

On the Deregulation Process in
Japanese Telecommunications

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Japan: Technology and Domestic Deregulation

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A shift in emphasis from quantity to quality, liberalization of private leased circuits, institutional reform, and, of course, rapid technological innovation characterize Japanese telecommunications since the late 1970s. The most salient point associated with the Public Telecommunication Law in effect from 1953 to 1984 is that there were two monopolistic service providers—one domestic and one international. Government units—including Japan National Railways, the Ministry of Construction, and the Self Defense Forces—were permitted to build private networks. The law, however, prohibited all third parties from providing message switching services to the public, outlawed shared use of leased lines, and prevented interconnection of privately operated facilities to the public network.

During the monopoly period, subscriber needs for services advanced and diversified. Nippon Telegraph and Telephone (NTT), as a public corporation and the domestic service provider, had two major goals from its inception: construction of a nationwide automatic dialing system and dissolution of a long waiting list for telephone installation. By 1977, when the number of subscribers had reached 35 million, the second goal had been accomplished. In 1978 the first goal was also attained. NTT and its regulator, the Ministry of Post and Telecommunications (MPT), recognized that they had to redirect policy from a focus on rapid installation to increased usage. By the early 1980s NTT was the largest business corporation in Japan. Annual sales in 1983 were 4,499 billion yen (about U.S.\$35 billion) and there were 318,000 employees.

A wave of new technologies hit telecommunications in the 1970s. Very large scale integrated chips (VLSICs) were developed, making it possible to develop and manufacture electronic and digital switching equipment. This spurred development of highly sophisticated new communication systems based on fiber-optics, microwaves, and satellites. If NTT offered all the emerging services, the largest corporation in Japan would only expand. If NTT did not monopolize

the emerging technologies, services, and equipment, three alternatives were conceivable.

1. NTT would become a monopoly telecommunications facilities holding company leasing facilities to private service companies. As such, it would no longer provide service directly to the general public.
2. NTT would concentrate solely on traditional basic services (i.e., transmission of messages from one end to the other without any information processing or transformation). Telegraph, telex, telephone, and facsimile belong to this category. All enhanced services, including data communication, would be left to competition among private firms.
3. NTT would cease being a monopoly. There would be new entry and competition in all areas of telecommunications.

Private business circles and the Ministry of International Trade and Industry (MITI) were in favor of the second alternative. However, neither NTT nor the MPT liked the first two ideas, partly for political reasons, and chose the last alternative. Thus, in the early 1980s MPT decided to abolish the 1952 NTT Law and the 1953 Public Telecommunications Law and replace them with a new NTT Law and the Telecommunication Business Law.

This chapter continues from the previous one—in the late 1970s—to track deregulation of the domestic industry. For the impact of technology—particularly data processing—on telecommunications, this chapter goes back to the 1960s. Chapter 22 covered international communications.

23.1 Technological Pressure

The deregulation process was affected by technological changes both directly and indirectly. The principal indirect element was how to deal with data communications: There was strong pressure for market entry from the computer industry and others because of the fusion of computers and communications. This was manifest when a private company sought to construct its own on-line information processing system—using circuits leased from NTT—to rationalize its internal office work and communicate with affiliated subsidiaries.

Data transmission service was first introduced in 1964 by Japan National Railways and Japan Air Lines for their seat reservation systems. NTT's opening of data transmission service had an impact on the technology of information processing as well as on telecommunications technology in general. Pressure grew as information processing network systems were needed in both single companies and among diverse businesses. In 1968 NTT started a project called DIPS (for Dendenkosha Information Processing Systems), which entailed research with several electronics companies—including NEC, Fujitsu, and Hitachi—and by 1973 had begun to utilize the result. This kind of joint research promoted the technology capacity of Japanese electronics companies and encouraged the confluence of computer and communication technology, as well as new business stimulation.

NTT's data transmission and on-line information processing network system services increased very rapidly; NTT had installed 200 such systems by the early 1970s. NTT provided private leased circuits to the data processing industry and also owned data processing services connecting users to NTT's computers, especially at DIPS.

The data processing industry pressed MPT to open the system further, and in 1971 MPT proposed an amendment to the Public Telecommunication Law to allow public circuits to be used for data transmission. Shared use of private leased lines, called specific data circuits, was permitted when users shared a close, long-term relationship (such as that between a firm and its wholesalers and banks). However, private line users were prohibited from offering to transmit third-party communications. Only NTT could do this.

