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Introduction

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 1935 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. But the law 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 telecommunication services advanced and diversified. Nippon Telegram 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 1987 the first goal was also attained. NTT and its regulator, the Ministry of Post and Telecommunication (MPT), recognized they had to redirect policy from a focus on rapid installation to an increase of usage. By the early 1980s NTT was the largest business corporation in Japan. Annual sales in 1983 were 4,449 billion yen (about US$35 billion) and there were 318,000 employees.

A wave of new technologies hit telecommunications in

the 1970s. 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 telecommunication services, the largest corporation in Japan would only expand. If NTT did not monopolize the emerging technologies, services and telecommunication 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--that is, transmission of messages from one end to the other without any information processing or transformation. Telegram, telex, telephone, and facsimile belong to this categoly. 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 competiton 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 Telecommunication Law and replace them with a new Nippon Telegraph and Telephone Company Law and the Telecommunication BusinessLaw.

1 Technological Pressure

The process of deregulating telecommunications was affected by technological changes both directly and indirectly. How to deal with data communication was the principal indirect element: reflecting the fusion of computers and communications, there was strong pressure for market entry from computer industry and others. This was manifest when a private company sought to construct its own online information processing system--using circuits leased from NTT--to rationalize its internal office work and communicate with affiliated subsidiaries.

Data transmission service itself was firstly introduced in 1964 by Japan National Railways and Japan Airlines for their seat reservation systems.

NTT's opening of data transmission service had an impact not only on the technology of information processing but also on telecommunication technology in general. Pressure grew as information processing network systems were needed not only within a single company but among diverse business. In 1968 NTT started a project called DIPS (for Dendenkosha Information Processing Systems) which entailed research with several computer manufactures, 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 computer manufactures and encouraged the confluence of computer and communication technology, as well as stimulating new business.

NTT's data transmission and online information processing network system increased very rapidly; by the early 1970s NTT had installed 200 such systems. For data transmission, 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 car phone 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 CAPTAIN (Character and Pattern Telephone Access Infoamation Network) and television conferance service in 1984. In September 1984 NTT started market tests on INS, its Information Network Service, which is commonly referred to as ISDN. INS was seen as the next evolutionary step in advancement of communications systems providing for the increased and more complex information needs of individuals and businesses.

The Japanese government through the Ministry of Post and Telecommunications (MPT), as well as NTT, recognized the possibility of integrating technological innovation with demands for advanced services and proceeded to adopt a more active telecommunications policy. In September 1980 MPT

upgraded its Division of Telecommunications Policy into a Bureau, which is the viertual government unit responsible for Telecommunication Policy. In October MPT created the Telecommunication Policy Conference, which issued a report in August 1981 titled "A Vision of Telecommunications Policy for the 1980s". The report urged re-examination of telecommunications administration and laws and establishment of an integrated plan for the industry. The Coference also suggested a liberalization of data communications.

Following the report, MPT submitted an amendent to the Public Telecommunication Law permitting more 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, should protect the privacy of customers, and avoid price discrimination. MITI argued that restrictions would interfere with development of the information processing industry.

Ultimately, the VAN proposal was set aside and instead, in October 1982, amendments to the Public Telecommunications Policy Law were enacted. Restrictions 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 commuications. (The first, in 1971, allowed connection of computers, information receiving equipment (terminals), and facsimile equipment to NTT public telephone lines.) Introducution 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 became the government agency heading telecommunications policy even if the VAN Law had been approved.

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 September 1981 the Diet approved establishment of the Second Ad-hoc Commission for Administrative Reform (called, for short, Rincho). This was a powerful agency intended 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 4th Division focused on privatization of public corporation such as the nearly bankrupt Japan National Railways. (A good summary of the reform movement is Lincoln 1989, p116-22. The first reform commission, in the early 1960s, led to few changes; see Kumon 1984, p.145-47.)

NTT and JR, 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.

Rincho recommended in its third (July 1982) report that NTT and JR be privatized. As part of this, NTT would divest

certain activities--such as repair and maintenence. CPE, and data communications--as a way of introducing competition in the telecommunications market. It was also recommended that within five years of initial reform, NTT bedivided into a main operating company handling trunk serviceand several local companies responsible for local service. This idea was derived from AT&T's divestiture. Rincho was very pessimistic about the possibility of new competitive entrants in 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 to the plan stressed that there would have be substantial costs in separating local service areas from NTT, including deterioration of technological identification, different pricing structures between local companies, and differently in separating long distance carrier revenues from those of the several local telcoms. Supporting Riccho'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 telecommunication law in consultation with the governing Liberal Democratic Party (LDP). Proposed was privatization--but no divestiture--of NTT, and geaeral introduction of competition in telecommunication markets.

