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COMPETITION AND REGULATION IN TELECOMMUNICATIONS: JAPAN'S REFORM EXPERIENCE SINCE 1985*

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Abstract

Using Joskow's framework of regulatory reforms in network infrastructure industries with economies of vertical integration between natural monopoly segments and potentially competitive segments, we examine Japan's experience of telecommunications reform since 1985. Its background and contents is explained, and the post-1985 regime and industry performance is examined. The implementation of Japan's reform does not fall within Joskow's polar cases of the *big bang approach*, where all steps are taken at one stroke, and the *piecemeal approach*, which allows transition period during which the industrial organization and regulations evolve according to a preplanned program. Japan's experience is rather the *unstructured gradualist approach*, where the initial model is monitored and reoriented in view of the spontaneous evolution through competition in the liberalized segments. This approach presupposes the intangible infrastructure reform of regulatory framework and decision-making mechanism. Japan's rocky reform experience is partly due to the lack of such an intangible infrastructure reform.

Keywords: Telecommunications reform; Regulated competition; Network infrastructure; Procedural fairness

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I. *Introduction*[1]

In his careful and systematic analysis of regulatory reforms in network infrastructure industries characterized by economies of vertical integration between natural monopoly segments and potentially competitive segments, where a vertically integrated state monopoly initially prevails under regulatory control, Paul Joskow (1998) aptly identified the following three basic reform models:

(a) Privatize the incumbent state monopoly without introducing competition into the potentially competitive segments, thereby preserving the economies of vertical integration in this industry;

(b) Allow the incumbent state monopoly to remain vertically integrated, but promote new entry of firms into the potentially competitive segments by guaranteeing new competitors of fair access to the incumbent's bottleneck network facilities; and

(c) Divest the vertically integrated state monopoly into the natural monopoly segments, which should be kept under regulatory control, and the competitive segments, where new entry of firms should be facilitated by guaranteeing all competitors of fair and equal access to the incumbent's bottleneck network facilities.

A typical example of such a network infrastructure industry is the telecommunications industry, where local telephone exchange service is supposedly a natural monopoly, whereas long-distance telephone exchange service has become potentially competitive due to new technologies.

Among these three policy options, Joskow maintains that the option (a), in combination with privatization of the state monopoly and regulatory reform, qualifies as "a potentially viable strategy in some countries, where appropriate regulatory and commercial arrangements can be introduced to make regulated monopoly infrastructure sectors perform reasonably well [Joskow (1998, p.17)]." It seems to us, however, that this first option is not really a serious contender for viable infrastructure reform design, as "[t]urning a state monopoly into a private monopoly ... is unlikely to help create a more dynamic market economy [Stiglitz (1998, p.2)]." In contrast, the other two options identified by Joskow seem to deserve serious scrutiny. The purpose of this paper is to shed some lights on the nature of these two reform models by using Japan's telecommunications reform experiences since 1985 as a concrete case study.

II. *The Background of the 1985 Telecommunications Reform in Japan*

The 1985 telecommunications reform may be regarded as an important watershed in the history of Japan's telecommunications industry in the post-WWII period. Prior to this

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[1] This paper capitalizes heavily on Suzumura (1998a; 1998b) and updates it as much as possible.

institutional reform, Japan's domestic telecommunications were under complete state monopoly by a public corporation called *Nippon Telegraph and Telephone Public Corporation* (NTT Corporation, for short). The NTT Corporation was privatized by the 1985 reform, but the newly created private company called *Nippon Telegraph and Telephone Company, Incorporated* (NTT Company, for short) remained vertically integrated. This reform also introduced actual competition into the potentially competitive segments, and new entry of firms was strongly encouraged by the Ministry of Posts and Telecommunications (MPT, for short) which is in charge of this industry.

Two idiosyncracies of this epoch-making reform clearly stand out and deserve emphasis. In the first place, not only the vertically integrated giant carrier NTT, but also the new common carriers (NCCs, for short) in the liberalized competitive segments were under meticulous regulation by MPT. In this sense, the newly introduced competition in this arena was tightly handcuffed by discretionary regulation pursued by MPT. In the second place, the 1985 reform was incomplete in the sense that it deferred an important public decision as to whether or not the vertically integrated giant carrier NTT Company, which inherited enormous network facilities from NTT Corporation, should be divested into the natural monopoly segments and the competitive segments. It was simply stipulated in the law that the government would review the issue after 5 years since the 1985 reform.

To understand the 1985 reform and its aftermath in proper perspective, it is useful to pay a brief visit to the historical background of this crucial reform. In particular, there are three facts which are worth remembering in this context.

To begin with, MPT and NTT Corporation/Company share the common genesis in the Ministry of Communications, which was replaced in 1949 in consultation with the Occupation Authorities by the Ministry of Postal Affairs in charge of the mail, postal savings and postal life insurance systems, and the Ministry of Telecomunications in charge of rebuilding the devastated telegraph and telephone systems. It was in 1952 that the Ministry of Telecommunications was further transformed into the government-owned public corporation, viz. NTT Corporation, which legally monopolized all domestic telecomunications services in Japan. Simultaneously, the Ministry of Postal Affairs became MPT with jurisdiction over NTT Corporation.[2,3]

The relation between MPT and NTT Corporation/Company has been tense ever since. After the 1949 divestiture, almost all the engineers and technicians went to the Ministry of Telecommunications, and then to NTT Corporation in 1952. Under the 1952 regime, there were only two bureau-level telecommunications supervisors within MPT, and one of them was a staff member leased from NTT Corporation. Thus, there is no exaggeration to say that MPT's role as the official supervisor of NTT Corporation was at most nominal, and MPT was nothing but a liaison between NTT Corporation and the Diet which approved NTT's annual budget, rates and top personnels.

The status of MPT vis-à-vis NTT Corporation began to improve in the early 1980s. A

[2] The Japanese name for the Ministry, *Yusei-sho*, was not changed at the 1952 transformation.

[3] It is worthwhile to remember that the government's decision to transform the Ministry of Telecommunications into NTT Corporation was motivated by the Report submitted in 1951 by the Deliberation Council on Government Ordinances, according to which the change should be recommended on condition that NTT be privatized eventually.

scandal involving KDD, which was set up in 1953 as the overseas counterpart of NTT Corporation, attested to the danger of excessively independent legal monopolies and public corporations. As a result, some arguments were put forward that MPT's supervisory status should be strengthened as one of the precautionary measures. Another factor which is responsible for the improvement of MPT's status was severe US-Japan trade frictions during 1978-80, in which one of the focal issues was whether or not NTT's equipment purchases should be included in the government procurement opened to foreign providers in the Tokyo Round of Multilateral Trade Negotiations. It was NTT's incompetence in treating this sensitive issue that triggered the public apprehension that NTT Corporation is not trustworthy in international negotiations. Taking this opportunity, MPT made a campaign for greater policy-making authority. Furthermore, poor performance of NTT Corporation in customer services was becoming too conspicuous to be overlooked. Its internal efficiency was extremely poor, and its financial accountability was in doubt. Nevertheless, the informational asymmetry between MPT and NTT Corporation made it hard for MPT to regulate NTT Corporation effectively. A strong feeling of frustration and resentment among industry people and politicians inevitably developed, which called for radical institutional reform in Japan's telecommunications.

Capitalizing on these favourable policy environment, the MPT Minister proposed in 1980 to the cabinet that the NTT supervisory office within the MPT Secretariat be upgraded, and be in charge of telecommunications policy. The vehement objection by the Minister of the Ministry of International Trade and Industry (MITI, for short) notwithstanding, the Prime Minister decided in favour of MPT. In 1984, MPT recorded another success by adding two more policy bureaus: the Telecommunications Bureau and the Broadcasting Bureau. It is the former policy bureau which is now taking charge of promotion of the telecommunications industry and supervision of NTT Company, KDD, and the NCCs.

The second historical background of the 1985 reform, which is worth mentioning in passing, is the jurisdictional disputes between MPT and MITI. In Japan's bureaucracy, there exists a one-to-one correspondence between an industry and the ministerial bureau, division or section, under whose jurisdiction the industry in question falls. Any new development which disrupts or blurs this finely balanced relationship inevitably triggers a jurisdictional dispute. It is no wonder that such disputes abound in Japan, and those between MITI and MPT were among the most conspicuous. The so-called *Telecom War* in 1983-85 is a good case in point. As was aptly pointed out by Kawakita (1985, pp. 61-62), a computer without software is only a box, and a computer with software is still only a computer, but a computer (with software) connected to a telephone circuit becomes a totally different creature: it is a telecommunications network. Since computers belong to MITI's jurisdiction and telecommunications to MPT's, a head-on crash between these two ministries had to develop as new data communications services developed.