Other technological innovation provided opportunities to offer new services. In 1978 NTT offered a circuit switching service, called DDX, over its digital data exchanges. In 1980 packet switching service, DDX data networks, and carphone service were made available. NTT began providing a facsimile network service in 1981, debit cards for pay phones in 1982, and a videotex service called Character and Pattern Telephone Access Information Network (CAPTAIN) and television conference service in 1984. In September 1984 NTT started market tests on its Information Network Service (INS), which is commonly referred to as ISDN. INS was seen as the next evolutionary step in the advancement of communications systems providing for the increased and more complex information needs of individuals and businesses.

The Japanese government, through MPT as well as NTT, recognized the possibility of integrating technological innovation with demands for advanced services and proceeded to adopt a more active policy. In September 1980 MPT upgraded its Division of Telecommunications Policy into a bureau, which ranks with departments as the highest subdivision of, a ministry. In October MPT created the Telecommunications Policy into a bureau, which ranks with departments as the highest subdivision of a ministry. In October MPT created the Telecommunications Policy Conference, which issued a report in August 1981 titled "A Vision of Telecommunications Policy for the 1980s" (DTS 1981). The report urged re-examination of telecommunications administration and laws and the establishment of an integrated plan for the industry. The Conference also suggested a liberalization of data communications.

Following the report, MPT submitted an amendment to the Public Telecommunication Law permitting liberalized use of leased circuits. The ministry also proposed a bill regarding value added transmission operations, the VAN Law, allowing private companies to supply services to third parties. However, MITI, which had supported the information processing policy, and MPT disagreed on the proposal. MPT argued that regulation of VANs was necessary because they provided common carrier services and should assure the privacy of customers and avoid price discrimination. MITI argued that restrictions would interfere with development of the information processing industry.

The VAN Law proposal was ultimately set aside. In October 1982 amendments to the Public Telecommunications Law were enacted instead. Restriction-

tions on third-party use of NTT leased circuits were substantially liberalized and small-enterprise VANs were approved as a temporary measure. This constituted the second deregulation of data communications. (The first, in 1971, allowed connection of computers, information receiving equipment—terminals—and facsimile equipment to NTT public telephone lines.)

Introduction of small-enterprise VANs meant management of companies became highly information-oriented, particularly in the retail, wholesale, and transportation industries. These industries gained new business opportunities through deregulation of telecommunications. MPT probably would have become the government agency heading telecommunications policy even if the VAN Law had been approved.

23.2 The Government Reform Movement

In the early 1980s anxiety about the huge government deficits had increased and there was growing concern with the scale of government involvement in the economy. Thus, in October the cabinet finished drafting a bill to establish a Second Provisional Commission for Administrative Reform (called *Rincho* for short and sometimes referred to as the Second Ad Hoc Council on Administrative Reform, an incorrect translation). This was a powerful agency to confront the government's financial crisis and to decrease its inflated size—more specifically, to head off tax increases by addressing government structure. *Rincho*'s Fourth Division focused on privatization of public corporations such as the nearly bankrupt Japan National Railways. (A good summary of the reform movement is Lincoln 1988, pp. 116–22. The first reform commission, in the early 1960s, led to few changes; see Kumon 1984, pp. 145–47.)

NTT and JNR, as public corporations, were under heavy government control. For example, telephone tariffs and NTT's budget were controlled by the Diet. NTT's investment budget and even the number and salaries of employees were regulated by the Ministry of Finance (MOF). As a consequence, NTT was in many ways inefficient and lacked flexibility in operations. Still, it was considered to have an overall high productivity level.

In its third (July 1982) report *Rincho* recommended that NTT and JNR be privatized. As part of this, NTT would divest certain activities—such as repair and maintenance, CPE, and data communications—as a way of introducing competition. It was also recommended that NTT be divided into a main operating company handling trunk service and several local companies responsible for local service within five years of initial reform. This idea was derived from AT&T's divestiture. *Rincho* was very pessimistic about the possibility of new competitive entrants in the basic telephone service sector but very optimistic about competition among local companies. Such competition would have been indirect because each would maintain a monopoly in its own area. (JNR also was to be split into regional companies—a proposal that was implemented in 1987.)