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 negotiation, 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 a "third sector type company," (the joint venture of government and private business) 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 governing LDP and its more 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 competitions. 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).

3 International pressure

Deregulation of telecommunication happened simultaneously in several industrialized countries during the early 1980s. This raised international issues, as deregulation meant introduction of competition into the global telecommunications market. For Japan, there have been issues regarding access to Japanese markets. Three things in particular have created problems regarding

domestic telecommunications: supplying NTT, product standards generally, and mobile communications. The US was the major source of the foreign pressure, both because of its own open door to Japanese equipment makers and (irrelevantly) its overall trade imbalance.

3.1 Procurement

NTT's equipment procurement policies were being strongly protested by the US as early as 1978. Up through the 1970s, NTT, as a public corporation, had a long term contract with 4 major domestic suppliers which were considered as NTT family. They also acted jointly concerning R&D of switching equipment and so on.

US insistence on opening NTT procurement reflected a desire for reciprocity, given the openness of the US market, and resulting huge exports from Japan to the US (Table 1). Japanese exports increased sharply in the early 1980s in part because of the over-valued US dollar. Since January, 1981 NTT's procurement has been in line with the GATT Code on Government Procurement and the Japan-US Agreement on NTT Procurement. To facilitate buying from foreign manufactures, 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 US, increased almost ten-fold in the early 1980s.

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 US-Japan MOSS (Market Oriented Sector Selective) Consultaion, the US asked Japan to simplify procedures for

approving such things as CPE and microwave communication equipment. It also asked that entry of US firms be promoted, particularly in the microwave market where the US has had superior technology, and that there be clarity and transparency of decision making in telecommunications policy.

Following MOSS consultation, several US firms entered Japan. For example, Motorola took part in management of Tokyo Telemessage --a paging company competing with NTT in the Tokyo metro area--as one of the main stockholders. 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..

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 were IDO Co. (Nihon Ido Tsushin), a subsidiary of Teleway Japan, introducing NTT s technology, and a subsidiary of Daini Denden, which entered using Motorola technology. The MPT said it could not assign frequencies to two NCCs in one area, and asked them to unify. But consultation on unification failed, and in 1980 both were permitted to enter; however, they were assigned different areas. IDO was assigned the hugely lucrative Tokyo Metropolitan area and the corrdior to Nagoya. Other were assigned much smaller areas. A Daini Denden subsidiary (Kansai Cellular) got Kansai--which includes Osaka--Japan s second largest market, but nothing compared to what was awarded IDO.

This settlement was obviously unsatisfactory to

Motorola. In 1989 the US again asked Japan to accept Motorola technology. In 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. In any event, IDO began to sell Motorola equipment through TACS (Total Access Communication System) in October 1991. And future assignments of frequencies are scheduled to be done in 1994.

4.A New Era for the Telecommunications Industry

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

MPT gained regulatory power from the Diet with the new laws, though 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 liberalized Japan's telecommunications market. Type I carriers are still regarded as public entitles along with utilities such as electric power generation and gas companies and are regulated in the same way. Thus MPT regulates most Type I carrier rates (including rates for enhanced services).

New Type I carriers must be approved by the MPT, which considers the overall balance between supply and demand in

the market. Exit, as well as entry, of carriers is also controlled by the MPT. And contracted services and tariffs for Type I service must be approved; further more, agreements on interconnection among carriers, if necessary, require MPT approval. These requirements provide the industry in general, and the MPT in particular, with wide-ranging powers to direct growth and determine market conditions.

Type II 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.

4.1 Controlling the Process

During the 1982 process of liberalizing NTT's private lines, and the 1983-84 considerations on privatizing NTT, MPT was involved in policy and turf disputes with MITI (see, eg, Fuchs 1984, p123-41). MPT insisted even 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 II carriers must be considered public carriers just like Type I carriers. MPT wanted special carriers to be required to obtain the same approval as Type I carriers and that foreign capital be excluded. However, in April, 1984, MPT abandoned this proposal because of domestic and international opposition, and MITI also gave up some of its proposals.

The division of Type I and Type II carrieres was not intended to define difference in telecomunication services according to basic and enhanced service. But there is a problem with this division. For example, leased circuit

service is provided by Type I carriers under a strictly controlled system, while Type II carriers can resell their leased private circuits at freely determined prices, so it is possible to have both flexible and regulated prices in the same service market.

