivalent to \$1.320999, as of June 2000.

**Table 8.14** FCC's Benchmarks and Transitional Period

Teledensity <1	Low Income (<\$726)	Lower Middle Income (\$726 to 2,895)	Upper Middle Income (\$2,896 to 8,995)	High Income (\$8,956 or more)
\$0.23 January 2003	\$0.23 January 2002	\$0.19 January 2001	\$0.19 January 2000	\$0.15 January 1999

Source: FCC.

incoming traffic, and developing countries, which are in the opposite situation. The developed countries have urged developing countries to reduce existing accounting rates based on costs, in order to hold down a burden of deficits. Yet developing countries have tenaciously resisted such a proposal because the settlement surplus is a major financial resource for expanding infrastructures and subsidizing universal service.

The possible remedies for this malfunctioning have developed in two directions. One is to commit binding benchmarking to heuristically accelerate the realization of cost-oriented settlement rates, and the other is to create an environment receptive of such alternative means as international simple resale to work as a source of market pressure against the ancient regime. The International Telecommunications Union (ITU), on a multi-lateral basis, and the United States' Federal Communications Commission (FCC) have independently promoted the first of these directions and issued benchmarks for settlement rates in 1997 and 1999, respectively (see tables 8.13 and 8.14). Korea belongs to class F and the upper-middle-income group, respectively.<sup>31</sup>

WTO negotiations have played a major role in implementing the other direction. The liberalization of resale markets of WTO member countries should be interpreted in this context.

When the presence of SSPs was negligible or resale itself was prohibited, the main focus was on how to protect new domestic entrants from the whip-

31. Note that the FCC's benchmarks are those for U.S. partner countries only. Korea extended one year for the fulfillment of the benchmark.

sawing of foreign monopolists in international settlements with foreign FSPs. In most countries, the government or regulatory body has arranged competitive safeguards against whipsawing through the *uniformity of accounting rate*, which sets the rate level equally across domestic FSPs, and for the *proportionate return principle*, which distributes incoming traffic among domestic FSPs in proportion to outgoing-traffic ratios.

*Converging to Laissez-faire.* As incoming traffic for SSPs has increased, regulatory bodies have become focused on preventing the so-called one-way bypass, an unfair practice in which FSPs rerout calls via foreign SSPs in order to reduce international settlement expenditures to counterparts. Countries such as the United States, Japan, and Korea have reinforced their monitoring functions.

Contests for incoming traffic have been started on the spot market among SSPs in Korea, resulting in declines in interconnection charges.<sup>32</sup> Their total traffic has substituted for part of would-be FSP traffic, distressing the FSPs' settlement revenue despite participating in the SSPs' competition games.

In mid-1999, the Korean government relaxed the existing regulation for FSPs to negotiate a settlement arrangement freely with developed countries in which markets are so competitive that, to a certain degree there is no fear of whipsawing. Currently, in Korea, there are ongoing discussions concerning issues such as the further deregulation of the FSPs' settlement regime and the shift of KT's access arrangement with SSPs to the interconnection regime, striking a balance with measures for FSPs. Figure 8.5 shows the competition between SSPs and FSPs in the international service market.

#### 8.4.2 Mitigation of Foreign Ownership and Growth of the Mobile Services Market

Korea's rapid economic growth over the last two decades has been achieved mostly by the export-centric industrial policy, pushed by the Korean government (see Lee and Lim 1999). The government financed prime-interest-rate loans to target industries through government-controlled financial institutions so as to allocate scarce financial resources effectively, which resulted in the birth of large conglomerates—so-called *chaebol*. Owner-managers and families of *chaebol* exercised exclusive power in managerial decision making as well as controlling subsidiaries. However, as the stock market became an alternative source of external financing for *chaebol*, these owners adhered to the right of management through family ownership of equities and cross-shareholdings among subsidiaries. After all, ownership and management of *chaebol* did not remain separated, and as a

32. This is exactly the case in which the market function works, but it also implies losses of international settlement revenue.