Opponents of the plan stressed that there would have been substantial costs in

separating local service areas from NTT, including deterioration of technological identification, different pricing structures between regions, and difficulty in separating long-distance carrier revenues from those of the several local telcos. Supporting Rincho's recommendations were those who believed NTT should be confined to basic services.

After publication of the Rincho's report, MPT expressed opposition to privatization of NTT and some of the other proposals. However, MPT changed its opinion and began to prepare a new law in consultation with the governing Liberal Democratic Party (LDP). Privatization—but no divestiture—of NTT was proposed, along with general introduction of competition.

NTT had good relations with Zendentsu, its very powerful trade union, even though NTT's wage levels were decided in parallel with those for employees of JNR, a then very inefficient company with a huge operating deficit. Zendentsu eagerly advocated more flexibility in wage negotiations, arguing that wages were below the average for workers with similar skills in other industries. At its annual conference in 1980, just before Rincho was set up, Zendentsu proposed a set of institutional changes at NTT. These included transforming its public corporation status to a more flexible one, such as "third-sector type companies" (government-private joint ventures), establishing self-management, and deregulation.

After Rincho's report, Zendentsu conducted a campaign against privatization of NTT, collecting about 10 million signatures on a petition to the Diet. However, it changed its strategy when the reform bill was presented in the Diet. Zendentsu negotiated with the LDP and its traditional allies in the opposition parties to amend the bill. Although stressing the public's interest in NTT's nationwide network and asking the government to maintain a balance between this and competition, the union soon recognized it was not going to stop privatization and had a good deal to gain if it involved itself positively in the process. (For more on Zendentsu and its relation to deregulation, see Yamagishi 1989.)

23.3 International Pressure

Deregulation happened simultaneously in several industrialized countries during the early 1980s. This raised international issues because deregulation meant introduction of competition into the global telecommunications market. There have been issues regarding access to Japanese markets. Three things in particular have created problems: supplying equipment to NTT, product standards generally, and mobile communications. The United States has been the major source of the foreign pressure, both because of its own open door to Japanese equipment makers and (irrelevantly) its overall trade imbalance.

23.3.1 Procurement

NTT's equipment procurement policies were being strongly protested by the United States as early as 1978. Up through the 1970s Japan used infant industry

arguments to exclude most non-Japanese equipment. NTT established close relationships with six major suppliers—called the “denden family”—for R&D and procurement. Since January 1981 NTT’s procurement has been in line with the GATT Code on Government Procurement and the Japan–United States agreement on NTT Procurement.

U.S. insistence on opening NTT procurement reflected a desire for reciprocity, given the openness of the U.S. market, and resulting huge exports from Japan to the United States. Japanese exports increased sharply in the early 1980s in part because of the overvalued U.S. dollar. To facilitate buying from foreign manufacturers, NTT’s overseas subsidiaries and representative offices accept tenders in English and provide English-language materials on NTT procurement activities. NTT’s annual overseas purchases, mainly from the United States, increased almost tenfold in the early 1980s, of course from a very small base. Data are in Table 23.1.

23.3.2 Product Standards

Product standards has been another issue—both as an aspect of NTT procurement and in its own right. In talks called the United States–Japan Market Opening Sector Specific (MOSS) Consultation, the United States asked Japan to simplify procedures for approving such things as CPE and microwave communication equipment. It also asked that entry of U.S. firms be promoted, particularly in the microwave market where the U.S. has had superior technology, and that there be clarity and transparency of decision making in telecommunications policy.

Following the MOSS consultation, several U.S. firms entered Japan. For example, as one of the main shareholders, Motorola takes part in management of Tokyo Telemessage, a paging company competing with NTT in the Tokyo metro area. In satellites, JC Sat (Nihon Tsushin Eisei) linked with Hughes (a major shareholder in JC Sat) and another new common carrier called Satellite Japan (Uchu Tsushin) established ties with Ford Motor Co.

Table 23.1. NTT Procurement from Non-Japanese Sources*

Year	Yen	US\$	Year	Yen	US\$
1980	3.8	17	1986	37.1	232
1981	4.4	19	1987	37.9	275
1982	11.0	44	1988	41.4	323
1983	34.8	147	1989	50.4	352
1984	35.1	144	1990	65.6	465
1985	36.9	167			

Source: *Information Communications Almanac 1991*, p 168. Tokyo: Info Com Research Inc.

