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11 The unfulfilled promise of Korean telecommunications reform

Christopher S. Yoo

Introduction

The deployment of telecommunications services in Korea represents one of the great technological success stories of the developing world. As recently as 1980, telephone service was available in only 21 percent of all Korean households. By 1990, household penetration had reached 90 percent, the benchmark established by the International Telecommunications Union (ITU) for determining which countries are “universally served.” Similar advances have occurred in wireless telephony, which has skyrocketed from a household penetration rate of less than 4 percent in 1997 to nearly 80 percent in 2002. Internet usage has witnessed comparable gains. In 1997, only 1.6 percent of all inhabitants had used the Internet. By 2002, Internet use had soared to 55 percent, the third highest penetration rate in the world. Perhaps most strikingly, Korea has emerged as the world’s undisputed leader in broadband communications. By 2002, 78 percent of Internet households (which amounts to 43 percent of all Korean households) had been connected to the Internet through some type of broadband technology. This exceeds the penetration rates achieved by the US and Japan by more than three times, and that achieved by the next closest country by nearly 50 percent. The history of Korean telecommunications thus provides a useful case study for other developing countries seeking to expand and modernize their telecommunications infrastructures. Of special interest is the active role that the Korean government has played in guiding all sectors of the economy and the particular attention given to high-tech industries.

At first blush, the explosive growth of telecommunications services in Korea has appeared to go hand in hand with the emergence of competition in the field. A review of the history of telecommunications reform reveals that the relationship between competition and the deployment of communications technologies is not as straightforward as many surmise. Although Korea took steps toward liberalizing its telecommunications market, culminating with the substantial reforms announced in 1995, since then it has allowed the industry to engage in a disturbing degree of

re-concentration. Close examination suggests that the degree of competition that did exist was largely the result of foreign pressure, and that the Korean government consistently undertook only the minimum steps necessary to satisfy its international obligations. As a result, Korea has not benefited from the enhancements to consumer welfare, efficiency, and innovation that traditionally result from competition. It also suggests that, notwithstanding pronouncements to the contrary, the traditional pattern of direct governmental involvement in industrial policy remains firmly in place.

The second section traces the regulatory history of conventional telephone services and assesses the extent to which that segment of the industry realized the advantages associated with competition that is truly robust. The following two sections offer a similar assessment with respect to wireless telephone and broadband services respectively. The fifth section discusses some specific challenges confronting Korean regulatory authorities, while the sixth section draws some overall lessons from the Korean experience. The chapter ends with a brief conclusion.

Conventional telephony

Conventional wireline telephony has historically been comprised of three types of voice communications: local telephone services, domestic long-distance services, and international long-distance services. Over time, customers began to demand more than just voice-related services, and telecommunications combined with computer processing to create data-related services. These include private networking services, database and data processing systems, electronic data interchange between companies, credit card verification services, reservation services, and public packet-switched networking via the Internet. Together the Korean regulatory regime refers to these data-related services as "value-added services." This section describes the early history of Korean telecommunications regulations, focusing on the series of restructuring plans undertaken to liberalize each of these segments.¹ It then evaluates the success of these efforts in achieving the benefits associated with increased competition with respect to value-added services, international long-distance, domestic long-distance, and local telephone services.

Regulatory reform of conventional telephone services

Telephone regulation before 1990

The Korean War left the nation's telephone infrastructure in a shambles.² By 1960, the overall telephone penetration rate was only 0.36 lines per 100 inhabitants. For most of the postwar period, responsibility for providing telecommunications services rested with the Ministry of Communications

(MOC), which wielded both operational and policy-making responsibility. Unfortunately, the MOC was institutionally poorly situated to carry out its responsibilities. Policy-making, implementation, and oversight responsibility within the MOC was exercised by an overlapping hodgepodge of bureaus. In addition, the MOC often needed to obtain the cooperation of several other ministries before expanding its operations in any particular region. Finally, the MOC's ability to finance improvements to the telecommunications infrastructure through higher fees was limited by the concern that profits from telecommunications would be absorbed into the government's general budget. As a result, only 21 percent of Korean households had telephone service as of 1980. The waiting list for telephone service had swelled to more than 600,000, with many subscribers having to wait several years for a telephone to be installed.

The existence of pent-up demand for telephone services created broad popular support for increased investment in telephone infrastructure, even if that meant paying higher prices. These industry-specific considerations were also bolstered by a broader shift in Korean industrial policy in the late 1970s. After long having focused on heavy industries, such as machinery, shipbuilding, and chemicals, the government began to place greater emphasis on technology-intensive, high value-added industries, such as electronics and computers. The questions about political legitimacy raised by the manner in which President Chun Do-Hwan came to power added to the government's determination to achieve prompt and tangible economic progress.

In the early 1980s, these forces led the government to launch a series of bold initiatives designed to reform the Korean telecommunications industry. In December 1981, the government separated the MOC's business and policy-making functions by giving operational responsibility to a wholly owned government corporation, the Korean Telecommunication Authority (KTA).³ Establishing the KTA as a separate corporation freed decisions about business operations from interference by other governmental agencies. It also increased confidence that rate increases would be reinvested in the telephone infrastructure rather than filling the public coffers. At the same time, the government streamlined its policy-making functions in a newly created Telecommunications Policy Bureau within the MOC.

Shortly thereafter, the MOC provided for financing the expansion of investments in telecommunications by authorizing a 150 percent increase in local telephone rates.⁴ In 1982, the government designated telecommunications as a priority area in the Fifth Five-Year Socio-Economic Development Plan (1982-6), which included as goals automating telephone switching and expanding phone capacity to "one telephone line per family." Investment in telecommunications averaged over 2 percent of gross domestic product throughout this period. The Plan also included funding for the development of a domestically produced digital switching

system known as the Time Division Exchange (TDX), with KTA helping to ensure the success of the program by serving as a guaranteed initial customer.

This program yielded spectacular results. The KTA eliminated the backlog of subscription requests by 1988, and by 1990 Korea had become one of only twelve developing economies to meet the ITU's 90 percent benchmark for universal service. Notably, it is the only country to do so without the benefit of a relatively small geographic landmass or of significant oil-based wealth.⁵ The TDX program came to fruition in 1984, served as the mainstay for Korea's effort to modernize its telecommunications infrastructure, and became a source of intense national pride. The TDX project did come at considerable cost, requiring over \$100 million in direct government support. It also caused the KTA to pay prices that were two to three times the average world prices for switching.

The MOC maintained strict control over entry into the telecommunications industry and protected the KTA as a monopoly. In so doing, the MOC restricted the KTA to wireline voice communications. To fill the growing demand for data-related communications, the government founded the Data Communications Corporation of Korea (Dacom) in 1982. Dacom was barred from owning network facilities, and was instead required to lease them from the KTA. The government decided that Dacom should be organized as a private corporation in order to give it the flexibility to operate in the fast-moving market for data-related services. Thus, Dacom was staffed like a private corporation and funded primarily through private investment, although the government maintained a significant presence through a one-third ownership stake by the KTA. Although Dacom's products initially languished, they began to experience explosive growth in the late 1980s and early 1990s.

The first restructuring plan, July 1990

The government initiated a major wave of telecommunications reforms when it announced its first restructuring plan in July 1990.⁶ The government's willingness to change the formula that had proven so successful took many observers by surprise. Upon closer inspection, it becomes clear that both internal and external factors contributed to the mounting pressures for liberalization.

Internally, the computerization of Korea's largest industrial firms led them to demand increasingly sophisticated communication services. In addition, the completion of the buildout of Korea's basic telephone infrastructure logically called for a reorientation of the KTA's mission. The cost reductions made possible by technological improvements in long-distance technology created the possibility of competition in at least some portions of the telephone system.