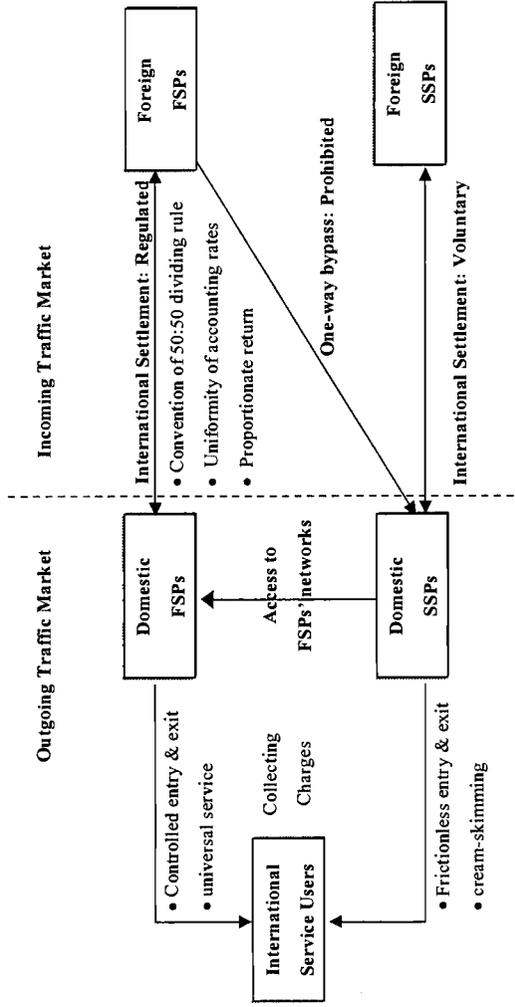


Fig. 8.5 Competition between SSPs and FSPs in international service market

result, managerial efficiency could not be checked through the external stock market or internal institutions. In a sense, the concentration of capital and ownership provided momentum at a time when the Korean economy was about to take off. As economy grew, however, this peculiar corporate governance system in Korea blocked the monitoring function of the capital market and was regarded as one of the major factors that led the economy into the financial crisis between 1997 and 1998. Since then, efforts at regulatory reforms have been to make corporate information and accountability transparent; to strengthen internal monitoring systems such as boards of directors and market disciplines; to mitigate foreign ownership; and so forth. Such measures are expected to accelerate the metamorphosis of the *chaebol's* management system, which in turn will materialize as an effectively competitive structure and promote economic growth.

Until recently, foreign ownership has long been restrained by the government because of the concern that foreign ownership might not only erode the domestic capital market but also deprive domestic corporations of the right of management. Relics of protectionism, however, have been replaced by the more positive notion that foreign ownership could play a significant role in diluting the concentrated ownership of *chaebol* and in securing funding resources. The latter has been highlighted during the period of the financial crisis when the Korean economy was in need of investment funding and foreign currency for recovery. Figure 8.6 summarizes the main points in the mitigation of limitations on foreign ownership.

The telecommunication services market moved ahead of other heavy industries in liberalization and opening even before the onset of financial crisis. As explained in section 8.2, deregulation of foreign ownership kept pace with trade negotiations on telecommunication services, including an autonomous lift. Foreign investors, mainly the major telecommunication service providers of developed countries with abundant experience and skills at home focused mostly on the ever-flourishing mobile-service market in Korea, where the three FSPs are subsidiaries of *chaebol*.

At the second stage of the regulatory reform initiated by the UR, there were two cellular FSPs: one was SK Telecom, and the other, Shinsegi Telecom. SK Telecom, starting up as an affiliate of KT (then, Korea Mobile Telecommunication) in 1984, was sold to the SK Group, now one of the biggest four *chaebol*, in 1994, whereas POSCO, the public iron and steel corporation, was a major stakeholder of Shinsegi Telecom.