*Data are for years ending March 31. They are given in billion yen, million U.S.\$.

23.3.3 *Mobile Communications*

A third serious issue involves mobile communications. As far as new entry is concerned, two NCCs (new common carriers) appeared. These are IDO (Nihon Ido Tsushin), a subsidiary of Teleway Japan, introduced NTT's technology, while a subsidiary of Daini Denden entered using Motorola technology. The MPT said it could not assign frequencies to two NCCs in one area (the country is split into ten regions for cellular service) and asked them to unify. Consultations on unification failed, however, and in 1988 both were both permitted to enter, but they were assigned different areas. IDO was assigned the hugely lucrative Tokyo metropolitan area and the corridor to Nagoya. Others were assigned much smaller areas. A Daini Denden subsidiary (Kansai Cellular) got Kansai—which includes Osaka—Japan's second largest market but nothing compared with what was awarded to IDO.

This settlement was obviously unsatisfactory to Daini Denden and Motorola. In 1989 the United States again asked Japan to allow Motorola technology. That June, Japan relented and IDO was directed to change its system to accept Motorola equipment. The government also agreed to consider the possibility of future assignments of frequencies to Motorola equipment in the Tokyo area. There is evidence the delay was motivated by a desire to give Japanese companies time to introduce equipment that more effectively competed with Motorola's, which they did. In any event, IDO began to sell Motorola equipment in October 1991. Future frequency assignments are set for 1993–1994.

23.4 A New Era for the Industry

In April 1985 the Telecommunications Business Law (TBL) and the NTT Law took effect. According to the TBL, carriers were divided into Type 1—those with independent lines providing various carrier services—and Type 2—which lease private lines from Type 1 carriers and provide mainly VAN services. (An excellent book in English explaining the process and nature of the TBL and NTT Law is Bruce, Cunard, and Director 1986. See also Aronson and Cowhey 1988, Kalba 1988, Hills 1986, Ito 1985, and Ito 1983.)

MPT gained regulatory power from the Diet with the new laws, although both MPT and the Diet gave up some authority to the market (or at least to NTT) because one point of the new law was to substantially liberalize Japanese telecommunications. Type 1 carriers are still regarded as public entities along with utilities such as electric power generation and gas companies; they are regulated in the same way. Thus, MPT regulates most Type 1 carrier rates (including those for enhanced services).

New Type 1 carriers must be approved by the MPT, which considers the overall balance between supply and demand. Exit is also controlled by the MPT. Contracted services and tariffs for Type 1 service must be approved, as must agreements on interconnection among carriers. These requirements pro-

vide the industry in general, and the MPT in particular, with wide-ranging powers to direct growth and determine market conditions.

Type 2 carriers, on the other hand, are divided between "special" and "general." Special carriers must receive registration approval from MPT, while the latter need simply notify MPT that they exist.

23.4.1 Controlling the Process

During the 1982 process of liberalizing NTT's private lines, and the 1983–1984 considerations on privatizing NTT, MPT was involved in policy and turf disputes with MITI (see, e.g., Fuchs 1984, pp. 123–41). MPT even insisted that carriers that do not own transmission and switching facilities should be regarded as public carriers because they provide services to third parties. The extension of this position is that special Type 2 carriers must be considered public carriers just like Type 1 carriers. MPT wanted special carriers to be required to obtain the same approval as Type 1 carriers and that foreign capital be excluded. However, in April 1984 MPT abandoned this proposal because of domestic and international opposition; MITI also gave up some of its proposals.

The division of Type 1 and Type 2 carriers was not intended to define differences based on basic versus enhanced services. Thus, there is a problem with this division. For example, leased circuits are provided by Type 1 carriers under a strictly controlled system, while Type 2 carriers can resell their leased private circuits at freely determined prices; therefore, it is possible to have both flexible and regulated prices in the same service market.

The same problem occurs in VAN service. NTT provides data transmission facilities, including on-line data processing and communication processing, while Type 2 carriers can offer the same services. The price and operation of NTT's services is regulated by the MPT, while those of Type 2 are unregulated. In information processing, where there have been rapid technological innovations, NTT particularly welcomed deregulation of data services so it could compete freely with Type 2 carriers.