Externally, the breakup of AT&T in 1982 and the privatization of both

British Telecom in 1984 and Nippon Telephone and Telegraph in 1985 effected a sea change in attitudes toward public ownership telecommunications networks.⁷ The persistence of large trade deficits and frustration over Korea's use of discriminatory procurement practices to protect its TDX project also induced the United States to enter into bilateral trade negotiations with the Korean government. The initial failure of these negotiations led the United States to adopt the Telecommunications Trade Act of 1988, which directed the US Trade Representative to identify "priority foreign countries" and authorized the imposition of retaliatory sanctions against those countries so identified who failed to reach satisfactory bilateral agreements to open their telecommunications markets.⁸ The US Trade Representative designated Korea as a "priority foreign country" on 22 February 1989, citing (among other things) the lack of access to the value-added services market as well as discrimination in the KTA's procurement policies. This jump started the negotiations, producing a series of "Records of Understanding" between the two countries,⁹ a bilateral agreement on value-added network services on 26 June 1991, and a more comprehensive bilateral agreement on 17 February 1992.

The Korean government responded in July 1990 by announcing an industry restructuring plan that promised to begin gradually liberalizing Korean telecommunications markets. The plan was implemented in two stages. In the first stage, the MOC introduced duopoly competition in international long distance by designating Dacom as an international long-distance carrier in October 1990. Dacom actually began providing such a service on 3 December 1991, with the KTA selling its ownership interest in Dacom in 1993. The government also announced plans to introduce competition into domestic long distance by 1992 (although, as we shall see, competition in domestic long distance would not emerge until 1996). Because of the strategic importance of the basic telephone infrastructure, the government also determined that local telephone service would remain a monopoly.

In the second stage, statutory amendments enacted in December 1991 divided carriers into two discrete categories. The first, known as "network service providers" (NSPs), are those carriers that own the networks that comprise the basic telecommunications infrastructure. The second, known as "value-added service providers" (VSPs), included carriers that provided more advanced data-related (as opposed to voice-related) services, such as computer networking, intercompany electronic data interchange, electronic mail, and database services. VSPs were prohibited from owning any network infrastructure themselves and thus were required to lease lines from NSPs.

The regime further divided NSPs into two categories depending on the degree of specialization. The first subcategory, known as "general service providers" (GSPs), were those carriers, such as KTA and Dacom, that provided basic wireline voice communications on a national basis. The

second subcategory, known as "specific service providers" (SSPs), were those carriers that provided more specialized services, such as cellular telephony, paging services, port communications, and airport-related communications.

Each category was subject to a different regulatory regime. GSPs were protected as monopolies. They were also barred from providing SSP or VSP services, which had the practical effect of preventing KTA from providing cellular telephony. GSPs were also subject to the most stringent ownership constraints, including an absolute prohibition of any foreign ownership.

Regulation of SSPs was somewhat looser, but still rather restrictive. The government employed a licensing regime to strictly control SSP entry. SSPs were also subject to a range of ownership restrictions, including one limiting foreign ownership to no more than one-third.

In contrast, and as mandated by the 1991 bilateral trade agreement, VSPs were substantially deregulated, with firms seeking to offer one of a designated list of value-added services needing only to register with the government before entering the market. Foreign investors were initially limited to no more than a 50 percent ownership stake in any VSP. The 1992 bilateral trade agreement subsequently led Korea to authorize 100 percent foreign ownership of VSPs by 1994 and agree to join the revised Government Procurement Agreement adopted in 1994 as part of the Uruguay Round of the General Agreement of Tariff and Trade (GATT).

In addition, the government announced that it would begin to privatize the KTA, renamed Korea Telecom (KT) on 10 December 1990, in an attempt to give the company a more corporate image. The initial plan called for it to sell off 25 percent of its shares in an initial public offering, with the sale of an additional 24 percent planned for subsequent years. A downturn in the Korean stock market led KT to defer these plans. Instead it only sold off 10 percent of its stock in 1993, with another 10 percent sold in 1994.

The second restructuring plan, June 1994

In the aftermath of the introduction of duopoly competition in international long distance, further liberalization proceeded slowly. The MOC would soon be shaken out of its languor by the successful completion of the Uruguay Round of the GATT in December 1993. Previous rounds of GATT negotiations had focused exclusively on the international trade in goods. The Uruguay Round was the first to address the service sector, and led to the adoption of the General Agreement on Trade in Services (GATS), which compels most-favored-nation treatment of foreign service suppliers, requires that foreign firms be given the same regulatory treatment as domestic firms, and mandates market access to foreign service providers. The market access provisions specifically forbid restrictions on

foreign capital investment and attempts to limit the number of service providers. Individual countries file schedules of commitments, indicating the particular services to which they will apply the GATS principles.

Signatory nations were generally quite willing to offer commitments to liberalize value-added services. They were less forthcoming with respect to basic telecommunications services, which carried greater political import and in many cases were government-owned. Rather than end the negotiations, the World Trade Organization (WTO) commenced negotiations on an agreement on basic telecommunications services in May 1994. The deadline for completion was set at the end of April 1996.

The impending conclusion of the agreement on basic telecommunications services led the MOC to announce a second market restructuring plan in June 1994 designed to make Korean carriers more competitive in advance of the imminent arrival of foreign competition. The second restructuring plan eliminated the distinction between GSPs and SSPs, capturing both under the overarching NSP rubric. This had the practical effect of freeing former GSPs (like KT) to begin offering services previously reserved for SSPs (such as wireless telephony). NSPs continued to be subject to the same ownership restrictions that had previously governed SSPs, which prohibited foreigners from owning more than one-third of any wireline telecommunications provider. The sole exception was the KTA, in which foreign investment continued to be strictly prohibited. The government also responded to complaints that restricting VSPs to providing services contained on a positive list was not sufficiently responsive to technological change by shifting to a negative listing system, in which VSPs were free to offer any services except those specifically enumerated by the government.

The government also authorized competition in domestic long distance by granting Dacom a license to provide such services in March 1995, with Dacom actually beginning to provide service in early 1996. The government continued to use the licensing process to prevent further entry, and to use its influence over the carriers to severely restrict price competition.

The third restructuring plan, July 1995

External developments continued to push toward further market liberalization. Negotiations on the WTO basic agreement on telecommunication services continued apace, although unexpected snags in the negotiating process would eventually postpone adoption of the agreement until 15 February 1997, with full implementation pushed back until January 1998.¹⁰ By 1995, the US Congress was considering legislation that would ultimately become the Telecommunications Act of 1996, which revolutionized the approach to regulating telecommunications services. The European Union similarly required its member states to open their telecommunications markets to full competition by the end of 1997.

The US continued to use bilateral negotiations to exert pressure on Korea to open its telecommunications markets still further. Complaints by US firms that Korea was delaying certification of US-made equipment were resolved by the adoption of still another bilateral trade agreement on 27 March 1995. The pressure on Korea would further intensify in 1996, when the US Trade Representative once again designated Korea as a "priority foreign country" and threatened to impose trade sanctions unless Korea agreed to take additional steps to liberalize its telecommunications industry.

The Korean government also began to realize that the existing duopolies would not provide sufficient incentive to prepare the current carriers for the impending onslaught of foreign competition. In addition, the government had grown less confident in its ability to anticipate changes in consumer demand and technology, and had begun to see the benefits of allowing the market to determine the prospects for various services.

Consequently, in July 1995 the government announced its third restructuring plan, which proposed a series of reforms designed to make Korean providers more competitive in terms of cost and management capability.

The primary change was to eliminate the government's strict control over entry. Prior to that time, companies could apply for licenses only after being invited to do so by the Ministry, renamed the Ministry of Information and Communications (MIC) in 1996.¹¹ After the third restructuring plan, businesses could decide for themselves in what areas to seek licenses and when to submit license applications. This triggered a wave of entry into telecommunications markets, with the issuance of 27 new licenses in 1996 and 10 more in 1997. Of particular note, Onse Telecom received a license to provide international long distance and began such services in October 1997. Hanaro was licensed as a second local service provider in 1997, and began offering service in April 1999. The government also sold an additional 8.8 percent of KT in 1996, lowering its stake to 71.2 percent.