The third historical background to be kept in mind is closely connected with dissatisfactions with NTT's performance, which reached new heights in the early 1980s. Large companies were vehemently complaining not only about NTT's inability to set up nation-wide VANs, or VANs between companies, but also about high telephone charges and lack of customized billing for long-distance calls. There was a strong feeling that something drastic had to be done so as to introduce discipline into NTT Corporation that had never been confronted with market competition. In 1981, the Second Provisional Commission for Administrative Reform

(*Rincho* in shortened Japanese) was launched with the purpose of conducting a broad review of the civil service and design institutional reforms to rectify accumulated government failures. Among Rincho's major missions was to reform problem-plagued NTT Corporation and Japan National Railways, the latter being on the verge of bankruptcy. Although Rincho was only a consultative body, its reports were widely considered to be almost legally binding, because the Prime Minister, who appointed the commission, had publicly promised its Chair that his government would faithfully implement Rincho's recommendations.

It was Rincho which kicked off the public debates on the issue of NTT's privatization, and liberalization of the potentially competitive segments of Japan's telecommunications services. In its Third Report, which was made public in July 1982, Rincho recommended the following measures:

(a) NTT should be divested, so that it would consist of *regional operating companies*, which provide local exchange and subscriber services, and a *central company*, which is held responsible for long-distance service and R&D;

(b) NTT should be privatized; and

(c) new entry into the long-distance market should be encouraged. It is clear that the industrial organization envisioned by Rincho represents a radical departure from a legal monopoly by the public corporation. It is natural to ask:

(α) Why should NTT be divided into regional and central companies?

(β) Why should NTT be privatized?

(γ) Why should telecommunications be liberalized and made competitive?

As a matter of fact, it is not easy to deduce the answer Rincho would have given to the question (α). The most likely answer relates to NTT's sheer size, which was felt to have surpassed the level amenable to efficient and effective managerial control. Another reason would be the overwhelming power held by NTT's labour union, All-Japan Telecommunications Workers Union (*Zendentsu* in shortened Japanese), which was supposed to be unduly restricting the managerial flexibility of NTT Corporation. In contrast, it is much easier to surmise Rincho's answers to the questions (β) and (γ). NTT should be privatized because the lack of managerial autonomy as a public corporation hindered its making prompt and flexible adjustments to changing environments. The potentially competitive segments of the telecommunications industry should be liberalized so as to motivate NTT to improve its internal efficiency under competitive pressures.

Before closing this section, two remarks are due. First, the term "privatization" may be rather misleading. When Rincho recommended that NTT Corporation should be privatized, it meant simply that NTT Corporation should be transformed into a special joint stock company. It was *not* meant that, even in the future, all the shares of NTT be sold to the public. Second, the radical measures towards NTT did not mean that government intervention would altogether cease after the implementation of these measures, and market competition would rule the roost ever since. Quite to the contrary, it was meant that MPT would acquire new legal power to regulate NTT and its competitors. Indeed, it was when this prospect of expanded authority came into clear view that MPT, which initially opposed the Rincho's recommendations, reversed its stance and promoted both the privatization of NTT and the liberalization of the industry.

So much for the historical background of the 1985 telecommunications reform. Our next order of business is to describe the main contents of the reform plan.

III. *The Main Contents of the 1985 Reform*

Capitalizing on Rincho's Third Report, the basic design of Japan's telecommunications reform took concrete shape in 1984, and the Telecommunications Business Law (Business Law, for short), the Nippon Telegraph and Telephone Corporation Law (NTT Law, for short), and a law to revise and adjust all the laws made obsolete by the Business Law and the NTT Law finally came into effect in April 1985.

The Business Law stipulates how the telecommunications business should be categorized, what are the basic rules under which each telecommunications carrier should engage in business, and to what extent should some specified class of telecommunications businesses be subject to MPT's regulation.[4]

According to Article 6, telecommunications businesses are divided into two broad categories: *Type I* business and *Type II*. Type I business is one which provides telecommunications services by establishing its own telecommunication circuit facilities, whereas Type II business is one which consists of "any other telecommunications business than Type I" and, lacking its own telecommunication circuit facilities, it must lease these facilities from Type I carriers. This categorization of telecommunications businesses is unique to Japan. It came about as a by-product of MPT's effort to enclose as much telecommunications businesses as possible within its jurisdiction. In the United States, the distinction is between *basic* and *enhanced* services, where basic (voice) services are subject to the FCC regulaion, whereas enhanced (VAN and other data processing) services are completely unregulated.

It is Article 9 of the Business Law that stipulates the condition under which telecommunications business can be started. It says that any entity which intends to engage in Type I business must "obtain permission ... from the Minister of Posts and Telecommunications." The standards of this permission are set forth in Article 10, which reads as follows:

> The Minister of Posts and Telecommunications shall grant permission ... if the Minister determines that an application ... conforms to each of the following items: (i) Telecommunications service to be provided by a telecommunications carrier shall be appropriate to the demand in the service territory; (ii) The introduction of the telecommunications business shall not result in a significant excess of telecommunications circuit facilities to be used for such business in all or in any part of the territory or route to be covered by the telecommunications carrier; (iii) The applicant shall have an adequate financial basis and a technical capability to properly perform his or her telecommunications business; (iv) The plan of the telecommunications business shall be reliable and feasible; (v) In addition, the introduction of the telecommu-

[4] Quotations from the Business Law, as last amended by Law No.97 of June 20, 1997, follow an unofficial translation prepared by MPT. It can be seen in MPT's WWW pages at http://www.mpt.go.jp/policyreports/english/laws/Tb_index.html. When subsequent changes have been made to the Law, quotations from the Law in its original form as came into effect in 1985 follow an unofficial translation prepared by the Communications Study Group under the supervision of MPT's Communications Policy Bureau, with suitable changes in wording made to bring it in line with the current translation by MPT. We are grateful to Professor Masao Horibe who made this unofficial translation available to us.

nications business shall be appropriate for the sound development of telecommunications in general.[5]

Not only entry, but also suspension or discontinuation of Type I business is subject to MPT's permission. Furthermore, Type I carriers are subject to the requirements related to interconnection or sharing of telecommunications facilities. According to Article 38(1), "[a] Type I carrier shall obtain authorization from the Minister of Posts and Telecommunications before it enters into an agreement with other Type I ... carrier to interconnect or share telecommunications facilities." As the last resort to secure a fair network interconnectivity, Article 39 endowed the MPT Minister with the power to order interconnection or sharing of facilities under certain circumstances:

> (1) Where negotiations between or among Type I telecommunications carriers fail to come to an agreement with respect to the interconnection or sharing of telecommunciations facilities, the Minister of Posts and Telecommunications may, at the request of the party (or parties) concerned, order them to enter into such agreement ... with respect to that interconnection or sharing [if it is considered that] such interconnection or sharing [is] especially necessary and appropriate to promote the public interest; (2) Where negotiations between or among the parties concerned fail to be conducted or to come to an agreement with respect to such particulars as the amount of money to be paid or received ... or other matters including conditions for the interconnection or sharing after an order has been issued ..., the party (or parties) concerned may apply to the Minister of Posts and Telecommunications for arbitration.[6]

Type II telecommunications business is subdivided into *General Type II* business and *Special Type II* business. The exact difference between these two categories need not bother us here, save for the fact that they are subject to different entry regulation. Indeed, "[a]ny person who intends to operate General Type II telecommunications business shall ... submit a notification to that effect to the Minister of Posts and Telecommunications [Article 22(1)]," whereas "[a]ny person who intends to operate Special Type II telecommunications business shall obtain registration from the Minister of Posts and Telecommunications [Article 24(1)]." To obtain this registration, the person in question "shall ... file with the Minister of Posts and Telecommunications an application [Article 24(2)]." It is not automatic that registration would be granted to each application. It is Article 26 that stipulates the conditions under which "the Minister of Posts and Telecommunications shall refuse the registration," which include the submission of false information, inadequate financial basis, and lack of technical capability to conduct a telecommunications business properly.

In this context, it is worthwhile to remember that the distinction among *permission*, *registration* and *notification*, which differentiate the conditions for entry into Type I, Special Type II, and General Type II businesses, respectively, should not be taken too literally. It is a well-known bureaucratic trick in Japan to refuse acceptance of an unwanted application or notification. The applicant for registration or notifier was subject to a complex process in

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[5] Paragraphs (i) and (ii) were abolished subsequently, and minor changes were made to other paragraphs as well, in the 1997 amendment of the Business Law.

[6] Paragraph (1) was completely revised in the 1997 amendment of the Law. Paragraphs (2), (5), and (6) were also adjusted, and were renamed Paragraphs (4), (7), and (8).

advance, during which the application or notification was modified to the satisfaction of the bureaucrats in charge. If the ministry intended to reject an application or a notification, it could be done verbally during this preliminary process.[7]

In fact, the regulatory intervention by MPT is not restricted to the entry/exit control. Notice that competitive strategies of a telecommunications business are reflected in the service menu it offers and what it charges for these services. The Business Law makes it clear that the choice of service menu is subject to administrative control by MPT. In the case of Type I business, any change in the category of telecommunications service, service territory, and facilities should obtain permission from the MPT Minister [Article 14(1)]. In the case of Special Type II business, similar changes should obtain a registration of change from the MPT Minister [Article 27(1)].