23.4.2 Funds for the Government

Government finances have been a major beneficiary of NTT's privatization. MOF collected a temporary tax from NTT totalling some 680 billion yen between 1981 and 1984. This alone provides evidence that NTT was not being managed independently. It also shows the degeneration of the principle that tariffs should cover total costs plus reasonable returns.

The government will also have received a substantial amount from selling NTT to the public. Up to two-thirds of the government's holdings can be sold. The first sale came in February 1987: 1.95 million shares were offered at 1,197,000 yen, netting 2.3 trillion for the government. The stock rose quickly and in November 1987 another 1.95 million shares were sold at the market price of 2.55 million yen each, raising about 5 trillion yen. A third offering came in October 1988: 1.5 million shares at 1.9 million yen. Because of the

subsequent decline in the overall stock market there have been no further offerings, although under the original plan they were to have continued each year. Stock market conditions will determine when sales resume. The first three sales put 34 percent of NTT in public hands and brought the government some 11 trillion yen.

23.4.3 Competition—Type 1

As far as the introduction of competition is concerned, there have been many new entrants, both in Type 2 services and, contrary to expectations of the Second Rincho, in Type 1 as well. These are summarized in Table 23.2.

Among the many NCCs, three started private line long-distance service between Tokyo and Osaka, a high-traffic corridor, in 1986, and general service in September 1987. DDI (Daini Denden) is a joint venture involving Kyocera as the principal company (with 25 percent), Sony (5 percent), and other companies using a microwave network. Japan Telecommunications is a subsidiary of Japan National Railways, which built a network using the right-of-way along its tracks. Teleway Japan—a joint venture of Japan Highway Public Corporation, Toyota, and others—installed a network alongside the highways JHPC operates.

The largest new local common carrier is TNet, part of Tokyo Denryoku (Tokyo Electric Power Generation). It is operating in the Kanto (greater Tokyo) area. Many of the expenses in creating networks are only incremental costs to the new entrants' parent companies, many of which are large public utilities that have extensive internal communications needs. They have become telecom providers to diversify because of deregulation in their own industries. Indeed, by doing so they hoped to realize better economies of scope in their operations.

23.4.4 Competition—Type 2

Since 1985 there have been so many newcomers that by October 1991 General Type 2 carriers numbered 960 and Special Type 2 carriers reached thirty-three, up from 688 and twenty-six in May 1989. Special Type 2s are mainly infor-

Table 23.2. Number of New Common Carriers (NCCs) as of August 1988 and October 1991

1988	1991	Type of Carrier
3	3	long distance
2	3	satellite communications
4	7	local networks
2	2	international telecommunications
24	36	pocket beepers
3	16	mobile communication and others

mation processing and software companies. There are no formal restrictions on the entry of foreign companies as Special Type 2s and in 1991 there were twenty-two international VAN business carriers including AT&T, IBM, GE, GTE Telenet, and Tymnet. Domestic firms include Inteck and Japan Information Service, plus electronics companies such as NEC, Fujitsu, Hitachi, and Oki. General Type 2 VANs serve transportation (e.g., Yamato System Development, a spin-off of Yamato Unyu, a major package delivery company), wholesale and retail trade, and financial institutions.

Because of the high rate of technological innovation, the previous NTT monopoly on data processing was steadily challenged during the early 1980s by competitors that quickly identified new business opportunities. Not surprisingly, there has been a big push for deregulation of this sector since 1982.

The biggest change in the Type 2 sector since 1985 happened in July 1988 when NTT Data System was made a corporation separate from NTT; however, all its stock is still held by NTT. (The company is capitalized at 100 billion yen.) Separation was one of the proposals in the Second Rincho report in July 1982. Rincho felt NTT's data processing service had an unfair advantage over leased line carriers. However, there was not much discussion of this particular problem. In the end, separation was conducted for different reasons: NTT wanted it because regulation was too severe to accommodate rapid technological innovation.

Thus the NTT Data spin-off was intended by NTT to help the company meet the competition. With 6,800 employees, first year sales were over 200 billion yen, and 345 billion in 1990. Revenue comes from the development of information processing systems. The company does no manufacturing, so it is classified as a genuine software company. NTT Data also derives benefits from its previously developed public systems, including social insurance systems, and other large-scale systems, such as nationwide banking services.