An August 1997 amendment to the Telecommunications Business Laws, enacted in accordance with the WTO agreement on basic telecommunications services, authorized the resale of existing services. This new class of service providers, called "special service providers" ("SSPs"),¹² leases facilities from incumbents and uses them to provide voice services similar to those already offered. This amendment introduced an additional degree of competition into all segments of the conventional telephony field, although the fact that SSPs are resellers prevents such competition from being facilities-based. Because SSPs can enter the market simply by registration, the government cannot control entry. By October 2002, a total of 353 had entered the market.

Statutory amendments and administrative actions in 1996 and 1997 deregulated pricing for non-dominant carriers. Only dominant carriers, such as KT and wireless leader SK Telecom, continued to be subject to

rate regulation. The 1997 amendments also further liberalized the ownership restrictions, authorizing foreigners to own up to 33 percent of facilities-based network providers, except for KT.

The fourth restructuring plan, September 1998, and subsequent developments

The need to stimulate foreign investment in the wake of the 1997 Asian financial crisis led the MIC to announce still another restructuring plan in September 1998.¹³ The most important development for the purposes of this chapter is the statutory amendment that raised the percentage of shares ownable by foreign entities to 49 percent and authorized foreign ownership of shares in KT. Other reforms lifted a number of line-of-business and reporting restrictions that limited the ability of conglomerates and NSPs to enter new telecommunications markets. The MIC also increased the frequency with which it would consider license applications to twice a year, and allowed companies to apply for multiple licenses.

More recently, the government has taken a number of steps to remove any remaining barriers to competition. One of the main obstacles to competition in long distance is known as "dialing parity." Initially, customers could access long-distance carriers other than KT only by dialing a significant number of additional access codes. The need to dial a larger number of digits before using one of the new long-distance competitors made many consumers reluctant to switch carriers. The government has addressed this problem by allowing consumers to preselect a long-distance carrier without having to dial additional access codes. Dacom was made eligible for preselection in November 1997, with comprehensive guidelines for implementing the carrier preselection process taking effect in March 2002.

In addition, many consumers were reluctant to change local carriers if doing so meant that they also had to change their phone number. As a result, in January 2001 the government announced plans to implement "number portability," where customers are allowed to retain their current telephone number when changing carriers. The MIC instituted a trial run in four smaller cities on 30 June 2003. It extended this to eleven additional cities on 31 October 2003, with nationwide implementation scheduled for mid-2004.

The MIC also continued to issue new licenses. Onse was licensed to provide domestic long distance in 1999. Hanaro later received licenses to enter the domestic and international long-distance markets in December 2002. The government finally completed the privatization of KT in May 2002, after still owning a majority of KT shares as recently as 2001.¹⁴ Korea Telecom also officially changed its name to "KT" in late 2001 in an attempt to project a more modern and global image.

In addition, the government has attempted to promote local competition by mandating local loop unbundling, which requires KT to allow its

competitors to lease the wires that connect its switching facilities to individual customers. Unbundling was mandated by statute in December 2000, with the final regulations issued in December 2001. Unbundling proceeds on a distinctly different model than conventional approaches to competition. Rather than stimulating competition among alternative network facilities, unbundling simply compels the incumbent to share its facility at regulated prices. Consumer benefits under such a regime depend upon government rate setting rather than competitive forces.

At the same time, recent years have also witnessed a degree of backsliding in the commitment to competition, as the government has sanctioned a series of mergers that have allowed the industry to become re-concentrated. In November 1999, LG Telecom, the smallest of the three wireless telephone providers, outbid Hanaro for Dacom, notwithstanding LG Telecom's promise not to acquire other carriers when it was given a license to begin providing a second-generation mobile technology known as personal communication services (PCS) in 1996. Apparently, the acquisition of Dacom served as compensation for LG Telecom's accession to government pressure to exit the semiconductor industry by selling its operations to the Hyundai Group.

Turmoil has continued to wrack the industry. Onse placed itself into receivership in early 2003, as did cable modem provider Thrunet, as discussed in greater detail later in this chapter. Hanaro has also undergone its share of financial troubles, again described in greater detail later in this chapter. Its dreams of acquiring Onse and Thrunet were derailed by a short-term credit crunch in mid-2003. This crisis touched off an extended battle for control of Hanaro between LG Telecom and a consortium of foreign investors, in which the latter eventually prevailed.

Assessment

Although many observers have hailed the government's restructuring plans as opening Korean telecommunications to the benefits of competition, upon closer inspection it is far from clear that such plaudits are warranted. Policy-makers opened markets only grudgingly, and the presence of multiple providers failed to generate any significant competitive benefits. As Choi observed, "It appears that there is a consensus among policy-makers that the Korean telecommunications market should be open to the minimum extent as possible" (Choi, B.I. 1997: 89). Instead, the parties lapsed into a pattern of tacit collusion, facilitated and enforced by a government seeking to preserve monopoly rents in order to promote other social values, such as universal service. Value-added services, the market which came the closest to complete liberalization, was the only segment that received the benefits of true competition.

Value-added services

As noted earlier, one of the primary effects of the first restructuring plan initiated by the government in 1990 was to substantially deregulate value-added services. As a result, it is this segment in which competition has been the most vibrant and in which Korean providers have faced the highest levels of foreign competition.

These reforms triggered explosive growth in value-added services. From 1991 to 2001, the value-added market expanded at a rate of between 30 percent and 40 percent each year. By June 2002, nearly 3,000 value-added service providers produced a dazzling array of services in a cost-effective manner and offered them for sale at competitive prices. In short, early deregulation of the value-added services segment appears to have been an unqualified success.

International long distance services

The Korean government also introduced competition in international long distance by allowing Dacom to provide service starting in 1991, and expanded the market into a triopoly by authorizing Onse to begin service in 1997. A closer analysis reveals that these reforms failed to provide any of the benefits traditionally associated with competition. For example, Ku and Kim (1997) have demonstrated that the spread between KT's and Dacom's prices for international long distance was considerably narrower than the gap between incumbent's and new entrants' prices in other countries. In addition, the price reductions obtained during the first four years of duopoly competition were considerably less than the price reductions achieved during the last four years of monopoly provision. Regulated duopoly competition did not generate for KT or Dacom the type of productivity improvements and cost benefits traditionally associated with price competition. Nor did competition stimulate innovation in terms of new services and quality. Thus, despite the presence of multiple providers, the economic benefits of real competition failed to materialize (see also Cho, *et al.* 1996: 360-1; Yoon, C.H. 1999: 296-7; Nam 2000: 355 and n. 5, 360).

The absence of price competition was the direct result of the manner in which the Korean government imposed a policy commonly known as "asymmetric regulation." Under the approach to asymmetric regulation usually employed by other countries, only the dominant carrier is subjected to price controls; other firms are left free to enter and set prices as they see fit. This contrasts sharply with the type of asymmetric regulation pursued in Korea. Until 1997, the government sharply restricted further entry and strictly controlled the rates charged by incumbents and new entrants alike. Initially, the gap between KT's and Dacom's prices was set at 5 percent. It was subsequently narrowed to 2.75 percent in 1993 and

1 percent in 1995 as Dacom's market share approached 30 percent. Because KT recognized that the government would not permit it to drive Dacom from the market, it made little effort to push prices lower and instead focused its efforts on convincing the government to narrow the price gap between its services and Dacom's. Dacom, for its part, was satisfied with the supra-competitive margins that it was earning, and also evinced little interest in pushing prices lower, which would only serve to reduce the overall profitability of the entire segment. KT and Dacom thus had both the incentive and the ability to engage in tacit collusion, in which both firms eschewed price wars that would dissipate monopoly rents and instead focused solely on the magnitude of the price gap, which simply determined how those rents would be divided between them (Kim and Ro 1993: 489; Ku and Kim 1997: 268–9; Yoon, C.H. 1999: 297).