As of 1997, foreign investors began to take serious interest in Korean telecommunications companies. SBC and AirTouch owned about 18 percent of Shinsegi Telecom's stocks, whereas TEI possessed 6.5 percent of SK Telecom's shares. Although it appears that TEI aimed at realizing stock dividends rather than at participating in management, Shinsegi Telecom at least could raise funds from outside to compete with SK Telecom.

The mitigation of foreign ownership limitations was more influential at

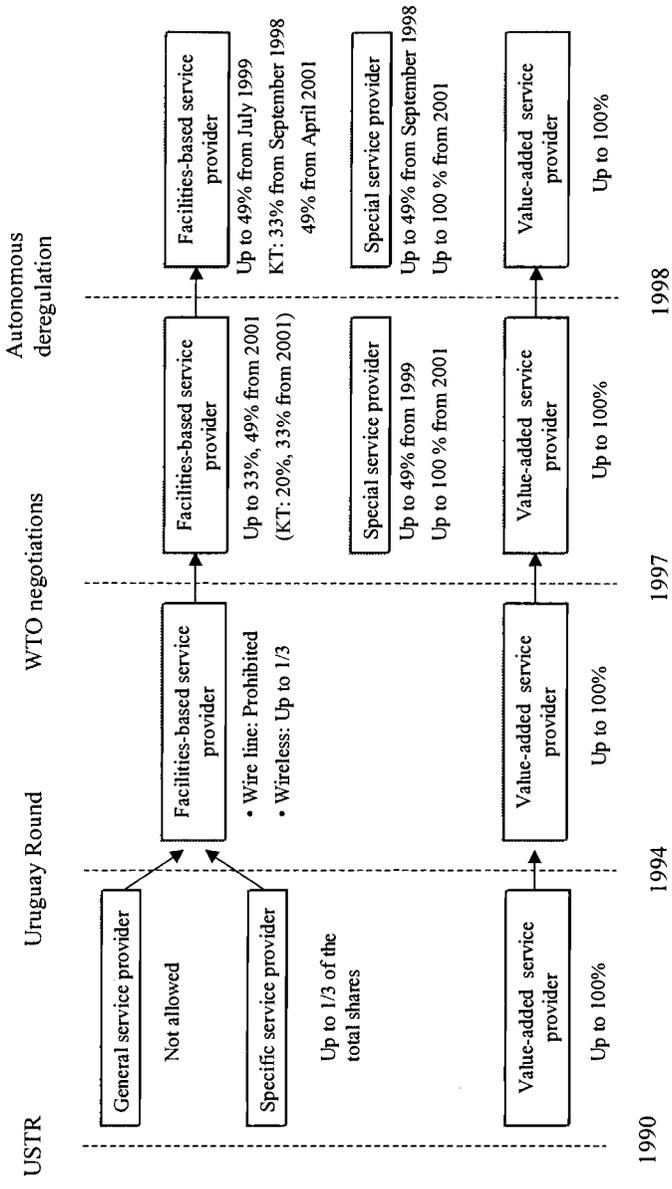


Fig. 8.6 Mitigation of foreign ownership limitations

the third stage of the implementation of the WTO agreement on basic telecommunications. The two late entrants into the FSP market, LG Telecom and Hansol M.Com, affiliates of *chaebol*, have operated their businesses in earnest since early 1998 and have been in need of financial resources to extend coverage and to attract customers to catch up with the front-runners. To make matters worse, this period overlapped with the financial crisis. Under the circumstances, foreign investment provided a source of external funding to PCS providers in return for the concession of some rights to management. This was an opportunity not only to improve their corporate governance system (e.g., through rational decision making on investments) but also to develop the mobile services market, as introduced in section 8.2. As of 1998, BT became a major shareholder of LG Telecom with 24 percent of its stock, whereas BCI and AIG invested in Hansol M.Com and own 9.8 and 6.5 percent of their equities, respectively. Table 8.15 summarizes the foreign ownership structures discussed here.