Its main competitors are big manufacturers. Although NTT Data System is the largest Type 2, its share of the total on-line information processing industry in 1988 was estimated at only around 7 percent. Its sale of transmission processing services, intrinsically a VAN service, was about 30 billion yen, about 18 percent of the total transmission processing market.

23.5 Assessing Competition

For private line and basic telephone service the NCCs initially undercut NTT tariffs by approximately 20 percent. The three NCCs operating long-distance service had 13 million subscribers and revenue of about 300 billion yen in fiscal 1990 (ended March 1991), up from 13 billion in 1987; DDI and Japan Telecommunications were profitable, Teleway was not (and some question its survival). Their combined revenues were about 5 percent of NTT's for fiscal 1990. They have about 16 percent of total long-distance volume and 49 percent of Tokyo-Osaka traffic.

DDI invented an adapter that automatically chooses the least-cost carrier from

among the NCCs and NTT when a user dials, and provided it to subscribers at no charge. The others soon followed with a similar device and DDI has succeeded in reducing it to a single chip, which will allow it to compete for residential customers. The adapters encourage users to give the NCCs business. They were almost a necessity given the complexity of the rate structure when the NCCs began operation—they had different rates and rate bands from NTT and even each other, so each was the low-cost provider in at least some cases. In 1991 the three NCCs adopted identical rate structures, with the exception of where the farthest band begins.

It has become easy to interconnect with NTT. When the NCCs first began offering network service, some of the local (cross-bar type) NTT switches were so old that they could not interconnect the NCCs. NTT had to add to its ID creation function within local and trunk switching or replace older switches with new digital switches. By the end of 1988 there were almost no problems with the ID creation functions in NTT's switching system, particularly in the NCCs's main service area.

NTT paid half the installation cost for points of interface (POIs). In addition, NTT did not ask for access charges, thereby subsidizing the NCCs. The NCCs pay NTT 20 yen a call for access to the local network. About 30 percent of total NCC revenue was paid to NTT as access charges in 1990.

NTT subsequently shifted from cooperation to a more competitive posture. In August 1987 private line rates were cut 10 percent, and rates for long-distance calls over 320 km (NTT's farthest band) dropped 8.3 percent in February 1988. The latter cost NTT 70 billion yen in annual revenues. Although it has no competition, NTT also cut charges on calls to various isolated islands, giving up 10 billion yen annually.

There were a number of cuts in 1989. Rates were cut 10 percent on calls over 320 km (the farthest band) in February and, in response to a request from MPT, on those within 20 km. In November farthest-band calls were cut again. In March 1991 there was a further reduction by having the farthest band begin at 160 km. Cumulative cuts in farthest-band rates since those in effect just before privatization is 40 percent. The NCCs have responded to each NTT cut with their own reductions, although their rates are now much closer to NTT's than they were initially.

23.5.1 Policy Regarding Long Distance

There is a strong procompetition attitude regarding the long-distance market, but this means different things to different participants. There seem to be two general opinions, and discussions of policy largely revolve around them. One opinion is that there will be more competition from now on, and the NCCs will get more market share; in fact, the three NCCs have begun to broaden their service area beyond Tokyo and Osaka and are installing more POIs with NTT. Indeed, the NCCs had installed POIs in every prefecture by 1991 and so could provide nationwide interconnection service. According to this view, competition will make NTT management more efficient and may encourage price re-

balancing, particularly between loss-generating monthly rates and local call charges and profit-making long distance. If this scenario proves correct, it will be necessary to change the present asymmetric regulatory system, which protects new entrants and controls NTT.

Focusing on NTT's sheer size and its control of the local network needed by the NCCs for interexchange, the second opinion is that the present state of competition in long distance is comparable to that between ants and an elephant. This seems to be the MPT view. The policy prescription is that it will be necessary to continue asymmetric regulation to protect the NCCs, or even for NTT to divest some operations, in order to place competition on a more equal footing.

From an economic point of view long distance is a partial monopoly (i.e., there is a dominant company and small fringe ones). The dominant firm is assumed to pursue profit maximization. This means that its prices are an umbrella that fringe suppliers can undercut to gain price-sensitive business. The dominant firm then only satisfies the residual demand, which is total demand minus fringe competitor supply. (For more detail, see Nagai 1990.) Three interesting results can be observed from this model.