The government similarly had little interest in inducing downward pressure on international long-distance prices. The MOC needed to safeguard the financial stability of the new entrants in order to satisfy its commitments under the bilateral agreements it had negotiated with the US. Furthermore, the government was pursuing universal service by employing the classic system of cross-subsidies, in which international and domestic long-distance users were charged prices that exceeded cost and the excess returns were used to set local rates below cost. Allowing true competition to emerge in international long distance would have undermined this system of cross-subsidies by making it impossible for KT to charge international long-distance rates that exceeded cost, which would in turn cause the excess returns needed to cross-subsidize local services to evaporate. Indeed, local rates remained below those charged in other countries throughout this period (Nam 2000: 361–2).

More serious steps toward real competition did emerge in 1997. It was during this time that KT persuaded the regulatory authorities to reduce the magnitude of the implicit cross-subsidies by lowering long-distance rates and increasing local rates. As noted earlier, the government also announced in late 1997 that it would abolish rate regulation and open all services except local telephone services to price competition. And even in the absence of direct regulatory approval of rates, the government used a variety of informal means to exert control over rates (Cho *et al.* 1996: 364; Yoon, C.H. 1999: 291).

Most importantly, real competition in international long distance began to emerge from SSPs, which began operation in 1998. As noted earlier, SSPs lease telecommunications facilities and use them to resell services similar to those offered by incumbents. SSPs had garnered over 25 percent of the international long-distance market by the end of 2000, and their share of the market is likely to increase as the gap in quality between SSPs and traditional facilities-based providers continues to narrow.

Domestic long-distance services

Competition in domestic long distance has proven even less effective (see Table 11.1). As noted earlier, Dacom was not allowed to begin selling domestic long distance until 1996, with Onse joining the market in 1999, and Hanaro gaining authorization to enter the market in December 2002. The government removed one of the main obstacles to the emergence of competition by mandating dialing parity. Despite these efforts, KT has remained the dominant player, and domestic long-distance rates have remained high relative to the rates for other services (Nam 2000: 361–2).

The failure of real competition to emerge can be largely attributed to the manner in which the government regulated new domestic long-distance carriers. As a formal matter, the 1996 amendments to the Telecommunications Business Law authorized the MIC to regulate only those rates charged by dominant carriers, such as KT. In practice, other carriers have been very responsive to governmental guidance. Thus, the government was able to exercise *de facto* control over the rates charged (Yoon, C.H. 1999: 291).

As a result, whatever benefits did emerge were the result of governmental intervention rather than competition. As was the case with international long distance, the government had little incentive to force significant downward pressure on domestic long-distance rates, since doing so would eliminate their ability to use cross-subsidies to defray the cost of local services. The size of the Korean cross-subsidy appears to have been substantial. Local rates appear to be substantially lower and the ratio of long-distance to local rates appears to be substantially higher than in other OECD countries (Nam 2000: 361–2).

It was not until the imminent arrival of foreign competition in 1998 that both the government and the industry began to show any interest in lowering prices. Anticipating the emergence of true competition, KT persuaded the government to rebalance its long-distance rates to eliminate cross-subsidies and to begin gradually adjusting local rates toward cost. Still, KT remains the dominant player, and the domestic long-distance market remains rather uncompetitive.

Table 11.1 Competition in domestic long distance as of January 2001

Provider	Share (%)
KT	88
Dacom	10
Onse	2

Source: *The Korea Herald* 2001.

Local services

The segment that has exhibited the lowest degree of competition is local telephone services (see Table 11.2). Hanaro has failed to make any significant inroads into KT's monopoly over local services. In fact, Hanaro has effectively abandoned the business and is now providing service to almost all of its local telephone customers simply by reselling services provided by KT.

The government is in the process of removing a number of obstacles to the emergence of competition in local services. For example, nationwide institution of number portability should improve competitiveness. Allowing customers to retain their telephone numbers when they switch carriers should overcome a major source of inertia that has long redounded to the benefit of the wireline incumbent, KT. In addition, the government has attempted to promote local competition by mandating local loop unbundling.

Certain technological realities make it difficult for real competition in local telephone service ever to emerge. Overall revenues are declining, as conventional wireline services are displaced by wireless and broadband technologies. To date, competitors have somewhat understandably shown little interest in undertaking the investments needed to engage in facilities-based competition in local telephone services (Choi, B.I. 1997: 85; International Telecommunications Union 2003a: 6–8). Some hope remains that number portability will allow Hanaro to emerge as an effective competitor. Wireless leader SK Telecom has long been rumored to harbor ambitions of entering the fixed-line market as well, although its primary emphasis may be on broadband.

Wireless telephony

As noted earlier, Korea enjoys one of the highest levels of wireless penetration in the world, having skyrocketed from a rate of less than 4 percent of all Korean households in 1997 to a penetration rate of 79 percent in 2002. In fact, there have been more wireless users than wireline users since October 1999. As recently as 2000, five players were vying for wireless customers.

Given the explosive growth and the relatively large number of players active in the market, it might be imagined that wireless telephony would represent a segment in which competition was fairly vibrant. Upon closer

inspection, it becomes clear that government policies initially designed to promote competition have been thwarted by other decisions that have tended to stifle the competitiveness of the wireless industry. The ongoing wave of consolidation suggests that these problems are only likely to worsen in the coming years.

Regulatory reform of wireless services

The wireless era in Korea commenced in 1984, when KT established a subsidiary known as Korean Mobile Telephone (KMT), dedicated to providing car-phone service through a first-generation, analog cellular technology. At first, wireless penetration languished. By 1995, cellular telephony reached only two subscribers for every 100 inhabitants, a rate that lagged far behind those achieved in other Asian countries. The government attempted to establish a second cellular telephone provider, only to see the selection process become bogged down in political scandal.

Again, bilateral trade negotiations with the US provided the necessary impetus for market liberalization. In 1994, the government required KT to sell its wireless subsidiary to the Sunkyung group, which renamed it SK Telecom. As part of its first restructuring plan, the government issued a license to Shinsegi so that it could provide a digital cellular service. The second restructuring plan announced in 1994 also included plans to promote wireless communications by issuing a PCS license in 1995 (presumably to KT), with three or more licenses following a year later.

In 1995, as part of the third restructuring plan, the government adopted an even more aggressive stance, issuing three additional PCS licenses. The PCS licensees included KT (through a subsidiary known as KT Freetel or KTF), LG Telecom, and Hansol M. Com. PCS services began to appear on the market in October 1997.

With five providers vying for customers, the wireless market exploded. By 1999, penetration had soared to 44.8 percent, which represented the sixth highest penetration in the world. By the end of 2002, penetration had reached 67.9 percent. Since that time, however, the market has undergone a wave of consolidation. KTF acquired Hansol M. Com in June 2000, reducing the number of PCS providers to two. Market leader SK Telecom was allowed to acquire Shinsegi in January 2002. As a result, only one cellular provider (SK Telecom) and two PCS providers (KTF and LG Telecom) remain. Each of these companies also holds licenses to deploy a third-generation technology known as IMT-2000, which offers the promise of providing mobile wireless Internet services.¹⁵ Competition among these three players has been dampened by the fact until recently SK Telecom and KT both maintained significant holdings of each other's stock, with SK Telecom being KT's largest shareholder. Both companies agreed in November 2002 to eliminate their cross-ownership positions through an exchange of stock.

Table 11.2 Competition in local telephone markets as of 30 September 2002

Provider	Subscribers	Share (%)
KT	22,183,376	95.6
Hanaro	1,017,928	4.4

Source: Ministry of Information and Communication (MIC) (2002).