Foreign investment in the telecommunication markets also had a positive effect on the growth of other industries, in particular, the equipment industry. Table 8.16 shows the amount of investment that mobile FSPs spent on

**Table 8.15 Foreign Ownership Structure of Mobile FSPs and Korea Telecom**

FSP	Major Foreign Investors		
	1997	1998	1999
Korea Telecom	—	—	Foreign DR (14.4%)
SK Telecom	TEI Fund (6.5%)	TEI Fund (6.5%), City Bank ADR (10.31%)	TEI Fund (4.4%), ADR (20.3%)
Shinsegi Telecom	Airtouch (10.7%), SBC (7.8%)	AirTouch (10.6%) SBC (7.8%)	AirTouch (11.4%), SBC (6.5%)
KT Freetel	Motorolar (2.8%)	Motorolar (2.7%)	Microsoft, etc. (7.05%), Motorolar (1.95%)
LG Telecom	—	BT (23.5%)	BT (24.1%)
Hansol M.Com	—	BCI (9.8%), AIG (6.5%)	BCI (20.97%), AIG (13.98%)

Sources: FSPs.

**Table 8.16 Mobile FSPs' Investment (billions of won)**

	1998	1999
SK Telecom	865	1,460
Shinsegi Telecom	364	483
KT Freetel	511	689
LG Telecom	594	443
Hansol M.Com	592	645
Total	2,926	3,720

Source: Mobile FSPs.

the expansion of networks, including the procurement of switches and base stations.

As of 1998, their investment reached 2,926 billion won in total and increased to 21 percent (3,720 won) in 1999. The far-reaching effect of foreign investment on the value-added production of related industries can be roughly estimated by using table 8.16 with interindustry and fixed capital formation tables based on an input-output analysis issued by the Bank of Korea (BOK).<sup>33</sup> The estimated values of foreign investments are 417 billion won in 1998 and 713 billion won the following year.

The mitigation of foreign ownership limitations also provided a good opportunity for the government to issue foreign DR, and hence, to accelerate the separation of policy and management functions of the government.

### 8.5 Concluding Remarks

Regulatory reform of Korea's telecommunication services market has been gradually pushed through a series of trade negotiations in two directions: one is to lower entry barriers such as classification systems and licensing processes, and the other is to lift foreign ownership limitations. The trade negotiations that had the most impact on the direction of the telecommunications market were the WTO negotiations on basic telecommunications. Korea introduced voice resale services and mitigated foreign ownership limitations, which were autonomously lifted further in order to attract foreign capital during the economic slump. The inflow of foreign capital had a positive impact on international and mobile service markets. SSPs made inroads primarily on high-profit sectors such as international service, which accounted for about 18 percent of the total minutes of outgoing traffic after less than a year since the beginning of business. As a result, competition in the incoming-traffic market among SSPs and FSPs pushed for decreases in accounting rates and reformed the existing domestic-international settlement regime. However, issues surrounding the deregulation of SSPs' access to fixed networks and how to strike a balance in the international settlement arrangement with FSPs are under discussion, and are expected to materialize within year 2000.

The Korean government in a sense took trade negotiations as an opportunity to effectively manage domestic pressure against market opening. The market regulatory reform provoked conflicts of interest between incumbent

33. First, the industry-specific amount of foreign investment is calculated on the assumption that (a) shares of foreign investment in total investment of mobile FSPs are proportionate with shares of equities and (b) proportions of mobile FSPs' investment distributed across related industries are equivalent to those of telecommunications in general and deflated by the constant wholesale price index in 1995. Second, the industry-specific amount of value-added is obtained by multiplying the ratio of the value-added I-O coefficient and the industry-specific amount of foreign investment in real terms, which is summed over related industries. For more details on the analytic scheme, see Hong (1999).