1. The greater the elasticity of total demand, the smaller the market power of the dominant firm.
2. The greater the elasticity of supply from fringe competitors, the greater the elasticity of demand for the dominant firm, and the smaller its market power, other things equal.
3. The larger the market share of the dominant firm, the greater its market power.

The last proposition receives considerable attention, but the first two propositions have important consequences to competition. Even if the dominant firm's share is kept at a high level, the higher level of the fringe group's elasticity of supply raises the demand elasticity of the dominant firm and reduces its market power. Further, the dominant carrier generally cannot keep its price enough above its marginal cost.

NTT, the dominant carrier, is obliged to provide universal service and so must subsidize deficit generating services. This restricts NTT's ability to meet its competitors through price competition, which enables the competitors to capture cash flow with which to make further equipment investment. This allows them to capture even more share—as their growth is essentially supply constrained.

If the fringe competitors are protected by regulators—as they often are because of proposition 3—it is much easier for them to increase their capacity. This is characteristic of asymmetric regulation. Since 1989 NTT has had absolute volume losses in some long-distance call markets. In particular, traffic at exchange offices in the Tokyo central business district has decreased. This was partly because of the movement of big business users from public switched network service to private network communications, but inroads by the NCCs also have contributed.

MPT points out that the NCCs must depend on NTT's local network. NTT's local network is therefore said to be the bottleneck for NCC operations. If NTT increases the price of local calls, then the relative advantage of the NCCs is lost. This explains why, in February 1989, MPT pushed NTT to reduce the price of the closest long-distance calls. Other disadvantages NCCs have include the fact they cannot decide the location of POIs, and they do not know which switching equipment is adequate for ID creation. They basically do not have enough network information from NTT, such as how many subscribers there are in each message area and how large the traffic flows are between areas. In early 1989, therefore, MPT also pushed NTT to disclose various network information, including figures on its costs and revenues for local and trunk call services. These claims have been made by MPT to help the NCCs and to discourage NTT from predatory pricing through cross subsidization.

23.5.2 Further Deregulation of Divestiture of NTT?

Several studies by agencies such as MITI and the Fair Trade Commission were made during 1986–1987. These suggested that telecommunications—both Type 1 and Type 2—should be deregulated further. They indicated, for example, that MPT's control of new entrants to the satellite business and international communications was very discretionary and was not transparent regulation. MPT made forecasts of future demand and capacity of production, and based its decisions on them. It was argued that MPT should deregulate pricing for more services—controlling just the core, such as local calls and monthly rental charges. Above all, the reports insisted that deregulation be the general rule and regulation the exception.

In March 1988 MPT responded with a report reviewing the deregulation process up until then. There have been no problems with the deregulation process, the report stated, and the time was not yet ripe for re-examination of the regulation system. It was not necessary to reconsider the Telecommunications Business Law.

MPT instead proposed reconsideration of NTT's management system, pointing out the necessity of dividing NTT into several companies. Such a break-up had originally been suggested by the Second Rincho in 1982. The reason for reviving the proposal, MPT said, was that although competition had been introduced in 1985, it was not really substantial yet and was not occurring on an equal footing—specifically referring to NTT's network information. This is a consideration in the proposal for divestiture of NTT submitted to the Telecommunication Policy Council by MPT.

After its interim report in August 1988 the Council issued a final report in March 1990. It stated that by 1992 NTT should spin off its mobile phones operations and that by 1995 long-distance should be spun off. In other words, NTT was to be split in three. The cabinet, and MOF in particular, opposed this in part out of concern for those who had bought NTT shares. MITI also opposed breaking up NTT—although its Information Industry Advisory Committee, which had issued a report on telecommunications a few months before the

Council's, was strongly critical of the company and called for more competition. MPT indicated it would defer a decision on a split up, but would ask NTT to structure its operations into the three lines of business.

In mid-1991 MPT issued "administrative guidelines" for NTT. By April 1994 NTT was to provide a local network interface for any rivals in each of the forty-seven prefectures. By June 1993 NTT was to release cost data that would be used to create interconnection tariffs to take effect in April 1995.