Assessment

Competition in wireless proved little more effective than wireline competition. As the successor to KMT's legacy monopoly position, SK Telecom remains the leading player. Although its share temporarily dipped below 50 percent in early 2002 in order to comply with the requirements of the merger agreement that permitted it to acquire Shinsegi, its share has since returned to its previous levels (see Table 11.3).

As Choi *et al.* (2001) have noted, competition has failed to generate any significant reduction in prices. Somewhat astonishingly, the tariffs of the five wireless carriers hardly changed following the launch of PCS in 1997. This stands in sharp contrast to the experience in the US and the UK, where the introduction of PCS services generated substantial price reductions. In addition, a further comparison with the US and the UK underscores the fact that competition failed to promote product innovation in the form of new calling plans.¹⁶

The absence of real competition should come as no surprise. As Nam (2000: 354–5) has argued, it resulted in part from the manner in which the new entrants into the mobile telephony market were selected. Rather than allowing the firms to bid for the available licenses, the government instead employed a complicated scoring system that evaluated the applicant's business plans and governance structure, paying particular attention to whether the applicant represented a consortium. Use of this selection method allowed the government to hand pick the winning entrants.

The emergence of competition was further slowed by the government's insistence that all new entrants base their networks on the emerging digital standard known as code division multiple access (CDMA), rather than the global standard for mobile communication (GSM) already deployed in Europe. While effective in helping Korea establish itself as the leading manufacturer of CDMA devices, it delayed the entry of competitive wireless providers. Even though Shinsegi was authorized to begin providing service in January 1996, at that time CDMA technology was not yet ready for commercial deployment. In addition, allowing SK Telecom to combine analog and digital technologies while requiring Shinsegi to rely solely on digital technologies redounded to SK Telecom's benefit. SK Telecom was able to make a gradual transition to digital transmission

technologies, relying on its existing analog infrastructure to fill in the gaps. Shinsegi, in contrast, was forced to deploy an entire digital network in order to offer comparable coverage. The commitment to CDMA also delayed entry by the new PCS licensees until August 1997.

The lack of number portability has also impeded competition by raising the costs of switching wireless providers. The government is in the process of phasing in number portability for wireless carriers, with the new regulations applying to SK Telecom becoming effective in January 2003, KTF in July 2004, and LG Telecom in January 2005. In addition, the MIC has attempted to curb SK Telecom's dominance by simultaneously changing the access code system employed by wireless players. The original access code regime was not based on geographically oriented area codes. Instead, each wireless provider administered its own, dedicated, nationwide access code. SK Telecom turned its 011 access code into a major brand, advertising heavily behind its "Speed 011" service.¹⁷ The success of this branding effort hurt other wireless providers, which used other access codes.¹⁸ The MIC attempted to nullify SK Telecom's advantage by combining number portability with the mandate that all new mobile phone subscribers be assigned to the new 010 access code regardless of their choice of provider. SK Telecom responded with an advertising campaign lauding its "Speed 010" service, raising the implication that the 010 access code is proprietary to SK Telecom. SK Telecom has stuck with its campaign, notwithstanding strong criticism from KTF, LG Telecom, and the MIC.

Most importantly, the failure of competition to emerge was largely the product of the government's influence over wireless rates. As a formal matter, only market leader SK Telecom was rate-regulated. In practice, however, the competitors set prices in consultation with the government, and consequently price competition did not emerge. In the wake of the government's discouragement of carriers to cut rates and offer additional calling plans, the wireless providers easily fell into a pattern of tacit collusion (Choi *et al.*, 2001: 127, 131–2).¹⁹

The only area in which price competition did emerge was with respect to initial subscription prices, by offering free handsets and waiving of initial fees in return for a two-to-three year subscription agreement. Econometric data analyzed by Choi *et al.* (2001) suggest that the handset subsidy had a significant impact on the market. Ironically, out of concern that the handset subsidies represented "excessive competition" that threatened to drive wireless carriers out of business, the MIC sharply limited handset subsidies and banned the use of obligatory subscription periods in April 1999. This had a much more drastic impact on PCS providers KTF and LG Telecom, whose customers needed to acquire new and more expensive handsets in order to subscribe. The restriction on handset subsidies foreclosed the only avenue for price competition available to wireless providers. This had the effect of forcing all of the carriers to compete on quality, which inevitably favored the dominant player, SK Telecom. The

Table 11.3 Competition in wireless telephony as of 30 September 2002

Provider	Subscribers	Share (%)
SK Telecom	18,018,665	54.3
KTF	10,448,458	31.5
LG Telecom	4,740,778	14.2

Source: MIC 2002.

government biased the market in SK Telecom's favor still further by collecting and publishing data on quality of service. The sharp increase in handset prices caused by the incorporation of digital camera and camcorder features made the drag-on competition caused by the handset subsidy restriction even more acute. The MIC briefly flirted with rescinding the ban on handset subsidies in late 2002, only to reverse the field in May 2003 in the face of presidential opposition. KTF and LG Telecom renewed their request in November 2003 so that they could take full advantage of the competitive opportunities provided by the advent of number portability. Although rumors of widespread use of handset subsidies remain rampant, as of this writing, the prohibition remains in place.

Finally, the problems associated with the lack of competition are likely to be exacerbated still further by the wave of mergers that recently swept through the Korean wireless industry. A recent simulation analysis suggests all five wireless players would have been profitable prior to consolidation, and that consolidation is unlikely to reduce duplicative investments (Song and Kim 2001). As a result, the recent wave of consolidation is likely to cause total welfare to decrease, and the fact that the wireless industry has been permitted to re-consolidate in this manner may signal a lapse in the government's commitment to reform.

Broadband

History of broadband deployment

Perhaps the most striking success story is broadband. As noted earlier, 78 percent of all Internet users (which represent 43 percent of all Korean households) access the Internet through broadband technologies. These rates dwarf the adoption rates in the US and most other developed countries. Korea has thus emerged as the world leader in broadband technologies (see Table 11.4).

The deployment of broadband technologies in Korea was fostered in no small part by competition from a range of facilities-based providers. Korea's first broadband provider was Thrunet, which began offering a cable modem service in July 1998. Five other cable modem providers have since entered the market. The cable television infrastructure currently reaches 57 percent of all Korean households, and by December 2002, cable modem providers had captured 3.9 million subscribers, which represented 34.6 percent of all broadband users. The MIC has announced plans to build a new cable-based, digital broadband network by 2007.

However, the company most responsible for driving the rapid deployment of broadband was Hanaro. Having failed as a local service provider, Hanaro began offering the telephone-based broadband technology known as digital subscriber line (DSL) service in April 1999. Like many

Table 11.4 Leading broadband penetration rates as of 2002

<i>Country</i>	<i>Subscribers per 100 inhabitants</i>
Korea	21.3
Hong Kong	14.6
Canada	11.5
Taiwan	9.4
Iceland	8.7
Denmark	8.6
Belgium	8.4
Sweden	7.7
Austria	6.6
Netherlands	6.5
United States	6.5
Switzerland	6.3
Japan	6.1

Source: ITU 2003b: Figure 1.1.

incumbents, KT was at first reluctant to offer DSL, because doing so would cannibalize its existing broadband technology, known as integrated services digital network (ISDN).²⁰ Hanaro's early success forced KT to abandon this strategy at a very early stage and to begin offering its own DSL service in June 1999. DSL service is available in 90 percent of Korean telephone households and has garnered 6.4 million subscribers, representing 56.8 percent of all broadband users. Korea is in the process of upgrading from a technology known as asymmetric DSL (ADSL), which has theoretical speeds of 10 Mbps and typically operates at speeds of around 0.5 to 1.5 Mbps, to very high bit-rate DSL (VDSL), which is capable of providing speeds up to 52 Mbps.