FSPs and late-coming SSPs in the international-services market. However, the ultimate beneficiaries of market liberalization were the consumers, in that they received tariff reductions and a wider scope of choices.

Foreign participation not only provided financial resources to late mobile-FSP entrants, but also contributed to rebuilding their inefficient corporate governance systems. As a result, there was unprecedented growth in the mobile-services market, which influenced the equipment industry in turn.

It might not be easy to provide a clear-cut decomposition of Korea's liberalization regarding the motivations and decisions within Korea, the WTO agreement, and the financial crisis. In the context of market access, WTO negotiations in the UR and Group on Basic Telecom were crucial to the process of Korea's market liberalization. In a sense, however, liberalization could be driven by the government's firm will that competition eventually would be beneficial to consumer welfare. One thorny issue was the political consideration of national sovereignty over telecom networks, as is often the case in developing countries. The phased-in opening of Korea's telecom market could be interpreted as a compromise between economic and political considerations. The financial crisis to some extent played a role, in the sense that Korea implemented its scheduled WTO commitments on foreign ownership eighteen months earlier than originally planned.

In regard to regulatory principles—the so-called, Reference Paper—Korea had no problem making commitments to the WTO because its regulatory framework has undergone progressive reform since 1990. In addition, it was by Korea's own efforts that improvements were made to the regulatory framework.

At an initial stage, foreign entry depends on each country's legal system of licensing processes and equity ownership. Once *de facto* entry is accomplished through either sufficient capital investment or the establishment of on-the-spot corporations, the performance of market liberalization and openness depends on two factors. One belongs to the commercial sphere: the availability of funds necessary for facility investment, market prospects, and the climate of business transactions. The other factor belongs to the solidity of competitive safeguards to guarantee fair competition among service providers, including foreign new entrants: rights of way, access to sea-cable landing stations, interconnection, local loop unbundling with collocation, universal service, and so forth.

While the former factor is a matter of the strategies by service providers, the latter is that of the regulatory regime, which in turn implies that issues of competitive safeguards are no longer confined to the domestic area. Although trade negotiations in the past focused mainly on pulling down foreign entry barriers, those in the future are expected to go forward to details of competitive safeguards as well as further mitigation of entry barriers. In particular, further works on competitive safeguards would have to set forth

how these principles should be applied in practice. The reason is that competitive safeguards designed in the previous multilateral trade negotiations are understandably high-level and general enough to accommodate the broad range of different political and legal frameworks among various countries. However, multilateral forums such as the New Round negotiations might not be an appropriate venue for tentatively developing a more complicated set of principles on competitive safeguards. Apparently, an implicit consensus on their role in the previous WTO negotiations has been to ensure a target outcome—i.e., to level the playing field in the telecommunication services market, *not* to provide specific tools whereby those outcomes would be effectively achieved. It would be desirable that bilateral or nonbinding multilateral setting are dedicated over a certain period of time for the sake of building up an understanding and necessity of furthering sufficiently detailed guidelines for competitive safeguards. A better and plausible choice for the New Round negotiations in the telecommunication-services sector is to outline an exemplary list of good and bad practices for each regulatory principle already entered into agreement.

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## Comment Ramonette B. Serafica

Lee and Lie provide an interesting and insightful discussion of the various stages of market restructuring that Korea's telecom sector has undergone. This is spiced up with a fascinating account of the changing trends in calling patterns or habits as well as of the rise and death of the different services.

The paper not only presents a good discussion of the transformation of the market but also gives concrete evidence of the benefits arising from the more liberal rules on market entry and foreign ownership that resulted from the trade negotiations.

The gains identified in the paper are consistent with what free-market advocates envision. Along with tariff reductions there is now a wider scope of choices available to the consumers along with innovative services, pricing schemes, and technologies.