The same problem occurs in VAN service. NTT pvovides data transmission facilities, including online data processing and communication processing services, while Type II carriers can offer the same services. The price and operation of NTT's services is regulated by the MPT, while those of Type II are unregulated. In the information processing market, where there have been rapid technological innovations, NTT particularly welcomed deregulation of data services in order to compete freely with Type II carriers.

4.2 Cash for the Government

Government finances have been a major beneficiary of NTT's privatization. (KDD was privatized from its beginning in 1953.) Before the privatization, the 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 telecommunications tariffs should cover total costs plus reasonable returns.

The gonernment will also have received a substantial amount from selling NTT to the public. Up to two-thirds of government holders can be sold. The first sake came in February 1987: 1.95 million shares (one eight of total 15.6 million shares) were offered at 1,197,000 yen, netting 2.3 trillion yen for the government. The stock rose quickly and in November 1987 another 1.95 million shares were sold at the market price of 2.25 million yen each, raising about 5

trillion yen. A third offering was made in October 1988: 1.5 million shares were sold at 1.9 million yen. A fourth offering has not yet been made because of a sharp decline in stock market prices. Anyway, MOF was able to get about 11 trillion yen by selling about 35% of total NTT's shares.

4.2 Competiton-Type I

As far as the introduction of competiton is concerned, there have been many new entrants, not just in Type II sevices, but--contrary to expectations of the Second Rincho--in Type I as well.

Among the many NCCs, three started private line long distance service between Tokyo and Osaka, a high traffic corridor, in 1986, and general telecommunication service in September 1987. The three are DDI (Daini Denden) a joint venture involving Kyosera as the principal company and an installec microwave network; Japan Telecommunications, a subsidiary of Japan National Railways, which could construct a network using the right-of-way along its tracks; and Teleway Japan--a joint venture of the Japan Highway Public Corporation, Toyota, and others--which could install a network alongside the highways JHPC operates.

The largest new local carrier in TTNet, part of Tokyo Denryoku Co. (Tokyo Electric Power Generation). It is operating Kanato area (inclusive of Tokyo metropolitan area).

Many of the expenses in creating networks are only incremantal costs to the new entrants parent companies, many of which are large public utilities such as JNR and TEPG, and they already had enough capability to build a telecom network. They have become telecommunication providers to diversify their business because of deregulation in their

own industries. Indeed by doing so they hoped to realize better economies of scope in their operations.

4.3 Competition-Type II

Since 1985 there have been so many newcomers that by October 19 GeneralType II carriers numbered 960 and Special Type II carriers reached 33. Special Type II's are mainly information processing and software companies. There are no formal restrictions on the entry of foreign companies as Special Type II's, and in 1991 there were 22 international VAN business carriers including AT&T, IBM, GE, Tymnet, and GTE Telenet. There were also domestic firms including Inteck and Japan Information Service, plus computer manufactures such as NEC, Fujitsu, and Oki. General Type II VANs serve transportation (eg, Yamato System Development, a spin off of Yamato Unyu CO. a major package delivery company), wholesale and retail trade, and financial institutions.

The biggest change in the Type II 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.)

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

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 differnt 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 competiton. With 6,800 employees, first year sales were expected to reach 216 billion yen. (By 1990, their revenue increased to 345 billion yen.) Revenue comes from 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 manufactures. Although NTT Data System is the largest Type II carrier, its share of the total online information processing industry in 1988 was estimated at only around 7%. Its sale of transmission processing services, intrinsically a VAN service, was about 30 billion yen, about 18% of the total transmission processing market.

5.Assesing competition

For private line and basic telephone service the NCCs undercut NTT tariffs by approximately 20%. The three NCCs operating long distance service had 13 million subscribers and had revenue of about 300 billion yen fiscal 1990 (ended March 1991), up from 13 billion in 1987; two were profitable. They have about 16% of the total long distance traffic volume, and 49% of the Tokyo-Osaka traffic volume, even though their total revenues are only 5% compared with those of NTT 1991.

The three NCCs invented an adapter that automatically chooses the least cost carrier from among the three NCCs and NTT when a user dials, and provided it to their subscribers at no charge. This has encouraged users to give the NCCs business. This was 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, as 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 swithches 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 function in NTT's switching system, particularly in the NCCs's main service area.

NTT paid half the installation cost for POIs (Points Of Interface) and in addition did not ask for access charge, thereby subsidizing the NCCs. So, the NCCs pay NTT only a market price, 20 yen for access to the local network. About 30% of total NCCs revenue was paid to NTT as a charge for access to local network in 1990.