Assessment

Korea's unique success in achieving broadband penetration has been attributed to a wide array of factors, many of which are unique to Korea (Aizu 2002: 14–17; ITU 2003a: 12, 67). One key aspect is the country's unusual demographic pattern. Fully 80 percent of Korea's population lives in urban areas, with 70 percent residing in the seven largest cities. Even more importantly, 40 percent of the country's inhabitants live in apartments. This level of population density allowed Hanaro to provide DSL service without having to lease local loops from KT or physically collocate equipment on KT's property. Instead, Hanaro was able to place the equipment needed to provide DSL directly inside the apartment complexes, which left KT unable to prevent it from introducing DSL service. Other oft-cited factors include Korea's high level of education and a widespread desire among Koreans to possess the same cutting-edge technology as peers.

Unique elements of Korea's history may have also played a role. Specifically, the widescale unemployment triggered by the Asian financial crisis caused a proliferation of cybercafés known as "PC bangs." Receiving their initial exposure to the Internet in such a high-bandwidth environment made Koreans less likely to be satisfied with the limitations of dial-up access (Aizu 2002: 12–15; Korea Information Society Development Institute 2003: 85).

That said, government policy-making clearly played a role. A key driver has been the government's willingness to subsidize investments in broadband infrastructure. In a program characteristic of the cooperation between government and private business that has long typified Korea's approach to industrial policy, the MIC has used its "Information Promotion Fund" to offer low-interest loans to help facilities-based providers build out their networks. The MIC made receipt of some of these funds conditional on a willingness to invest in less densely populated areas.

Broadband deployment was one of the primary beneficiaries of Korea's previous steps toward liberalization. Although broadband competition did come in part from service provided via lines leased from KT by VSPs, new facilities-based entrants, such as Hanaro, Onse, and Dacom, that the government had already licensed to provide voice services, played the most important role.

The result was fairly vibrant price competition that has driven broadband prices down to approximately \$30 per month, which ranks among the very lowest in the world. These pricing levels were made all the more attractive by the rate structure of the Korean local telephone service. In contrast to the US, which charges a flat rate for unlimited local calls, local phone rates in Korea are time-sensitive. This pricing approach places unusually heavy burdens on dial-up users of the Internet, who tend to remain connected for significantly longer periods of time than voice users. The result has been to narrow the effective spread between dial-up and broadband prices. At such rates, a subscriber who uses the Internet for more than 30 hours per month will generally find it cheaper to switch from dial-up to broadband. Given that the average Korean Internet user logs on for approximately 40 hours per month, it should come as no surprise that so many Korean users have switched to broadband.

There are, however, a number of indications that broadband competition may not ultimately prove that robust. Even though KT ceded first-move advantage to its competitors, it has emerged as the dominant broadband provider, having captured nearly 50 percent of the market (see Table 11.5).

In addition, both Thrunet and Onse filed for bankruptcy in early 2003 and have struggled to find buyers. Hanaro, having flirted with acquiring Dacom, Powercomm, Thrunet, and Onse, has itself become strapped for cash. This created an opportunity for LG Telecom, the number three wireless provider, which has long languished behind wireline powerhouse

Table 11.5 Competition in broadband Internet access as of 30 September 2002

<i>Provider</i>	<i>Subscribers</i>	<i>Share (%)</i>
KT	5,524,944	48.8
Hanaro	2,975,338	26.3
Thrunet	1,290,938	11.4
Onse	446,614	3.9
Dacom	194,798	1.7
Dreamline	161,375	1.4
VSPs	555,856	4.9
SSPs	165,383	1.5

Source: MIC 2002.

KT and wireless leader SK Telecom. LG Telecom had already begun pursuing an acquisition strategy designed to place it on a more equal footing with its competitors, having outbid Hanaro for Dacom in November 1999 and for Powercomm, the second largest cable modem provider, in December 2002. Already Hanaro's largest shareholder, LG Telecom attempted to take over Hanaro amid widespread speculation that it would eventually launch a bid for Thrunet and possibly Onse as well. Hanaro's troubles presented a similar opportunity for foreign investors. A consortium led by the American International Group (AIG) and Newbridge Capital launched its own bid for Hanaro, backed by SK Telecom, Hanaro's third largest shareholder. The presence of an opposing bid in turn forced LG Telecom to affiliate with a US-based private equity firm known as the Carlyle Group in order to sweeten its offer.

Resolution of these two competing bids was hamstrung by the pattern of cross-ownership that has long characterized Korean telecommunications. Because of the size of the holdings of both competing factions, neither side was initially able to muster the support needed to obtain approval for its bid. The contest between LG Telecom and the AIG–Newbridge consortium devolved into a classic proxy battle, with Hanaro languishing in limbo despite the presence of two competing takeover bids.²¹ In the end the AIG–Newbridge consortium prevailed, and is now rumored to be eyeing Thrunet and Onse. After threatening to leave the telecommunications industry if its bid for Hanaro failed, LG Telecom has announced its intention to remain in the market and is attempting to devise a strategy centering on strategic ties with Hanaro and synergies with the television-programming capabilities provided by its cable holdings.

Specific challenges confronting Korean telecommunications regulation

Social transformation and dislocation

The foregoing discussion suggests that the rapid deployment of telecommunications technologies has been shaped in no small part by distinctive aspects of Korean society.²² The demographic tendency toward urbanization and apartment living facilitated the rapid deployment of broadband, as did Korea's traditional emphasis on education. Other commentators have pointed to unique aspects of Korea's recent history, such as the fact that many Koreans were first exposed to the Internet during the Asian financial crisis through the popularity of cybercafés known as "PC bangs," and possibly a cultural preference for being on the cutting edge of technology.

The pervasiveness of information technology has begun to exert a reciprocal effect in reshaping Korean society. Indeed, the ubiquity of wireless communications, particularly among younger Koreans, may have altered the outcome of a recent Presidential election. When early exit polls indicated that Roh Moo-Hyun was trailing, young Koreans took to chat rooms and issued a wave of electronic text messages to mobile handsets that, according to some observers, brought out the younger vote and swept Roh to victory (*Forbes* 2003).

It must be acknowledged that the widescale availability of broadband technologies has not been without its darker side.²³ Korea remains vulnerable to the dangers experienced by all countries with significant Internet penetration, such as using the anonymity provided by the technology to facilitate pedophilia and racist speech. Stories of addiction to on-line gaming also abound, with perhaps the most celebrated example being a man who died of a heart attack after continuously playing on-line games for three consecutive days without eating or sleeping. One published report tells of a 14-year-old boy stealing \$35 from his parents in order to buy accessories for the virtual persona who represented him in his on-line world (*Forbes* 2003). Government-sponsored surveys reveal that although the overwhelming majority of Koreans view the rise of an information-oriented society in positive terms, many Koreans feel that it has increased their sense of alienation – even among groups who are most likely to support the transformation, such as college graduates and teenagers. Generalizing from such casual empiricism can be quite problematic.²⁴ Firm conclusions must await more systematic studies of these problems.

Interconnection charges and universal service

The presence of multiple competitors in every segment of telephone service has made it inevitable that calls may have to pass through more

than one network. For example, a call originating through a landline provided by KT may well terminate on a wireless handset connected to SK Telecom. The originating carrier compensates the terminating carrier for its expenses through payment of interconnection charges.

Current regulations dictate that interconnection charges be based on historical cost. A growing literature has demonstrated how reliance on historical cost leads to misallocation of resources and discourages investment in telecommunications networks (Nam 2000: 363–5).²⁵ The access charge regime also contains some unusual asymmetries – for example, access charges for fixed-to-mobile calls are several times greater than access charges for mobile-to-fixed calls (Park and Lee 2002: 612). As a result, it is likely that the MIC will have to re-evaluate its current approach.