The second major component of the 1985 reform was privatization of NTT under the terms of the NTT Law, which turned the NTT Corporation into the NTT Company, "whose purpose is to engage in domestic telecommunications business [Article 1(1)]."[8] It should be remembered that the NTT Company is in fact a very special company. It is required that the NTT Company "shall contribute to the universal and stable suppy of the telephone services, which are indispensable for people's life, by providing these services throughout the whole country under fair and reasonable conditions ... [Article 2]." Moreover, the government is obliged to hold at any time at least one-third of the total outstanding shares of the NTT Company [Article 4(1)].[9] Managerial discretion of the NTT Company is also severely limited. Not only are appointment and discharge of board members and the auditor effective only on approval by the MPT Minister [Article 9(2)], the same condition is also imposed on "the change in the articles of incorporation, the disposal of profit, and the resolutions on merger or dissolution ... [Article10(1)]." Moreover, the NTT Company must obtain approval of its business plan from the MPT Minister [Article 11(1)].

Several general observations on the nature and rationale of the new NTT Company regime are in order. First, a salient discrepancy exists between the Third Report of Rincho and the NTT Law in that the latter did not implement NTT's regional divestiture, or its split into functional divisions. Thus, NTT remained vertically integrated, and continued to monopolize local calls. However, although no firm commitment to the eventual implementation of NTT's divestiture was made, a Supplementary Provision was appended to the NTT Law stipulating that a review be made in five years to determine what further measures, if any, should be taken to improve the performance of the privatized NTT Company.

Second, although NTT's designated purpose was to engage in domestic telecommunciations, there was no explicit statement in the Law prohibiting it from engaging in international operations. One might even say in view of Article 1(2), which stipulates that the NTT Company "can engage in telecommuncations business which is incidental to the mentioned

[7] It was only in 1993, with the enforcement of the Administrative Procedure Law, that the possibility of rectifying the discretionary application of administrative procedures was officially opened. With the implementation of this law, it became obligatory for the bureaucrats in charge of administration to define transparent standards and procedures for administrative guidance. Those to whom administrative guidance is addressed are now in a legal position to request the guidance in the form of an official document that specifies the purpose and the name of the bureaucrat(s) to be held responsible for that guidance.

[8] Quotations from the NTT Law as enforced in 1985 are the authors' provisional translation.

[9] Indeed, the government holds 65.69% of the shares as of the end of fiscal 1997.

[domestic telecommunications] business, or in other businesses which are necessary for promoting the [Company's] purpose by obtaining permission from the Minister of Posts and Telecommunications," that NTT could provide international service simply by obtaining permission from the MPT Minister. However, circumstantial evidence suggests that such permission would have been hard to come by.

Third, despite the fact that Rincho recommended the introduction of competition and deregulation of NTT after its privatization, functional separation, and regional divestiture, what emerged was ever so strong regulatory power in the hands of the MPT Minister. The rationale behind this seems to be based on the following two considerations:

(a) The enormous size and market power of NTT after privatization without functional separation and regional divestiture was felt to result in excessive monopoly power in the natural monopoly segments to the detriment of public welfare. It was as the countervailing power against NTT's monopoly power that MPT's reglatory power was systematically strengthened; and

(b) There exists a conspicuous structural asymmetry between NTT, which has an integrated telecommunications network, and the NCCs, which entered only the long-distance business. Since the NCCs would be able to complete their customers' calls only by interconnecting their trunk lines with NTT's local network, the NCCs were in a position of unilateral dependence on their competitor. So that this asymmetric structure would not be exploited by NTT to the detriment of public welfare, it was felt necessary that the competition among NTT and the NCCs could be effectively controlled by MPT's regulation.

Fourth, although the requirement of providing universal service may be reasonable to impose on a public corporation which is assured of a legal monopoly over domestic telecommunications, it is debatable whether it makes sense to keep imposing this obligation on the privatized NTT Company unilaterally. To avoid possible misunderstanding, let us emphasize that the issue raised here is quite distinct from the separate issue of whether or not universal service provision should be imposed on the telecommunications industry as a whole.

We now turn to the performance of the telecommunications industry and MPT's regulation after the 1985 reform.

IV. *The Post-1985 Regulatory Regime and Industry Performance*

1. Entry/Exit Regulation

The 1985 Business Law expressly charged MPT with regulating entry into and exit from Type I business. The most crucial condition, known as the *demand-supply adjustment condition*, requires that Type I telecommunications service to be provided "shall be appropriate in the light of the demand in the service territory" and the introduction of the business "shall not result in a significant excess of telecommunications circuit facilities in all or in any part of the territory or route to be covered." Taken literally, this stipulation assumes that bureaucrats in charge of entry/exit regulation are better qualified than entrepreneurs who are willing to take risk in judging whether a business plan is "appropriate in the light of the demand," and will not bring about "a significant excess of telecommunications circuit facilities." This supposition is simply absurd, but there are two further problems here.

First, two reasons justifying regulation after the reform, expounded on in the previous section, rationalize asymmetric regulation of NTT and nothing else. As a matter of fact, however, coverage of regulation in accordance with the Business Law and the NTT Law encompasses not only NTT, but also the NCCs.[10]

Second, in addition to the wide coverage of regulation, there is the problem of procedures and criteria for its implementation. Although the legal framework is formally stipulated by the two laws, much in the laws is ambiguous and leaves extensive room for bureaucratic discretion.

The problem with entry regulation after the reform may be illustrated as follows. Suppose that a carrier is permitted to enter Type I business on the basis of the Law's permission standard. In effect, then, the entrant is thereby given an official endorsement that (i) it has "an adequate financial basis and technical capability to properly perform [its] business," (ii) the plan of the business is "reliable and feasible," and (iii) the introduction of the business is "appropriate for the sound development of telecommunications in general." Once such an endorsement is officially made, it would be hard, if not literally impossible, for MPT bureaucrats to grant permission to suspend or discontinue the business, as this must mean that the suspension or discontinuation would not "impair the public interest to a significant extent," although the business was allowed to enter in the first place as it is construed to be "appropriate for the sound development of telecommunications in general." Thus, the *de facto* implication of the entry-exit regulations in this regime is that MPT bureaucrats must assume implicit responsibility for the sound continuation of the businesses falling within their jurisdiction. In this sense, it is the demand-supply adjustment condition that induces paternalistic intervention.

There is an additional problem that may arise from this entry/exit regulation. Wide discrepancies between costs of providing services and their prices are allowed to persist under such regime, as potential entrants who eagerly look for opportunity to grab away excess profits are prevented from prompt entry. Not only does this amount to rents accruing to incumbent telephone operators, but also this makes collusion in prices and service quality much easier. It should be welcomed that the 1997 amendment of the Business Law finally got rid of the demand-supply adjustment condition. It is feared, however, that the provisions that still remain seem to keep the possibility of discretionary administrative guidance basically intact. MPT can just say that the introduction of the business is not "appropriate for the sound development of telecommunications in general" if it intends to block entry by the carrier concerned. It seems to us that there is little, if any, justification for a qualified firm being required to obtain permission from the MPT Minister if it wants to enter Type I business in the first place. Why not promulgate the conditions under which a potential firm is qualified to a certain type of telecommunications business, and leave all the rest of it to the entrepreneurial decision by the potential entrant?

Before closing this subsection, let us briefly summarize the entry of new common carriers since the 1985 reform. There are five telecommunications carriers engaging in the provision of domestic telephone services — NTT, DDI, JT, TWJ, and TTNet — and 148 other Type I carriers are in business as of 1 April 1998. Among them, only NTT provides integrated

[10] This is not to deny that there are many asymmetries in the actual regulatory treatment of NTT and the NCCs. We have only to recall that the NTT Law imposed the universal service obligation only on NTT.

telephone services.[11] DDI, JT, and TWJ specialize in long-distance telephone services, whereas TTNet provides local telephone services within the Kanto area as well as long-distance services by interconnecting with other regional Type I carriers. TTNet's share of subscribers in the local market is still very small, but it is rapidly expanding. In long-distance operations, NTT has lost significant market share to the NCCs. On the busiest Tokyo-Nagoya-Osaka route, NTT's share has gone from 61.0% in fiscal 1989 to 43.6% in fiscal 1996 in terms of the number of calls.[12] NTT has lost less on other routes, so that its nation-wide share in the long-distance market stood at 64.3% in fiscal 1996.[13] It is clear that the competitive edge of the long-distance NCCs against NTT is already sharp, although there is no comparison in size. This accomplishment is particularly impressive in view of the fact that these NCCs started business only in April 1986, began offering leased line service in the Tokyo, Nagoya, and Osaka areas only in August 1986, and began providing long-distance telephone services in the same areas only in September 1987. It is all too natural to ask: How could this quick shift of market share be brought about? At least a part of our answer is squarely rooted in the price regulation since the 1985 reform, to which we now turn.