Another identified gain deals with the role of foreign participation. The fundamental role of the telecommunications sector in building the competitiveness of other sectors of the economy is widely recognized. It is also a prerequisite for international trade in services. However, building the necessary infrastructure and gaining the needed expertise requires a lot of resources, and thus what is at stake in these trade negotiations is really the capacity for most countries to mobilize the investment needed.

For the Korean telecom market, foreign participation addressed the need for additional financial resources particularly at a time when domestic resources were tight. With the aid of foreign investment, latecomers in the mobile market, for example, were able to catch up and attract new customers by expanding their service coverage. Moreover, the paper mentions that foreign participation has also led to the reform of insufficient corporate governance systems, although specifics with respect to telecommunications firms (e.g., by way of anecdotal evidence) were not given.

Finally, reforms in the sector also created positive by-products as the brisk market activity in telecom services spurred growth in the upstream equipment industry.

In total, the authors weave an interesting and compelling story of the liberalization of Korea's telecom services market and of the gains that it has

generated. The story, however, focuses on market access concerns, treating an important part of regulatory reform that has to do with procompetitive regulation in less detail. This aspect is critical, especially for the telecom sector, because of its history of monopoly regulation.

Using the traditional Industrial Organization (IO) paradigm, the paper's emphasis is on reforms in market structure and effects on market performance but leaves out the part on market conduct or the rules that govern it, which also affect market outcomes.

The need to have both for successful liberalization is evident in the World Trade Organization (WTO) Agreement on Basic Telecommunications Services, which in fact has two main parts: one is a schedule of commitments with respect to market access and the other is a set of procompetitive regulatory principles.

Individual countries provided detailed schedules on the telecom services to be included, on the scope of commitments, and on the degree of permitted market access. Another significant outcome of the negotiations, however, was the adoption of a procompetitive set of regulatory principles (known as the Reference Paper) covering a range of issues, including anti-competitive practices, interconnection with the major supplier, and regulatory independence and transparency.

A discussion of asymmetric regulation in favor of new players, whether currently in place in Korea or not, and to what extent these have been introduced in conjunction with market access reforms, will be very useful for guiding regulation elsewhere. As an outsider, I would be interested in knowing how the market was opened, to how many players, and to whom; but equally important to understand and appreciate are the rules imposed or relaxed to assist new players. Other interesting questions about aspects of the reform process can be asked as well. What sorts of problems are the new entrants facing vis-à-vis the dominant incumbent? Which among these problems or disadvantages are structural in nature and which are behavioral? Finally, how has the government responded—either proactively or reactively—to ensure that market access reforms are complemented with regulations that assist new entrants?

The need to have both market access and a procompetitive regulatory environment for successful liberalization cannot be stressed enough.

A case in point is the Philippines (see Serafica 2000). Market liberalization in telecoms was introduced in the country before the WTO negotiations on market access for basic telecommunications. Even after the WTO, however, adherence to procompetitive principles remains weak. The previous government effectively demonopolized the industry and competition was introduced even at the local exchange level as early as 1993. Right now we have about ten major facilities-based operators, although industry consolidation is taking place. Thus, by the time of the WTO negotiations on basic telecommunications, the Philippines' response to the negotiations was a schedule of specific commitments based on preexisting policies.

The foreign-ownership limit was set at 40 percent because the Philippines' constitution sets a 40 percent limit on foreign equity in public utilities. Market access was restricted to the provision of services on a facilities basis, with no resale of leased lines, and call-back schemes were not permitted in accordance with our Telecommunications Policy Act of 1995. Although the Philippine commitment acknowledges the objectives of liberalization as embodied in the WTO agreement in broad terms, specific support mechanisms are still lacking.

Sadly, nearly a decade after market liberalization, we still do not have procompetitive rules (e.g., with respect to access to essential facilities of the dominant operator—or major supplier, in WTO parlance).