The emergence of competition also threatens the system of cross-subsidies upon which Korea has relied to support universal service. As noted earlier, the government has traditionally sanctioned domestic and international long-distance rates that exceed competitive levels so that the excess returns can be used to drop the price of the local service below competitive levels. Notwithstanding some limited readjustment of long-distance rates toward cost, the evidence suggests that such cross-subsidies have been higher in Korea than in other countries (Nam 2000: 361–2). As each segment becomes more competitive, the supracompetitive returns previously used to subsidize the local service will disappear. As a result, liberalization will inevitably force the government to find a new basis for financing universal service.

Industry concentration

The emergence of real competition in the telecommunications industry is likely to be hampered by the structure of the overall business environment. The dominance exerted by a small number of conglomerates (known as *chaebol*) gives telecommunications markets a greater propensity toward concentration than they would otherwise have were the underlying business environment more diffuse. The excessive concentration of the *chaebol* system is exacerbated by the pattern of cross-ownership that has arisen all too often, as evidenced by the recent proxy fight over Hanaro.

Lingering fear of foreign investment

Finally, the lingering fear of foreign ownership of telecommunications networks continues to affect Korean industrial and economic policy, despite (or perhaps because of) the substantial liberalization of the restrictions on foreign investment. Foreign acquisition of a 14.99 percent stake in the parent company of SK Telecom has sparked worries of foreign influence on corporate management. Latent fears about foreign ownership also affected the proxy battle over Hanaro, as published reports have

agonized over the possibility that AIG–Newbridge might demand key posts on Hanaro's board and might even insist on the right to determine the company's CEO. Others have raised the concern that allowing AIG–Newbridge to acquire Thrunet and Onse would allow it to control 45 percent of the broadband market.

As a result, the Korean government is forced to balance two conflicting forces. On the one hand is the belief in the strategic importance of domestic control over the nation's communications infrastructure, while on the other is the need to stimulate additional foreign investment and to respond to continuing US and EU pressure on Korea to liberalize its foreign ownership limits still further. Foreign investment also represents one of the few viable ways to inject new capital that will not exacerbate the existing levels of industry concentration.

The fact that AIG–Newbridge was allowed to acquire Hanaro suggests that Korea may be overcoming its fear of foreign equity investments in its communications infrastructure. In addition, the government is reportedly considering liberalizing the foreign ownership restrictions to permit local carriers in which a foreign entity owns more than a 15 percent stake to continue to be classified as "local enterprises" so long as the foreign investors do not exercise their voting rights with respect to major management decisions. Although any degree of liberalization is welcome, the government should resist the temptation to continue foreign ownership restrictions if Korea is to realize the full benefits of economic liberalization.

Lessons from the Korean experience

Many aspects of the foregoing assessment of regulatory policy and market performance are unique to Korea and thus are not likely to serve as a basis for drawing larger implications. There are, however, some facets from which some lessons can be drawn.

The role of international pressure toward liberalization

The Korean experience highlights the key role that international pressure can play in opening domestic telecommunications markets to competition. In the absence of foreign intervention, it is unlikely that any significant liberalization of Korea's telecommunications market would have occurred. As noted earlier, the incumbent providers had very little interest in opening their markets to competitive pressures and were content instead to protect their rents through tacit collusion, squabbling only over how those rents should be divided. All too often this happened with the support and encouragement of the government, which, as discussed above, had its own reasons for shielding Korean telecommunications markets from the rigors of competition.

It was international pressure that forced the Korean government to act.

The bilateral negotiations with the US forced Korea to open its market for value-added services and to license additional long-distance and wireless carriers. It was the impending reality of liberalization compelled under the auspices of the WTO's agreement on basic telecommunications services that provided the impetus toward real liberalization (Larson 1995: 228–32; Choi, B.I. 1997; Hong 1998: 699–700; Hyun and Lent 1999).

The role of the government

The development of the Korean telecommunications industry has been shaped in no small part by the close links between the government and the private sector that have long been a hallmark of Korean industrial policy. Such coordination is evident by the manner in which the government has used entry and price controls to limit the competitiveness of particular industry segments. It is also seen in the way the government used its control over research and development funding, procurement policies, and technological standard-setting to foster domestic products, such as TDX digital switches and CDMA handsets. In addition, the government has long relied on a wide variety of informal controls to influence the decisions of private enterprises.

In so doing, the government has long exhibited a willingness to subordinate the promotion of competition to other goals of industrial policy (Bang 1994: 58; Nam 2000: 355, 357–60, 366). For example, the government has frequently limited competition in order to protect new domestic entrants into Korea's fledgling telecommunications industry. It has also insulated companies from competition in order to preserve the system of cross-subsidies needed to support universal service.

This has resulted in a policy consensus that Korean telecommunications markets should be opened to the minimum extent possible. The government fostered the facade of competition in a way that provided minimal compliance with its obligations under international agreements. It was not until the impending completion of the WTO agreement on basic telecommunications services that the Korean government began to take serious steps toward liberalizing its primary wireline markets. The wave of industry consolidation permitted by the government in the aftermath of the Asian financial crisis has revealed that the government may still not be fully committed to liberalization.

This, in turn, has placed a tremendous burden on Korean consumers, who have long been forced to pay prices that far exceeded competitive levels. It has also fostered a degree of cost inefficiency. For example, the evidence suggests that the TDX switching system was inferior in terms of functionality, and that the prices paid for TDX exceeded prices of comparable systems by two to three times. It has also harmed the competitiveness of many Korean businesses in other sectors by raising the cost of the telecommunications services upon which they rely.

Even more problematic is government intervention justified in the name of preventing "excessive competition," in which aggressive price cutting, innovation, and promotional spending threaten to drain all of the profit out of the industry. The continuing influence of this perspective can be seen in the public outcry about the lack of industry profitability and the social dislocation caused by layoffs and falling wages.

Relying on excessive competition as a justification violates Article XVI of the GATS, which prohibits WTO members from limiting the number of service suppliers based on whether the market will be able to absorb a new service supplier without harm to existing service suppliers (GATS 1993: art. XVI). It is also questionable as a matter of economic theory (see Noll 1989: 1257). The uncomfortable reality is that the economic benefits associated with an increase in competition are generally accompanied by increased financial hardship for the entire industry. Firms that were previously able to use regulation to stifle competition were generally able to generate substantial supracompetitive profits. Those firms typically shared part of the economic rents thus created with labor in the form of higher wages in order to obtain their acquiescence to the regulatory regime. The advent of true competition renders such arrangements untenable. Although competition can be expected to cause total output and total employment to increase, it also causes the supracompetitive profits previously enjoyed by the incumbent firms to evaporate. In many ways, a fall in industry profits may more properly be regarded as a sign of economic health. The wages earned by incumbent workers would be expected to fall as well.

Although protecting the profitability of the existing telecommunications providers clearly benefits current stakeholders, such as the investors and employees of the incumbent carriers, it is hard to see how doing so would benefit the general public. Even if one of these companies were to become insolvent, its assets should re-emerge in the hands of another company, so long as the underlying business opportunity is sound and capital markets are functioning properly. Many of the employees may well be retained as well. Intervening to protect existing businesses only serves to insulate stakeholders from the risks inherent in any business enterprise. As such, it is not a proper goal in terms of economic welfare (Nam 2000: 360).

That said, it will undoubtedly prove quite tempting for politicians to stray from their commitment to market liberalization and instead to respond to complaints from incumbent firms, disappointed investors, and organized labor. Positive political theory suggests that regulators are likely to be more responsive to the concerns of such concentrated interests, who will tend to oppose market liberalization, and less responsive to the more diffuse interests of consumers, who are the primary beneficiaries of enhanced competition (Choi, B.I. 1997: 86–9).²⁶ Such temptations must be resisted if the benefits of lower prices, higher levels of investment, and increased innovation associated with competition are to be realized.