23.6 Conclusion

Since privatization, NTT has tried to increase its productivity through management reorganization and a 6-percent decrease in its work force during the first three years (1985–1988). Thus, despite price reductions for long-distance and private lines, NTT continues to earn good profits—approximately 373 billion yen pretax for the year ending March 31, 1986, and 411 billion for fiscal 1990. It also increased its R&D expenditures from 136 billion yen in 1986 to 262 billion in 1990. NTT plans to fully digitalize its network system, which will require a major commitment of capital.

It seems privatization of NTT and introduction of competition have been very successful in many ways. Indeed, according to the 1988 annual White Paper of the Economic Planning Agency, new entrants made 700 billion yen in investment during the first three years. Still, prospects remain unclear.

Counterpoised against the appearance of deregulatory success are problems concerning the structure of competition. NTT's tariff does not reflect the competitive climate. As competition proceeds, there will need to be changes in the tariff structure. Prices have to reflect costs, including opportunity costs. My expectation is that some new method, such as a system of access charges, volume discounting, or even price discrimination between low- and high-traffic routes, will be introduced.

Digitalization of the network will further promote the fusion of communications and computer technology, as well as the structure of competition. For example, a Type 1 carrier can afford to provide enhanced services just as easily as VAN service providers (Type 2 carriers, which currently lease private digital data circuits from Type 1 carriers). With competition in ISDN, the economies of integration, including economies of scale and scope, must be reconsidered.

As digitalization encourages multimedia services, the public-interest aspects of telecommunications that justify government regulation will change. This means there will be much more change in both competition and regulation in Japanese telecommunications.

Bibliography

- Aronson, Johathan D., and Peter F. Cowhey. 1988. *When Countries Talk: International Trade in Telecommunications Services*. Cambridge, MA: Ballinger.

- Bruce, Robert R., Jeffrey P. Cunard, and Mark D. Director. 1986. *From Telecommunications To Electronic Services*. London: Butterworths.
- Denki Tsushin Seisaku Kondankai Teigen. 1981. *80-Nendai No Denki Tsushin Seisaku No Arikata*. Tokyo.
- Fuchs, Peter E. 1984. "Regulatory Reform and Japan's Telecommunications Revolution." In *U.S.—Japan Relations: New Attitudes for a New Era, 1983—1984 Annual Review of the Program on U.S.—Japan Relations*. Harvard Univ., Center for International Affairs.
- Hills, Jill. 1986. *Deregulating Telecoms: Competition and Control in the United States, Japan, and Britain*. London: Frances Pinter.
- Ito, Youichi. 1983. "Recent Trends in Telecommunications Regulation and Markets in Japan." In *Forum 83, 4th World Telecommunication Forum Part 3 Legal Symposium on International Information Networks*. Geneva: International Telecommunications Union. Reprinted in *Jurimetrics* 25(1): 70–81 (1984).
- . 1985. "Implications of the Telecommunications Policy Reform in Japan." *Keio Communications Review* 6: 7–18.
- . 1986. "Telecommunications and Industrial Policies in Japan; Recent Development." In Marcellus S. Snow, ed., *Telecommunications, Regulation and Deregulation in Industrialized Democracies*. Amsterdam: North-Holland.
- Kalba, Kas. 1988. "Opening Japan's Telecommunications Market." *Journal of Communication* 38(1): 96–106 (Winter).
- Kumon, Shumpei. 1984. "Japan Faces Its Future: The Political Economics of Administrative Reform." *Journal of Japanese Studies* 10:155 (Winter).
- Lincoln, Edward J. 1988. *Japan—Facing Economic Maturity*. Washington, D.C.: The Brookings Institution.
- Nagai, Susumu. 1987. *Seifu Kiseikanwa Bunya nitsuiteno Hyoka to Mondaiten no Bunseki (Evaluation and Analysis of Problems with Deregulated Industry, In Case of Telecommunication)*. Fair Trade Commission Monograph Series.
- . 1990. "On the Competition of Telecommunications under Regulation in Japan." *Journal of International Economic Studies* (Hosei Univ., Institute of Comparative Economic Studies), p. 4.
- Nippon Telephone and Telegraph (Nippon Denshin Denwa Kosha). 1986. *Shinsei NTT eno Kiseki (Steps to the New NTT)*. Joho Tsushin Sogo Kenkyujo. Tokyo: NTT.
- Yamagishi, Akira. 1989. *NTT Ni Asuwa Aruka (Is There Tomorrow for NTT?)*. Tokyo: Nihon Shoronsha.