2. Price Regulation

The Business Law of 1985 requires a Type I telecommunications carrier to establish charges relating to telecommunications services and obtain authorization thereof from the MPT Minister. This authorization will be granted if an application for the authorization conforms to each of the following conditions: (i) Charges are "fair and reasonable" in consideration of "proper costs under the efficient management"; (ii) Calculating methods of charges are "properly and clearly stipulated"; (iii) Charges do not include any provision that "unfairly discriminates against any person." It is clear that several ambiguities make this stipulation difficult to understand. Indeed, it was left to the *Tariff Calculation Manual* (1986), created on the basis of a Report of the Telecommunications Deliberation Council, to make this abstract principle more concrete and operational. The method adovocated in this *Manual* is simply the classical *fair-rate-of-return regulation* used widely in public utitity regulation.

The May 1995 amendment of the Business Law changed this original stipulation in such a way that Type I carrier need only notify MPT of its tariffs when the impact on users would be relatively small, and no justification for a rate charged is needed. MPT issued a press release portraying this amendment as reducing the number of tariffs that would have needed the MPT approval by "roughly half". This might have appeared to be a sweeping deregulation, but less than 10% of the carriers' revenues are in fact covered by this change, something not mentioned in the press release. Also ignored was a provision added to Article 36(2) of the Business Law to the effect that when the MPT "determines that the charges submitted as a

[11] Turning to Type II businesses, MPT had registered eight companies providing Special Type II services, and 172 General Type II companies had notified the MPT of their businesses by the end of 1985. In contrast with Type I business where the number of companies, especially those which provide telephone services, did not increase dramatically since the 1985 reform, there were 98 Special Type II businesses and 5,776 General Type II businesses, which were engaging in vigorous competition in voice transmissions, visual transmissions, and data transmissions, by the end of fiscal 1997.

[12] Japan's fiscal year starts on 1 April of each year, and ends on 31 March of the following year.

[13] All data are cited from the Ministry of Posts and Telecommunications (1998).

prior notification ... have come to impair the interests of users, the Minister may order the Type I telecommunications carrier to amend the charges concerned." Thus, an apparent relaxation of regulation notwithstanding, the revised Law still provides MPT with strong discretionary power in, among other areas, tariff setting.

Back, then, to the question we posed at the end of the sub-section **4.1.** It seems to us that the substantial and rapid shift of long-distance market share from NTT to the NCCs was brought about at least initially by deliberately maintaining differences in telephone rates among carriers.

Note that the three main NCCs have networks that are substantially different from each other. DDI, established by Kyocera and Sony, used microwave circuits in constructing its initial network; JT, established by the Japan National Railways, and TWJ, established by Toyota Motors and the Road Facilities Association, used optic fibre lines laid along their existing rights of way (the *shinkansen* railway lines in the case of JT, and the highway network in the case of TWJ). Because of these differences, it is natural to expect that cost-based telephone charges would substantially differ among these NCCs even between the same points. However, there was in fact no difference at all for each of the modifications of the fee schedule and rate authorization from September 1987 to February 1998. Meanwhile, MPT did not accept NTT's February 1988 application for a reduction in long-distance rates, allowing instead a lesser reduction for the reason that full implementation would damage the NCC's ability to remain sufficiently competitive. In this way, rates authorized for NTT were kept above those of the NCCs by 10 to 20% until February 1998, when the same rates were authorized for NTT and the NCCs for the first time.

Since the quality of service is virtually the same among all common carriers, it is no wonder that these deliberately maintained price differentials resulted in an avalanche-like shift in market share in favour of the NCCs. It is also natural that DDI and JT were quickly able to become profitable. TWJ only managed to become profitable in fiscal 1996, which is easily explained. Telecommunications are characterized by network externalities to the effect that the value to the customer of a service provided by a carrier hinges squarely on the number of subscribers with whom the call can be connected. Thus, it was cruicial for NCCs to complete a nation-wide network as quickly as possible. TWJ failed to realize this simple logic of network externalities, and did not keep pace with DDI and JT in the attempt to complete the nation-wide extension of its own network. It is largely due to this managerial fiasco that TWJ falls behind its rivals.[14]

Another important fact is that the level of the long-distance rates decreased quite remarkably. Before the 1985 reform, the long-distance rates charged by the NTT Corporation had been extremely high. The day-time, three-minute charge for the most-distant rate band was 720 yen in January 1976, 600 yen in August 1981, and 400 yen in July 1983. When the NCCs began long-distance telephone services in September 1987, their common charge was set at 300 yen for the same call, to which NTT responded by bringing its regulated rate down to 360 yen in February 1988. This pattern continued since then as follows: {NCCs: (280 yen, February 1989), NTT: (330 yen, February 1989)}, {NCCs: (240 yen, March 1990), NTT: (280 yen, March 1990)}, {NCCs: (200 yen, March 1991), NTT: (240 yen, March 1991)}, {NCCs: (180 yen, April 1992), NTT: (200 yen, June 1992)}, {NCCs: (170 yen, November 1993), NTT:

[14] For more details on network externalities, see Katz and Shapiro (1985, 1986), and Rohlfs (1974).

(180 yen, October 1993)}, {NCCs: (130 yen, March 1996), NTT: (140 yen, March 1996)}, {NCCs: (100 yen, February 1997), NTT: (110 yen, February 1997)}, and {NCCs: (90 yen, February 1998), NTT: (90 yen, February 1998)}.[15]

In the meanwhile, no rebalancing of telephone charges was permitted to NTT, in sharp contrast with the situations in the US and UK. In fact, NTT's local telephone rate has remained unadjusted since the 1985 reform. Let us take stocks before going further. In the wake of the 1985 reform, competition started in almost all branches of telecommunications services, local telephone services being the major exception, but this competition was handcuffed by MPT's regulation. Handcuffed competition is competition all the same, and performance of the industry after the reform can be characterized by a remarkable drop in charges in the competitive segments, whereas charges in the non-competitive segments have been kept basically unchanged by MPT's regulation. A devoted consequentialist, whose judgements on economic policy are based exclusively on consequential outcomes, might claim that there is nothing wrong with handcuffed competition by arguing that "competition has been keen in long-distance as well as in Type II businesses, and customers have been gaining from steadily lowered long-distance charges without being required to pay higher local charges, or to lose universal service entitlement, in exchange. Why, then, should we care about handcuffed competition?"

Our answer is simple. A regrettable consequence of handcuffed competition is that, by controlling long-distance charges in such a way that the NCCs could always maintain a substantial competitive edge against NTT, the regulatory authority deprived the NCCs of serious incentive to compete with NTT in terms of innovative service strategies, and motivated them to rely on the controlled rates. Indeed, the controlled rates were the safest weapon for the NCCs in competing with NTT, and there was virtually no point in taking risk by introducing innovative services on their own initiative and responsibility. Needless to say, it was consumers and business users who were sacrificed in this regime by missing out on opportunities to choose from a wide range of innovative services. In our judgements, this is why handcuffed or controlled competition is outright wrong.

Back, then, to the price regulation. The rates approved by MPT in January 1998, which were introduced in February 1998, saw the end of the artificially maintained price differential between NTT and the NCCs for the first time since the 1985 reform. This should encourage fierce competition in terms of service quality. Besides, the 1998 amendment to the Business Law, which is due to come into effect in November 1998, is expected by some to mark the end of paternalistic supervision by MPT as far as the price regulation goes. The crucial element in this amendment is the change made to Article 31, according to which all the rates, except those concerning "essential facilities," can be set freely by Type I and Type II carriers as far as they notify MPT of the change beforehand. To avoid possible abuse of this deregulation, the new Article 31(2) states that "[t]he MPT Minister can order a Type I carrier to change the charges (i) if calculating methods of the charges are not properly and clearly stipulated; (ii) if the charges includes any provision that unfairly discriminates against any person; or (iii) if the charges are detrimental to users' benefits because they cause unfair competition between it and other telecommunications carriers and are seriously inappropriate in the light of social and economic conditions." As for the "specific telecommunications services," price regulation by

[15] In addition, TTNet started providing services at 63 yen for three minutes for the same rate band.

MPT will remain, but it is going to be essentially the price-cap regulation, or RPI-X% regulation, which is far more flexible than the traditional fair-rate-of-return regulation. It will be implemented sometime after the divestiture of NTT and no later than the end of fiscal 1999. The old regulatory setup remains in force in the transitional period between November 1998 and the introduction of the price-cap.

To reiterate, by the end of fiscal 1999, the regulation of prices of telecommunications services will change from fair-rate-of-return regulation all around to price-cap regulation for services involving essential facilities such as local telephony, and deregulation elsewhere subject to certain safeguard provisions. Whether this marks the end of handcuffed competition in telecommunications is yet to be seen, however, as things depend crucially on how the safeguard provisions will be designed and implemented, as well as how the review of the price-cap formulae will be planned and executed. To accomplish the task of establishing the details of the new regulatory regime, MPT established on 29 October 1998 a Ministry Ordinance to supplement the Business Law.