The ongoing dispute over the ban on handset subsidies provides an apt illustration of these dynamics. SK Telecom has consistently supported the ban, arguing that high turnover in handsets financed by wireless carriers would represent excessive competition that wastes resources and threatens to drive wireless companies into insolvency. KTF and LG Telecom have insisted that handset subsidies are essential if they are to lure subscribers away from SK Telecom. This is in part because both KTF's and LG Telecom's networks are based on PCS rather than cellular technology, which means that any subscriber recruited away from market leader SK Telecom must necessarily acquire a new handset. Furthermore, the emergence of camera phones has made handsets increasingly expensive, which in turn has made the costs of switching wireless providers all the more onerous. To date, the MIC has consistently invoked concerns about excessive competition to justify continuing the ban on handset subsidies. Maintaining the status quo has allowed SK Telecom to further consolidate its dominance, increasing its share of the wireless market and garnering the highest profits of any telecommunications carrier.

The role of facilities-based competition

The vibrant growth in the value-added and broadband markets also attests to the key role that facilities-based competition can play in fostering the deployment of network infrastructures and in promoting economic welfare. The languid state of Korea's conventional telephone markets demonstrates the lethargy that can result if competition is not sufficiently robust.

In recent years, an active debate has emerged regarding the proper role of local loop unbundling, which requires incumbent local telephone providers to lease key portions of their networks to their competitors at wholesale prices. The initial debate has taken place on the theoretical level. The OECD and the ITU have taken the position that local loop unbundling is an essential precondition to a successful rollout of broadband (ITU 2003a: 26–9; Organization for Economic Co-operation and Development (OECD) 2001: 4, 15–18). Indeed, one commentator has argued that local loop unbundling played a critical role in fostering broadband deployment in Korea (An 2002: 429–30). Other commentators have challenged this position, arguing that unbundled requirements only serve dampen investment in new network facilities by both incumbents and new entrants alike (see, for example, Crandall and Hausmann 2000; Jorde *et al.* 2000; Yoo 2002: 246–7, 268–9; Spulber and Yoo 2003: 897–8, 973, 1020–1). The US decision to abandon local loop unbundling for broadband services has underscored the importance of this debate.

Empirical work testing these theoretical hypotheses has begun to emerge. Studies conducted on US data have tended to show that unbundled access requirements tend to depress investment in telecommunications networks (Ros and McDermott 2000; Crandall *et al.* 2003; but see

Floyd and Gabel 2003: 15–17). Analyses of comprehensive data collected by the OECD in 2001 uniformly conclude that unbundled access to the local loop does not play a significant role in promoting broadband competition (Howell 2002; Kim, J.H. *et al.* 2003: 15; Garcia-Murillo and Gabel 2003: 14–15).

Korea provides an excellent real-world test of the role of unbundling. Interestingly, Korean law did not mandate local loop unbundling until January 2001, long after broadband deployment was well underway. The fact that Korea has nonetheless achieved the highest broadband penetration rates in the world raises further doubts about claims regarding the supposedly critical role played by unbundled access to the local loop. (MIC 2002: 22; ITU 2003a: 12, 67). Instead, Korea achieved its gains through competition from cable modem providers like Thrunet and through private deployment of DSL from wireline carriers like Hanaro. The Korean experience thus suggests that true facilities-based competition may represent a better way to drive broadband deployment.

Conclusion

Although Korea has taken a number of important steps toward opening its markets for telecommunications services, the overall promise of economic liberalization remains unfulfilled. All too often the full benefits of competition have been stymied by the government's willingness to control entry, restrict prices, and condone excessive market concentration. As a result, Korean telecommunications reform remains a work in progress. The real benefits will not be realized until policy-makers fully embrace the decentralized decision-making and learn to tolerate the degree of uncertainty inherent in true economic competition.

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Notes

- 1 For overviews of the initial three restructuring plans, see Cho *et al.* 1996: 359–66, and Choi, B.I. 1998: 249–59.
- 2 For histories of early Korean telecommunications, see Sung 1990, and Kim *et al.* 1992.
- 3 The government also designated two other carriers to handle certain specialized services. Specifically, Korea Port Telecommunications Corporation (KPTC) provided harbor communications services, and Korea Travel Informa-

tion Services (KOTIS) provided travel-related services. Because of their limited mandates, neither emerged as an important telecommunications player.

- 4 Although most of the fees collected remained within KTA, the government did impose a 25 percent "Special Luxury Consumption Tax" on telephone charges that, while collected together with telephone charges, went directly to the Ministry of Finance.
- 5 The oil-rich states that have reached the status of universally served are Brunei, Kuwait, Qatar, and the United Arab Emirates. The states with small geographic areas that have reached this level of service also include Bahrain, Cyprus, Hong Kong, Macau, Malta, and Singapore.
- 6 For an analysis of the first restructuring plan, see Bang 1996.
- 7 See Noam 1987.
- 8 This provision was enacted as §§1371–82 of the Omnibus Trade and Competitiveness Act of 1988.
- 9 For overview, see Cho *et al.* 1996: 359–66, and Choi B.I. 1998: 249–59.
- 10 The story of the postponement is itself a fascinating saga. During the initial negotiations, the US offered to open all of its markets for basic telecommunications services so long as a sufficient number of other countries made similar commitments. Right before the April 1996 deadline for concluding the negotiations, the US withdrew its support for the agreement because, in its view, too few countries had made adequate offers. By February 1997 the number of participating countries had jumped from 48 to 70, and the proportion of global basic telecommunications revenues covered by the agreement increased from 60 percent to 95 percent. Satisfied with the final result, the US joined the agreement.
- 11 A government reorganization undertaken in December 1994 further bolstered the MIC's influence over telecommunications, which eliminated the Bureau of Electric and Electronic Industries formerly housed in the Ministry of Industry, Trade, and Energy and transferred those functions to the MIC (Hong, S.G. 1998: 702–3, 708).
- 12 This abbreviation should not be confused with a similar one created during the first restructuring plan in 1990.
- 13 See Sung 1990, Kim *et al.* 1992.
- 14 The United States, Canada, and the EU have challenged the completeness of KT's privatization before the WTO. Until this challenge is resolved, KT will remain subject to the Government Procurement Agreement (GPA), which prohibits it from bidding on government contracts in signatory nations unless it allows providers from those nations reciprocal access to its own procurement processes.
- 15 LG Telecom's IMT-2000 license is jointly held with Hanaro.
- 16 See also Park and Lee 2002: 610, 612.
- 17 SK Telecom also serves former Shinsegi customers through the 017 access code.
- 18 KTF employs the 016 and 018 access codes; LG Telecom operates through the 019 access codes.
- 19 See also Yoon, C.H. 1999: 291.
- 20 ISDN is an early broadband technology that allows achievement of 128 kbps.
- 21 Indeed, Hanaro would have become insolvent had SK Telecom not provided an infusion of liquidity by purchasing \$102 million in commercial paper.
- 22 The marked prevalence of wireless and Internet penetration in Asian and Scandinavian nations strongly suggests that culture plays a key role in shaping the adoption of new communications technologies.
- 23 *Forbes* 2003; International Telecommunications Union 2003a: 57–60.

24 The dangers of drawing conclusions from anecdotal data are underscored by the reception accorded to Cass Sunstein's book, *republic.com*. In his initial version, he warned that the increasing customization of Internet communications (which he called the "daily me") threatened to fragment civil society. He was forced to retract his claims by the time the paperback version of his book was published after empirical evidence revealed that individuals who obtained their information from the Internet consulted a broader range of sources than did those who obtained their information from more traditional media.

25 See generally Spulber and Yoo 2003: 901–12.

26 For a review of the literature analyzing how regulatory processes tend to over-represent the interests of the regulated industry and organized labor, see Noll (1989).