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

requirements isolated islands, giving up 10 billion yen annually. Rates on calls over 320km were cut another 10% on February 1, 1989. In response to a request from MPT, NTT reduced the closest long distance call charges within 20km by 10% in 1989, forgoing another 10 billion a year.

And in November 1989, NTT reduced its long distance call charge over 320km from 330 yen to 280 yen, and again in March 1991, cut the rate to 240yen and changed the farthest band to over 160km. Whenever NTT cut its long distance call charge, NCCs caught up with NTT and kept the rate differential. So far the price of NTT's farthest calls has decreased 40% compared to before privatization. Table 4 has comparisons of rates.

5.1 Policy Regarding The Long Distance Market

There is a strong pro-competition attitude as regards the long distance market, but this means different things to different participants. There seems to be two general opinions, and discussions of telecommunications policy largely revolve around them. One opinion is that there will be more competition from now on, and the NCCs will increase its market share; in fact, the three NCCs have already begun to broaden their service areas beyond Tokyo and Osaka and are installing more POIs with NTT. Indeed, as NCCs have installed POIs in every prefecture of Japan, they can now in 1991, provide nationwide intercommunication telecom service. According to this view, competition will make NTT management more efficient and may encourage price rebalancing, particularly between loss-generating monthly rates, local calls charged 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 restricts NTT from rebalancing.

Focusing on NTT's dial share 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 the long distance market 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 the economic point of view, the long distance market is similar to a partial monopoly. That is, there is one dominant company and several small fringe ones. The dominant firm is assumed to pursue profit maximization. This means 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 from this model can be observed.

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 market share is kept at a high level, the higher level of the fringes

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 adequately above its marginal cost.

NTT, the dominant carrier, is obliged to provide universal service and so must cross-subsidize deficit generating services. This restricts NTT's ability to meet its competition through price competition, which enables the competitors to capture cash flow with which to make further equipment investment. This allows them to capture an even larger market 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 experienced absolute volume losses in some long distance call markets. In particuar, the 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 provide network communications, but inroads by the NCCs also contributed.

MPT points out the NCCs must depend on NTT's local network. So NTT's local network is said to be as a bottle-neck facility for NCCs operation. If NTT increases the price of local calls, 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 call. 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. Basically, they do not have enough network information from NTT, such

as how many subscribers there are in each message area, and how much flow of traffic there is among each message area. So, in early 1989, MPT also pushed NTT to disclose various network information, including figures on its costs and revenues for each type of telecommunications service, including 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.

5.2 Further Deregulation or Divestiture of NTT?

Several studies by agencies such as MITI and the Fair Trade Commission were made during 1986-87. These suggested the telecommunication business, including not only Type I but also Type II carriers, 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 the MPT should deregulate pricing for more services--controlling just the core, such as local calls and monthly rental charges. Above all, the reports insisted deregulation be the general rule and regulation be the exception.

In March 1988 the 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.

Instead, the MPT 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, the 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. Thus, NTT possesses information about the traffic and customers of the NCCs, while they lack enough network information, including traffic volumes between various MAS. This is a consideration in the proposal for divestiture of NTT submitted to the Telecommunication Policy Council by the MPT. After the interim report of August 1988, the Telcommunication Policy Council issued the final report in March 1990, stating that NTT should be divided into a long distance call company and a local call company until 1995, and NTT's division of mobile telecommunication should be sep arated in a few years. But the Cabinet, especially the MOF, opposed this recommendation because they were very concerned about share-holders' interests. Therefore, the MPT had to postpone their decision on NTT's divestiture until 1995. They asked NTT to separate its mobile communication sector in a few years and also requested NTT to separate its long distance call business sector from its local call network business sector, in order to establish more a competitive condition with NCCs.

6 Conclusion

Since privatization, NTT has tried to increase its productivity through management reorganization and a 23,000 decrease in its work force during the first three years (1985-88). 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 1990--and increased its R&D expenditures from 136 billion yen in 1986 to 262 billion in 1990. NTT plans to digitalize its network system, which will require major commitment of capital.

It seems privatization of NTT and introduction of competition into the telecommunications market 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 investments during the first three years. Still, prospects remain unclear.

Counterpoised against the appearance of deregulatory success are problems concerning the structure of competition. NTT has not changed its tariff structure since privatization--rates differ by distance, with a ratio of 12:1 for closest to farthest long distance, 24:1 including local message area calls. Because costs do not vary so much by distance, this means there is still substantial cross-subsidy between local network service, including rental charges, and trunk call charges. Since the beginning of competition, NTT has not been allowed to change its tariff structure because it has been compelled to assist the new interexchange carriers.