Contrary to some expectations, however, government intervention in prices did not end even in the segments of the industry which are hardly characterized as essential facilities. When NTT Mobile Communications Network, Inc, which is the subsidiary of NTT that specializes in mobile and personal handiphone services, introduced in December 1998 a new discount service for those who subscribed to more than one lines, MPT intervened and ordered to change this pricing structure by the beginning of June 1999.[16] This action by MPT raises concerns that, instead of competing in terms of prices and service quality, telecommunications carriers may choose to lobby MPT for injunctions against price reductions by competitive operators. This is not to say that pricing behaviour of telecommunications carriers should go unchecked, but more transparent rules that specify what type of behaviour is to be prohibited must be installed so as not to discourage innovative activities in terms of both what products they offer and what they charge for them. This falls in the broad category of competition policy, and it is arguably better entrusted to the competition policy authority subject to the crucial condition that its capabilities are adequately strengthened.

3. Terms and Conditions of Network Interconnectivity

Although NTT's legal monopoly of domestic telecommunications ended with the 1985 reform, NTT Company kept its bottleneck monopoly by retaining local and subscriber networks, so that the NCCs are obliged to negotiate with NTT about terms and conditions of network interconnectivity under the supervision and arbitration by MPT.

An interconnectivity agreement between NTT and the NCCs was hastily reached under MPT's administrative guidance immediately before the NCCs started their provision of long-distance services in 1987. According to this agreement, NTT's interconnection fee was set so that the charge for a call was equal to the price of a call made between the subscriber and

[16] On top of discounts in the monthly fixed charges for all the lines to which a particular user is subscribed, the new service introduced long-time user discounts for the first line he/she is subscribed to. NTT Mobile notified the introduction of the service in November 1998, and MPT ordered NTT Mobile to change prices in January 1999, arguing that setting the same charge for the second line onwards, irrespective of the length of usage, is "unfair discrimination" as stipulated in Article 31(2) against the users concerned.

the point of interface (POI, for short) between the two networks. It follows that the charge on either side of the long-distance line was 10 yen for 3 minutes when the subscriber and the POI were in the same message area (MA, for short),[17] but it increased to 20 yen or more when they were in different MAs. This is absurd, as it didn't in any way reflect the actual cost of interconnection. Another problem with this arrangement was that the NCCs payed only the costs of their own long-distance network and the interconnection fees, leaving NTT to cross-subsidize the deficits incurred in the local network with the revenue from its long-distance business, which means that the NTT's customers were in effect subsidizing the NCCs.

Since fiscal 1992, NTT's revenues, expenditures, assets and liabilities have been disclosed for each of the 15 functional divisions, which prepared the way towards cost-based interconnectivity charges.[18] Indeed, NTT and the NCCs came to an agreement in October 1993 on the new rules of setting interconnection fees called *access charges*. The most important feature of the new access charges was that they were meant to cover traffic-sensitive costs of using local networks only, assuming implicitly that fixed, non-traffic-sensitive costs should be covered by lump-sum subscription charges. The access charge, introduced in April 1994, was set at 12.57 yen on each side of the long-distance line for a normal call, thus eliminating the absurdity of differential charges mentioned above. The access charge was reduced to 10.46 yen in April 1995. A set-up charge system was introduced in April 1996, and access charge became 1.65 yen for each call made, plus 0.0713 yen per second. The same year also saw the introduction of access charges for PHS operators and mobile phone operators in April and December, respectively.

Given the structural asymmetry between NTT and the NCCs, it cannot be exaggerated that the most important role to be played by the regulatory authority in charge is to serve as a referee who ensures that fair, prompt and pro-competitive interconnectivity of telecommunications networks will be guaranteed and enforced. How should we evaluate the performance of the MPT regulation after the 1985 reform in this arena?

As an auxiliary step in answering this crucial question, let us refer to an important case where the NCCs wanted to offer a *virtual private network* (VPN, for short) service.[19] Needless to say, it is indispensable for the provision of this service that the NCCs' trunk lines are smoothly connected to NTT's local networks. In September 1989, the long-distance NCCs asked NTT to connect their trunk lines with NTT's local network in order to start their VPN services. However, they could not reach an agreement on the terms and conditions for interconnection. Although informal consultations were held beforehand, it was in November 1994 that the NCCs formally requested the MPT Minister to issue an order to NTT to facilitate an interconnection agreement. The Minister's order was issued in the following month, and NTT and the NCCs reached the final agreement in April 1995. Thus, the interconnectivity dispute in this context continued for no less than 5 years. No doubt, the primary cause of this trouble was NTT's conspicuous lack of eagerness to interconnect their

[17] The *message area* is the word used only in Japan, which means that local telephone fee is applied as long as the both ends of a call belong to the same message area.

[18] This disclosure was one of the measures implemented through the 1990 review, which took place in accordance with the Supplementary Provision to the NTT Law.

[19] VPN service connects specially designated and registered private nodes, each belonging to NTT's local networks, using the NCCs' long-distance lines, thereby offering a *virtual private network*.

local network with its competitors' networks. However, an additional factor which complicated the issue was that MPT failed to facilitate resolution of this impasse by circumventing an ambiguity in how the crucial term in the Business Law should be interpreted.[20] Had this interpretation been made clear in time, the impasse would have been overcome much earlier without an MPT hearing and its order to provide interconnection. It is in this sense that the MPT regulatory administration since the 1985 reform left much to be desired as regards the promotion of fair and vigorous competition.

After the circuit connecting order for the VPN service was issued, and in full accordance with MPT's administrative guidance, NTT announced a guideline, "On the Concrete Measures for Definite and Transparent Procedures for Interconnectivity Negotiations," for facilitating and standardizing the procedure through which an agreement for line interconnction should be made. However, the procedure written in this guideline still kept the provision of the 1985 Business Law to the effect that the initiatives for interconnectivity agreements are entrusted to the parties involved.

In March 1996, the Cabinet agreed on the "Plans for Promoting Deregulation," which declared, among other things, that the content of new rules governing interconnction of networks was to be determined within fiscal 1996. In response, MPT gave the Telecommunications Deliberation Council on April 25 1996 the task of investigating the ways to create fair and transparent rules for network interconnectivity. The Final Report of the Council was submitted on 19 December 1996, which recommended that interconnection rules should require Type I carriers which have substantial subscribers networks, NTT being the only current carrier to fall under this category, to set the general contractual conditions for interconnection with other carriers. Following this Report, the June 1997 amendment of the Business Law saw a drastic revision of articles on network interconnection. It is now explicitly required that "[a] type I telecommunication carrier shall agree to the request for interconnection of telecommunications facilities from other telecommunication carriers with the telecommunication facilities that the latter owns [Article 38(1)]." To promote smooth negotiation on the terms and conditions of use of essential facilities of a Type I carrier by another carrier, the Law now requires that a Type I carrier that installs *designated telecommunications facilities* must "establish articles of interconnection agreement which set forth the amount of

[20] The ambiguity in question relates to the classification of the telecommunications businesses in the 1985 Business Law to the effect that a Type I business is "that business which provides telecommunications service by establishing telecommunications circuit facilities." In view of this definition, the provision of the VPN service by Type I NCCs would leave no doubt about their qualification to pursue such a business when the private nodes to be connected by their VPN service are located in different MAs and hence are in fact linked through the NCC trunk lines. In the event that the private nodes are located within the same MA, however, the NCC offering the VPN service may have to be classified as a Type II business, because it is not providing a service with line facilities established by itself, but rather with facilities that are NTT's local networks. It is undeniable that there was a doubt about the interpretation of whether line connections with this implication were possible under the 1985 Business Law, until a legal interpretation was established by the MPT Minister through the circuit connecting order. Thus, before the negotiations between NTT and the NCCs foundered and the final formal step was taken for initiating the circuit connecting order, the leeway for ironing out the rough spots could lie with the authority in charge of telecommunications policy by eliminating the doubt regarding the interpretation of the relevant law. It is in this sense that one of the major causes of complications in the interconnectivity discussions for the VPN service was the lack of sufficient speed with which MPT established fair interconnectivity rules for line circuits and played the refereeing function to monitor and enforce the strict compliance with these rules.

money which the said Type I telecommunications carrier will receive ... and conditions of interconnection in terms of the interconnection of the designated telecommunications facilities with the telecommunications facilities of other telecommunications carriers [Article 38-2 (2)]."[21] Type I carrier is required to obtain authorization from the MPT Minister, unless the interconnection charges and conditions have only "a comparatively small influence to the enhancement of user benefit as well as general and rational development of telecommunications [Article 38-2(4)]."

The ammendment also made it easier for carriers that failed to reach an agreement about interconnection with the bottleneck monopolist to ask the MPT Minister for arbitration:

> Where a Type I telecommunications carrier, in spite of other telecommunications carriers' proposal to enter into an agreement to interconnect telecommunications facilities with the Type I telecommunications carrier, does not accept entering into negotiation or where such negotiation fails to come to an agreement, the Minister of Posts and Telecommunications may, at the request of the telecommunications carrier, order the Type I telecommunications carrier to start or reopen negotiation ... [Article 39(1)].
>
> Where negotiations between the parties concerned about the interconnection to telecommunications facilities of a Type I telecommunications carrier fail to come to an agreement with respect to such particulars as the amount of money to be received and paid by them or other matters including conditions for interconnection, a telecommunications carrier which installs telecommunications facilities to be connected to the telecommunications facilities of the Type I telecommunications carrier may apply to the Ministry of Posts and Telecommunications for arbitration [Article 39(3)].