As we have experienced, lack of support for new entrants in the post-“liberalization” setting threatens the very survival of competition. Moreover, it leads to wasteful duplication of facilities or investments made by both the carriers and subscribers, as well as to a lower grade of service as subscribers get caught in the games played by the operators. As such, despite the fact that Filipinos, like the Koreans, have more choices and to some extent lower prices, the full benefits of liberalization have yet to be enjoyed.

Thus, I think policy researchers and other readers can benefit from a balanced discussion or treatment of the reforms in market access and similar adjustments with respect to the procompetitive regulation that Korea's telecom sector has experienced or will need as part of the overall regulatory process. For in the long run, it is the adherence to procompetitive regulation that will determine whether the story of market liberalization in telecoms will end on a sad or happy note.

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## Comment Chayun Tantivasadakarn

This comment concentrates on four main points:

1. General comments
2. The lesson learned from Korea's telecommunication reform
3. The possibility of using Korea's experience as a model to facilitate reforms in other developing countries
4. Clarifications and suggestions

Chayun Tantivasadakarn is assistant professor of economics at Thammasat University.

## General Comments

In general, this is a well-written paper. It provides readers with not only a systematic chronicle of Korea's telecommunications policy reform but also gives clear explanatory factors behind the change of policy in each stage of reform. The paper also tries to assess the impact of telecommunications on the market structure, industry performance, and foreign ownership. The arguments presented in the paper are well supported with statistics, diagrams, and systematic explanations.

## Korea's Lessons

The paper shows that telecommunications reform in Korea has been stimulated by a series of trade negotiations beginning in 1989, with pressure from the United States, then from the Uruguay Round. This, in turn, was followed by World Trade Organization (WTO) negotiations on basic telecommunications. The Asian financial crisis in 1997 generated the final wave of policy changes.

The Korean government took these pressures and turned them into opportunities to maintain the direction of the reform and to keep the momentum going. The reform strategies followed a set of instructions:

1. *At the early stage of reform, open up only the sector that is really pressured by the trade partner.* For instance, the value-added services were opened first in the first stage reform.

2. *Introduce competition to the local service providers gradually.* This process began with an introduction of the second service provider. The government then used the managed competition policy to maintain the excessive profits for the service providers. This policy definitely generated negative impacts on consumer welfare; however, the policy probably facilitated fund raising for further investment of the incumbent firm. The managed competition was maintained throughout the first and second stages.

3. *Introduce full competition later.* For instance, in 1997 the government issued licenses to twenty-seven new service providers. The policy was also intended to saturate the market with as many local service providers as possible before the market was opened to international competition.

4. *Complement the third strategy by utilizing voice-resale services that serve as a tool to stimulate the contestability of international telecommunications services.*

5. *Relax foreign-ownership limitations gradually in the sectors deemed sensitive.* For instance, foreign ownership in the wired line services was not allowed in the first and second stages of reform; however, foreign ownership was increased to 33 percent in the third stage and to 49 percent after 1999.

### **Can Other Developing Countries Copy the Korean Model?**

First, Korea's entire telecommunications reform took more than ten years after a very good start. The liberalization process had begun quite early: in 1989, after the basic need for wired lines had been satisfied. The local monopolist was exposed to competition gradually—initially to competition from private domestic providers, and then to that from foreign firms. This long period of adjustment allowed sufficient time for the incumbent public enterprises and private domestic providers to build up strength to compete with more efficient foreign operators.

Unfortunately, all lower-middle-income countries are still struggling just to satisfy their wired line needs. According to International Telecommunication Union (ITU; 1999) statistics, the average teledensity rate in 1998 for lower income countries was only 8.18 lines per 100 inhabitants. Besides, these countries still have other socioeconomic and political problems that may have higher priority on their government agenda.

Second, the strong will and serious actions of the Korean government were the major driving factors behind the readiness of its domestic service providers for international competition. Such governmental behavior is rare among the developing countries.

As a result, the answer to “Can other countries copy the Korean model?” is probably no. With the pressures of the WTO negotiations on basic telecommunications and the upcoming New Round, the developing countries do not seem to have the necessary conditions and sufficient time to adjust.