NTT's tariff does not reflect the competitive climate. As competition proceeds, there will be changes in the tariff structure. Prices will have to reflect costs, including opportunity costs, and reflect some kinds of balanced pricing. Some new method, such as a system of access charges and volume discounting price, and more even price discrimination between low and high traffic routes, will probably be introduced.

NTT started ISDN service in April 1989 with "INS Net

64" service. The interface consists of two 64 kb/s channels for switching service and one 16kb/s channel for packet switching (called 2B+D). In 1989 it introduced a more advanced service known as "INS Net 1500," which makes possible multi-media services, such as communication by voice, data and picture.

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

As digitalization of the network encourages multi-media services, the public-interest aspects of telecommunications that justify government regulation will change. Therefore, there will be much more change in both competition and regulation in the Japanese telecommunication market.

Table 1

US-Japan Trade in Telecommunications Equipment
(million US$)

Old Series			New Series 1		
Year	Exports from US	Imports into US	Year	Exports from US	Imports into US
1979	129		1985	257.6	3740.5
1980	143		1986	324.3	3939.0
1981	182		1987	429.5	3868.4
1982	174		1988	588.1	3943.3
1983	208		1989	861.8	5334.0
1984	206				
1985	241				
1986	312				

Exports are FAS, imports are customs value, both using US sources, Note that in aggregate listings "telecommunications equipment" generally includes radios, televisions, stereo, and audio video cassette recorders. Exports of these items to Japan from the US are not disaggragated in the old series sources, and thus are included, but they are minimal.

1 SITC rev 3 commodity #764 "telecommunications equipment, nes & pts, nes." These data are not directly comparable to earlier data because of revisions to the classification system.

Source: U.S. Dept. of Commerce. The new series is from its Intl. Trade Admin, US Foreign Trade Highlights 1989, p.100-01.

Table 2

NTT Procurement from Non- Japanese Sources
(billion yen, million US$)

Year	Yen	US$	Year	Yen	US$
1980	3.0	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			

Data are for years ending Mar 31.

Sources: Information Communications Almanac 91, p.168 (InfoCom Research Inc, Tokyo)

Table 3

Number of New Common Carriers (NCCs) as of August 1992

number	type of carrier
3	long distance
3	satellite communications
7	local networks
2	international telecommunications
19	mobile communication and others
36	pocket beepers

Table 4

Long Distance Charges, NCCs and NTT, August 1992
(in Yen, per 3-minute call)

Band	NTT			3NCCs d	
km	Peak	Off-Peak		Peak	Off-Peak
		a①	b②		c
-20	20		20	50	40
-30	40		30	50	40
-40	60		50	50	40
-60	90		70	50	40
-80	120	90	80	80	50
-100	140	90	80	100	50
-160	180	100	90	140	70
-170	200	120	110	180	90

Note

a. Off-Peak time ① of NTT means weekdays night (From 19:00 to 23:00) and weekend (from 8:00 to 23:00).

b. Off-Peak time ② of NTT means midnight (from 23:00 to next morning 8:00)

c. Off-Peak time of NCCs means night and early morning (from 19:00 to 8:00)

d. Prices of 3NCCs are end-to-end service price which includes NTT's local (MA) call charge of ¥10 + ¥10.

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 O. Director. 1986. From Telecommunications To Electronic Services. Butterworths.

DTS=Denki Tsushin Seisaku Kondankai Teigen. 1981. 80-Nendai No Denki Tsushin Seisaku No Arikata.

Fuchs, Peter E. 1984. "Regulatory Reform and Japan's Telecommunications Revolution." In US-Japan Relations: New Attitudes for a New Era, 1983-84 Annual Review of the Program on US-Japan Relations. Havard 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 Trades 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, editor, Telecommunications, Regulation and Deregulation in Industrialized Democracies. 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 DC: 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.

Nagai, Susumu. 1990. "On the Competition of Telecommunications Under Regulation in Japan", Journal of international Economic Studies (1990) No.4. The Institute of Comparative Economic Studies, Hosei University

NTT = Nippon Telephone and Telegraph (Nippon Denshin Denwa Kosha). 1986. Shinsei NTT eno Kiseki (Steps to the New NTT). Joho Tsushin Sogo Kenkyujo.

Yamagishi, Akira. 1989. NTT Ni Asuwa Aruka (Is There Tomorrow for NTT?). Nihon Shoronsha.