As required by this amendment, NTT established articles of interconnection agreement governing interconnection charges and other conditions of network access. These articles of interconnection agreement were approved by the MPT Minister, and all interconnection agreements previously signed between NTT and individual carriers in separate contracts were subject to these articles as of March 20, 1997. Interconnection charge was lowered at the same time, and was lowered again in January 1999. Currently it stands at 1.27 yen for each call made, plus 0.0595 yen per second. An MPT Ordinance of December 1997 stipulates when the MPT Minister should approve a set of articles of interconnection agreement. It states that an interconnection charge must be set in such a way that the revenue arising from the interconncetion must equal the cost of providing the particular interconnection.

Needless to say, the method of allocation of fixed costs of the local network is a complicated issue. The current practice in Japan follows the fully distributed cost (FDC) rule with the actual historical costs being used in the calculation. MPT, however, intends to introduce a new rule — long-run incremental cost (LRIC) rule — in calculating and regulating interconnection charges. The new rule sets the interconnection charge as a sum of the incremental cost of providing interconnection and a proportion of the calculated fixed cost. The main difference with the current regime is that not the actual historical costs but would-be fixed costs incurred with the best available current technology are to be used in the calculation.

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[21] When the share of a type of telecommunications facilities owened by one Type I carrier exceeds a certain percentage, and one end of those facilities is connected to users' telecommunications facilities, those facilities are defined to be the *designated telecommunications facilities.*

This move is caused partly by mounting pressures from NCCs, as well as those from foreign telecommunications carriers and the US government. MPT has organized a study group to investigate what precise form the new regime should take, and it plans to submit a bill to change the Business Law stipulating the new regime in summer 2000. There is an obvious conflict of interest between NTT, the local bottleneck monopoly, and other telecommunications carriers concerning the two regimes. Moreover, the concrete method of allocating part of the fixed costs, forward-looking as they may be, is yet to be determined.[22]

Related to the issue of interconnection arrangements is the issue of number portability and dialling parity which MPT's study groups proposed in 1998. Number portability refers to a system of assigning telephone numbers whereby a subscriber is able to use the existing telephone number even when the subscriber decides to switch to a different telecommunications carrier. This has the effect of lowering customers' perceived switching cost, which in turn should make competition more effective.[23] Dialling parity enables subscribers to omit the prefix number assigned to the telecommunications carrier concerned by prior selection and registration to the carrier. Currently, if a subscriber wishes to use a long-distance carrier other than NTT, he/she has to dial a prefix number, in effect making a cost advantage in favour of NTT. The introduction of dialling parity is expected to rectify this. The implementation of these measures is scheduled for fiscal 2000.

4. Restrictions on Foreign Ownership and WTO Telecommunications Agreement

While introducing competition, the 1985 reform maintained the prohibition of entry into Type I telecommunications business by firms with more than two-thirds foreign capital. It is stipulated in the Business Law that the MPT Minister would not "grant permission [to operate Type I business] to ... a person without Japanese nationality; a foreign government or a representative thereof; a foreign corporation or organization; a corporation or organization whose representative falls under any of the above three items, in which one-third or more of the executives positions are held by these persons, or in which two-thirds or more ... of the voting rights ... are held by these persons [Article 11]."

Negotiations took place on basic telecommunications at the World Trade Organization (WTO, for short), and participants reached an agreement on February 1997. The commit-

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[22] The issue of access charge regulation is a complex problem both theoretically and practically. Baumol and Sidak (1994) proposed the *efficient component pricing rule* (ECPR), according to which the efficient level of access charge is the sum of the marginal cost of providing the bottleneck facilities and the bottleneck facilities owner's opportunity cost of providing access. Under certain conditions, this will result in the most efficient producer providing the services in the competitive segment and the bottleneck monopolist being able to meet the budget constraint. However, when the costs of bottleneck facilities are not totally sunk, or when some of the costs in the competitive segment are not sunk, the ECPR is not efficient. See Kahn and Taylor (1994), for example. Also, when some of the services are provided using only the bottleneck facilities and not the competitive facilities, which is the case in local telephone services, the bottleneck monopolist can shift demand from the compound services to the bottleneck-only services by raising both the access charge and the compound service prices. More theoretical work on what criteria should be used is needed. While detailed cost accounting should be aimed at, it also should be borne in mind that, whatever legal provisions are made to gather telecommunications operators' costs, MPT will not be able to know all the costs with certainty.

[23] Klemperer (1987a, 1987b, 1988) addresses various issues concerning consumer switching costs, which in other circumstances usually arise from brand loyalty, such as locking-in.

ments that each of the 69 governments made in the agreement were annexed to the Fourth Protocol of the General Agreement on Trade in Services (GATS, for short), which came into effect on February 5, 1998. A major component of the Basic Telecommunications Agreement was that the members made a commitment to eliminate the restriction on foreign capital to enter the telecommunications business.[24] In particular, the Japanese government made a commitment to abolish (direct and indirect) foreign ownership restriction for Type I carriers excluding NTT and KDD. The 1997 amendment of the Business Law changed Article 11 accordingly. However, the restriction as stipulated in Article 6 of the NTT Law on the foreign ownership of NTT to within the one-fifth of the total is retained.[25]

The impact of the Basic WTO Agreement does not end with the specifically stated commitment to abolish foreign ownership restriction. It would seem at first glance that no change is thereby required of the MPT regulation. Note, however, that Article 6 of the GATS requires that "in sectors where specific commitments are undertaken, each Member shall ensure that all measures of general application affecting trade in services are administered in a reasonable, objective and impartial manner." This rules out discretionary entry/exit regulation of telecommunications operators by MPT even if the regulation does not on the surface discriminate against foreign firms. To avoid possible conflict with the GATS, the MPT regulation on entry and exit should be made more transparent and accountable with a further amendment of the Business Law so as to make the regulatory criteria clearer, more exact, and less discretionary. Similarly, the rules and procedures to establish fair and transparent interconnection of networks should be made clearer in view of the Basic WTO Telecommunications Agreement.

5. Reorganization of the Industry

The industrial structure of telecommunications in Japan has not stayed still. Reorganization of the industry is taking place, and changes in the past year or two have been particulary noteworthy. JT merged with an international carrier, ITJ, with which it had had close business ties, in October 1997. In the meantime, as a result of the 1997 amendment of the KDD Law, which governed the conducts of KDD until 1998 when it was finally abolished, KDD's operations were no longer restricted to international services, as it entered into business agreements with DDI and with TWJ in August 1997 in the provision of domestic services. KDD entered into similar relationship also with TTNet in the following month. The tie-up between KDD and TWJ culminated in merger in December 1998. In July 1998, yet another international carrier, IDC, entered into business agreement with NTT through NTT-WT, a wholly owned subsidiary of NTT established in July 1997 to engage in international operations. Thus, virtully all major Type I carriers now participate in both domestic and international operations.

These changes in Japan are taking place concurrently with those taking place in the international arena. For instance, in the United States, two long-distance carriers, WorldCom

[24] See Takigawa (1998) for more on the Basic Telecommunications Agreement, and its impact on regulation of telecommuncations in Japan and the US.

[25] This stipulation will be retained even after the divestiture of NTT in 1999, which will be discussed in Section 5.

and MCI, merged in October 1997. Local carriers are also seeking to become larger by merging together. The shape of global alliances are also changing, a striking example of this being the establishment of a joint venture between BT and AT&T to carry out international operations.

6. Technological Progress

Charges for telephone calls are higher for longer-distance calls. At least some of this is due to the cost structure. There are costs involved in transmitting signals from one place to another. With analogue transmission lines, which were in use until recently, electric signals gets distorted in shape and diminished in size over the distance, and a large number of amplifiers had to be utilized to compensate for this loss. The use of amplifiers could not but mean that longer-distance calls costed more. However, the digitization of long-distance lines was completed in 1995, getting rid of the need for using amplifiers. Thus, there is much less dependence of transmission costs on distance now than there used to be.

The move in this direction is further facilitated by the expansion of mobile telephony. The number of subscribers for mobile telephony (cellular system and personal handy-phone system combined) has reached 45.5 million at the end of January 1999, roughly two-thirds of the number subscribed to NTT's local networks. This has been made possible by technological progress that brought down the costs of mobile services remarkably.

With the use of satellites by mobile telecommunications services, the dependence of costs on distance will become virtually irrelevant. Although still in the stage of infancy, mobile telephony through satellites is on the increase, with NTT Mobile starting its satellite services in March 1996 and Nippon Iridium Corporation participating in the international Iridium Project and starting its commercial services in November 1998. How telecommunications services using satellites will fare will have to depend on how low the prices will become, which in turn will depend on technological progress that will bring costs down. However, if it does succeed, the distinction between local and long-distance services, and possibly that between domestic and international services, may become almost meaningless.