### **Clarification and Suggestions for the Paper**

First, it is unclear which government institutions are actually responsible for the determination to carry out the reform policy. Some description of these institutions and their functions should be added to the paper. This will provide very valuable lessons for other countries.

Second, the author has mentioned that in 1995 (in the second stage of reform) the government was considering the introduction of a price-cap system. Economists consider the price cap to be a system that improves price flexibility in an increasingly competitive market while protecting against cross-subsidization, monopoly, and predatory pricing (see Mitchell and Vogelsang 1991). The price-cap system is a very efficient way to ensure that consumers will benefit from the technological progress and the rent from natural monopoly. However, it is unclear in the paper whether it has been implemented, and if it has been, what the result was.

Third, it is possible that the reduction in revenue from the international calls mentioned in the paper was partially caused by new technology, such as the Internet phone, which allows international calls from personal computers (PCs) to other PCs or from PCs to normal telephones at very low

**Table 8C.1 Comparative Advantage Index of the Telecommunication Sector: Selected Asia-Pacific Countries**

	Relative Main Lines per Employee		Relative Revenue per Employee	
	1991	1996	1991	1996
Malaysia	0.86	1.05	0.72	0.91
The Philippines	0.50	0.75	0.66	0.59
Thailand	0.85	0.98	1.00	0.64
All lower income	0.28	0.61	0.18	0.28
Hong Kong	2.34	0.65	2.93	1.31
South Korea	3.43	2.25	2.01	1.29
Singapore	1.53	1.71	2.58	3.92
Upper income	2.82	2.60	2.09	1.44
Australia	—	—	—	1.65
Japan	2.88	2.11	3.52	4.16
Developed	2.48	1.83	3.06	3.49
Asia-Pacific	1.00	1.00	1.00	1.00

*Source:* Reprinted from Tantivasadakam (1999).

*Notes:* Calculated from ITU (1999) data. Relative main lines per employee of country  $i$  = main lines per employee of country  $i$  divided by the main lines per employee of the Asia-Pacific region. Relative revenue per employee of country  $i$  = revenue per employee of country  $i$  divided by the revenue per employee of the Asia-Pacific region.

costs or even for free.<sup>1</sup> In fact, this technology will open up an entirely new area of competition to the local service providers.

Fourth, as we know, free trade will generate gains from trade. Some well-known sources of gains are gains from comparative advantage, procompetitive gains, gains from product and input varieties, and gains from average cost reductions due to economies of scale (see Markusen et al. 1995). The paper has shown to some extent the evidence of procompetitive gains due to international competition and gains from the increase of product and input varieties. It might be interesting to explore whether there is any evidence of gains from reduction of average costs because the technology in this sector is generally subject to economies of scale.

Fifth, setting aside the overall benefits of free trade for a country, free trade never guarantees that everyone in the country must also gain. Hence some form of compensation to the loser is needed. In the case of Korea's telecommunication, Korea Telecom (KT) seems to be the loser, at least at the beginning of the reform process. It would be very interesting to know how KT has been affected by the reform and how Korean government has managed the resistance and political pressure.

Finally, International comparison of the Korean comparative advantage

1. For example, [<http://www.dialpad.com>] provides such free international calls for any destination in the United States.

might be something the author should consider to incorporate in the paper. One possible index might be the relative main lines per employee and relative revenue per employee, as in table 8C.1.

The indexes in the table capture the ability of one country's telecommunications employees to handle telecommunications facilities and generate revenue relative to the average ability of the region. The table shows that Korea's indexes for the relative main lines per employee were one of the best in both 1991 and 1996. Similarly, its indexes for the relative revenue per employee were quite high for the same period. More details and similar indexes for each telecommunications facility should be calculated for the periods prior to and after the start of telecommunications reform. The index then can be used to show the impact of the reform on the comparative advantage of Korea's telecommunications sector.

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