Another implication of these developments is that mobile telephones, as well as CATV cables, are increasingly becoming a viable alternative to NTT's bottleneck facilities in the long run. When that happens, meticulous price regulation in local telephony is likely to become redundant, although the network externality issue will still remain and the competition policy authority should be aware of it. Even when networks are connected with each other, so that users do not have to worry about which network to subscribe to in order to make calls to particular destinations, telecommunication carriers may and in many cases will have an incentive to create artificial network externalities through setting different charges to calls that terminate within its own network and those that terminate in networks of other carriers. The issue of access pricing regulation under these circumstances is being initiated by Laffont, Rey and Tirole (1998a, 1998b) and Armstrong (1998). In the meantime, however, NTT is still much of an essential facilities provider, as we have discussed elsewhere in this paper, and the need for price regulation in the local telecommunications market, as well as careful regulation on network access, is not diminished.

We have devoted most of our discussions on voice telephony. Increasingly, however, other types of services are becoming prominent. In addition to voice converted to electric signals,

written texts, graphic information both static and dynamic, and computer data in many different formats are now carried on telecommunication networks. Recent developments in this direction have been brought about largely through the technological progress in computers, computer-related hardwares and softwares, which are supported by the digitization and capacity expansion of telecommunications circuits. Both processing and transmission of complex data information requires capacity in hardwares and convenience in softwares that have become available only recently.

With the increasing utilization of CATV cables in voice telephony, the distinction between telecommunications and broadcasting is also becoming murky, though making any concrete predictions at this stage would neither be easy nor productive.

V. *Divestiture of the NTT Company*

Ever since the 1985 reform, the issue of NTT's functional separation and regional divestiture has been the focus of perennial dispute. As explained in Section 3, it was Rincho that kicked off the public debates on this issue, whose policy design including NTT's regional divestiture was not fully implemented in the 1985 reform due to political reason.

The 1990 review, which started in 1988 in accordance with the Supplementary Provision to the NTT Law, resulted in further deferment of public decision by another five years. The second review in 1995, which was conducted as usual by the Telecommunications Deliberation Council, resulted in the recommendation of NTT's regional divestiture. Although this recommendation was shelved once again, as it failed to elicit strong support, a political decision was made in 1996 so that NTT would be split in 1999 into a *long-distance company*, two *local operating companies*, and a *stockholding company* whose chief role is to control the three operating companies. The task of this section is to give a concise description of these twisted steps by which the final public decision on the managerial form of NTT Company was arrived at, illustrating *en route* the nature and deficiency of the public decision-making mechanism in Japan.

1. Political Process Leading to the Divestiture Decision[26]

MPT sought the opinion of the Telecommunications Deliberation Council in 1988 on further measures to be taken to improve NTT's performance, which marked the start of the second round of the divestiture debate.[27] When the Council described several ways to break up NTT in its Interim Report in October 1989, the organizations concerned swiftly reacted. NTT as well as its trade union, *Zendentsu*, unsurprisingly opposed divestiture, arguing that it would

[26] Further details of the divestiture debate can be found, for example, in Bohlin (1997) and Suzumura (1998).

[27] As usual, deliberation within the Council was closed to the public, and those who testified were strongly requested not to disclose any information outside the Council. If it were not for other organizations, such as other ministries and business organizations, which expressed strong concerns and publicized alternative opinions and scenarios for reform during deliberation, the general public might not have known what was really at stake. As an imperfect, yet workable mechanism for checks and balances, the expressed interest of the concerned ministries, combined with concomitant jurisdictional disputes, played a positive role by bringing the policy issues to wider public awareness.

result in increased local rates and reduced R&D capabilities, and would be beneficial neither to users nor to workers. Fair Trade Commission (FTC, for short) and MITI argued that it was still too early to make a decision on whether to break up NTT, calling for further deregulation instead. The Council submitted its Final Report on 2 March 1990, in which it made several recommendations. NTT was to be enjoined from making inappropriate use of information about the NCCs, which were obtained through interconnection negotiations or any other means. Further steps were seen as being necessary to facilitate smooth interconnection of networks and to secure open access to NTT's bottleneck network facilities, but there were no specific proposals on how to realize this end. There should be no cross-subsidization of competitive arenas by NTT's non-competitive businesses. To this end, NTT should be split into functional divisions and that each division should disclose revenues and expenditures. Perhaps most importantly, the report called for divesting NTT into a long-distance provider and a local-service provider.

The Final Report failed to elicit support from other ministries, including MITI and Ministry of Finance (MOF, for short), neither could it be supported by the then-ruling Liberal Democratic Party (LDP, for short). Having observed that NTT's share price plunged after the Council's Interim Report came out, MOF argued that the divestiture would lower the share price even further, which would have to mean a decrease in the government's revenue when more of the government's holding of NTT's shares came to be sold to the public. LDP's opposition to divestiture came partly from the *Zendentsu*'s interaction with its politicians. Thus, while it was decided that mobile phone services were to be divested (as NTT Mobile Communications Network, Inc., whose operation started in July 1992) and further measures to enhance NTT's internal efficiency would be taken, implementation of regional divestiture and functional separation, which previously had been recommended by Rincho, was postponed once again for another 5 years.

Unlike the 1990 review, in which Japan's institutional framework in the telecommunications industry was examined in almost complete isolation from what was going on in the rest of the world, it was hoped that the 1995-96 review would take the rapid changes in the world arena, as well as newly evolving technology, into full consideration. The review took place while interested parties — foreign countries, domestic and international suppliers, users, not to mention academics — all over the world were assiduously applying themselves to designing new framework for telecommunications industry. To cite just a few salient examples of changes which took place between the two reviews, it was now technically possible to make the barriers between a telephone company and a cable television (CATV, for short) company largely a matter of legal structure. Serious competition in the local telephone market, which was almost inconceivable in 1985, or even in 1990, was becoming eminently feasible because of wireless systems and integrated wired systems that combined voice telephony, CATV, and essentially anything else that can be digitized. Given these salient changes in technology, more flexible and open interconnectivity of NCCs' networks and NTT's local and subscribers networks would open the gate for serious challenges to NTT's local business. This was eminently feasible due to the important decision by NTT, announced in September 1995, to offer its local and subscribers networks for any reasonable interconnection with NCCs' networks. Subsequently, NTT and TTNet anounced their agreement on an interconnection, which was expected to kick off extensive competition in the local telephone market.

Unfortunately, the 1996 Final Report of the Telecommunications Deliberation Council,

which was entrusted once again to deliberate on the second review, was not innovative at all in its recommendation on the institutional framework of the future telecommunications industry. As with the 1990 report, functional separation and regional divestiture of NTT was again recommended, without providing sufficiently convincing reasons why this was necessary, or how it would improve the industry in the face of large changes in technology. However, the Final Report recognized the need for improvement on the refereeing and dispute settlement mechanism with regard to network interconnectivity. Unfortunately, however, it recommended explicitly that this mechanism be entrusted to MPT regulators rather than to the neutral third party, thereby strengthening the power of MPT even further. It looked even more unfortunate at that time that the government again simply deferred the public decision on NTT's managerial form, keeping the thick veils of uncertainty surrounding the telecommunications industry in Japan basically intact. The conspicuous lack of the sense of urgency was almost impossible to understand, to say the least.

Although the 1996 Final Report was never implemented, MPT and NTT finally came to an agreement on 6 December 1996, concerning the plan to split NTT into a long-distance company, two local-service companies, and a pure stockholding company. New legislation was passed in the Diet on 20 June 1997, revising the NTT Law completely, whose new name is the Law Concerning Nippon Telegraph and Telephone Corporation, etc (New NTT Law, for short), which is due to come into effect in 1999.[28]

One may wonder with good reason why and how such an agreement between MPT and NTT could be reached. A crucial step was initiated by the Prime Minister, Mr. Ryutaro Hashimoto, who instructed MPT on 31 July 1996 to allow NTT to enter the international telecommunications business, which had been prohibited by MPT's regulation through administrative guidance. This directive, which was motivated by Mr. Hashimoto's recognition that NTT was far behind powerful internatinal rivals to the detriment of national security and public welfare, could be implemented only by liquidating MPT's meticulous regulatory controls over NTT as well as the NCCs. In view of this fact, optimistic observers may be tempted to extoll Mr. Hashimito's political leadership for resolving at one stroke a public policy impasse which had lasted fourteen years. However, the final resolution was achieved only through secretive negotiations between MPT and NTT, while no recognizable role was played by any overt public decision-making mechanism, or even the Telecommunications Deliberation Council. Viewed from the standpoint of the efficacy and transparency of important policy debates and public decision-making, this fact is seriously lamentable, to say the least.

2. New Managerial Form of NTT

In the new managerial form of NTT Company to be implemented in summer 1999, the long-distance company will become purely private, whereas the two local-service companies, *NTT East* and *NTT West*, will continue to be special joint stock companies and remain within MPT's supervisory jurisdiction, although they will benefit from extensive deregulation includ-

[28] An unofficial English translation of the New NTT Law is to be found in MPT WWW pages at http://www.mpt.go.jp/policyreports/english/laws/Ntt_law.html. Another piece of new legislation passed on the same day was the 1997 amendment of the Business Law.

ing much widened managerial discretion. NTT's R&D facilities will also be split up. The holding company will be held responsible for promoting and conducting basic R&D, whereas the subsidiaries will conduct applied R&D that are directly related to the provision of their services.

This form of divestiture was made possible by the 1997 amendment of the Anti-Monopoly Law. The original Anti-Monopoly Law, which was introduced in 1947, prohibited establishment or operation of any "pure" holding company, where a holding company is defined as "a company whose principal business is to control the business activities of a company or companies in Japan by means of holding of stock [in the companies concerned] [Article 9(3) of the Anti-Monopoly Law]," which was interpreted to mean a company which has more than half of its assets as shares in subsidiary companies.[29] The purpose of this stipulation was to prevent a company from controlling the operations of a large number of firms in different industries, with relatively small assets, by means of a pyramid-type ownership structure.[30] Thus, the breakup of NTT into four companies including a holding company would not have been allowed if the original Anti-Monopoly Law were kept intact.

The above argument for the prohibition of a company whose main function is to hold shares in other companies is hard to rationalize. A company with business in one or more industries was not prevented from holding shares in other companies anyway. If *impure* holding companies such as these are not disallowed, why should we disallow *pure* holding company altogether, thereby depriving flexibility of corporate strategy? Strong pressures calling for a change had been mounting in the business community. It was in June 1997 that the Anti-Monopoly Law was finally amended, and the overall ban on pure holding companies was replaced by a more modest ban on holding company groups "which constitute an excessive concentration of economic power [Article 9(1) of the amended Anti-Monopoly Law]." Article 9(5) of the amended Anti-Monopoly Law and a guideline published by FTC on 8 Decmber 1997, "Interpretations of Holding Companies which constitute an Excessive Concentration of Economic Power," elaborate on what is to be allowed and what is not.[31] According to this guideline, the proposed NTT divestiture, where a pure holding company constitutes a crucial part, causes no problem under the amended Anti-Monopoly Law.

3. Yardstick Competition

One of the alleged justification for regional divestiture of NTT is that creating multiple carriers through its regional divestiture would promote competition in the local markets. Since the two local operating companies would remain local monopolies in their respective territories at least initially, the meaning of competition thereby promoted must be different from the usual one of *market competition*. Indeed, an alternative concept of *yardstick competition* is frequently invoked in this context. It is argued that, although direct market competition among local telephone companies might be hard to come by, *competition by comparison* would

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[29] A company is a *subsidiary company* of another company when more than half of the former's shares are held by the latter.

[30] Regulation of market concentration in accordance with Articles 10 and 15 of the Anti-Monopoly Law could not serve this purpose, as the relevant firms would operate in different industries.

[31] The guideline can be found on the FTC WWW pages at http://www.jftc.admix.go.jp/e-page/jv31/hold9.htm.

well contribute to the enhancement of public welfare by imposing competitive discipline on the local monopolists. Unfortunately, this argument would not work.

For yardstick competition to be workable as a decentralized disciplinary mechanism, not only should local monopolists be identical, or at least comparable on similar terms with respect to costs, but also there should be no collusion among them. Because neither condition is likely to be satisfied in the context of local operating companies created by NTT's regional divestiture, the argument for yardstick competition does not seem to measure up.[32] Indeed, the new regional company in charge of western Japan is expected to have higher cost structure overall than its counterpart in eastern Japan.

4. Implementation of the Chosen Reform Model

Back, then, to where we started, viz., Paul Joskow's classification of the basic reform models in network infrastructure industries. It should be clear that the reform model adopted in Japan's 1985 telecommunications reform is nothing other than Joskow's model (b), which allows the incumbent state monopoly to remain vertically integrated after privatization, but promotes new entry of firms into the potentially competitive segments by guaranteeing new competitors of fair access to the incumbent's bottleneck network facilities. The second stage of Japan's telecommunications reform, which is now going to be implemented, may be construed as a shift from the model (b) to the model (c), which divides the vertically integrated monopoly into the natural monopoly segments to be kept under regulatory control, and the competitive segments, where new entry of firms should be facilitated by guaranteeing all competitors of fair and equal access to the incumbent's bottleneck network facilities.

The pros and cons of models (b) and (c) is not easy to compare. The model (c) has the obvious advantage of letting long-distance service providers compete on equal footing. In contrast, the model (b) allows the integrated firm to exploit economies of vertical integration due to the joint provision of local and long-distance services through common ownership of transmission and switching facilities. R&D activities also display economies of scope. Much of the information and communications technology is common to both the local network and the long-distance network, so this is a special case of economies of scale widely observed in R&D activities. Even when different technologies are relevant to different segments of the industry, the need for general R&D capabilities suggests that separating R&D activities of the two segments may bring about inefficiencies. Moreover, R&D activities do not necessarily proceed in clear sequence of phases, and the innovation process usually involves a set of activities such as scientific research, technological research, product development design, and testing on the market, that are tightly linked with one another through complex feedback processes.[33] This seems to suggest that separating basic and applied R&D may be detrimental to the promotion of dynamic efficiency.

Needless to say, the comparison between the two models is closely related to the access pricing issue. However, here again, the effect is ambiguous. If accounting separation makes it

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[32] See Shleifer (1985), Vickers and Yarrow (1988), Armstrong, Cowan and Vickers (1994), and Vickers (1995) for more details on the theory and practice of yardstick competition.

[33] This model of the innovation process, the "chain-linked model," was developed by Kline and Rosenberg (1986).

possible to prohibit the incumbent integrated monopoly to charge the entrant more than it implicitly charges its own long-distance division, then the vertically integrated strucuture curbs the local division's incentive to extract rents from the long-distance segment by setting high interconnection fees. On the one hand, if accounting separation between the local and long-distance divisions of a vertically integrated firm is not complete, and cross-subsidazation between the divisions remains, vertically integrated incumbent carrier has incentive to raise its rivals' costs by setting high interconnection fees to gain advantage in the long-distance market.[34] It should be borne in mind that regulation of vertical conducts is not an easy task. Difficulties with conduct regulation in vertically integrated telecommunications have been much discussed in the literature.[35]

The historical experience in Japan seems to suggest something interesting about the issue of implementation of the chosen reform model.

In this context of implementation too, Joskow (1998) identified two basic approaches:

(a) The *big bang* approach, where the privatization, restructuring and introduction of competition are all implemented at one stroke; and

(b) The *piecemeal* approach, which provides for "a relatively long transition period during which the industrial organization and associated regulations are allowed to evolve *according to a preplanned transition program* [Joskow (1998, p.18)]."

To these basic approaches identified by Joskow, we would like to add the following approach in the light of Japan's reform experience:

(c) The *unstructured gradualist* approach, where the performance of initially adopted reform model is carefully monitored and deliberately reoriented in view of the spontaneous evolution through market competition in the liberalized segments.

We are keenly aware of the danger lurking in the unstructured gradualist approach. That is to say, this approach may precipitate opportunism, and may undermine credibility of the original reform plan. In order for this unstructured gradualist approach to have any chance of success, therefore, it is instrumental that the following two prerequisites are satisfied:

(a*) The regulatory mechanism should be such that competition in the liberalized segments will not be handcuffed so as not to deprive competition of its function as discovery procedure à la Hayek; and

(b*) The public decision-making mechanism exists which is capable of adjusting the reform plan in response to the changing environments paying due attention to spontaneous evolution through market competition, and also capable of motivating relevant agents to comply voluntarily with the shifting reform plans.

It is true that these are no mean prerequisites. Indeed, Japan's muddy experience testifies how confusing and confused this gradualist approach can become if the crucial conditions (a*) and (b*) are not fully satisfied. Nevertheless, there should be no serious objection here. After all, sensible regulatory mechanism and public decision-making mechanism constitute important, yet intangible, components of a country's infrastructure, and it is all too natural that the successful design and implementation of infrastructure reform hinge squarely on the prior provision of such intangible infrastructure.

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[34] See Salop and Scheffman (1983, 1987) for discussions on "raising rivals' costs."

[35] Chapter 7 of Armstrong, Cowan and Vickers (1994) discusses the British experience.

VI. *A Concluding Remark*

Using Joskow's neat conceptual framework for regulatory reforms in network infrastructure industries as a standard of reference, this paper tried to crystallize the lessons which can be derived from Japan's experience of telecommunications reform since 1985. It is undeniable that Japan's rocky reform experience is neither a success story, nor a model with universal applicability. However, it shows in concrete depth how important it is to take steps to reform the intangible infrastructure of public regulatory framework and public decision-making mechanism before embarking on the reform of tangible infrastructure. The purpose of this paper will be served if it succeeds in bringing the importance of intangible infrastructure reform into clear relief.

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