Trade Impediments and Domestic Price Differentials in the Japanese Telecommunications Sector

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2.1 Introduction

International trade in services have been increasing with the rapid developments in information technology in recent years. Telecommunication services are not only important in the sense that they are traded across borders, but also because they act as an infrastructure by which other services are traded internationally. These include legal and accounting services among other professional fields. In this chapter, telecommunication services which are essential for the delivery of various international services will be analyzed.

Discussion in this chapter will proceed as follows. First, in section 2.2, the degree of openness of Japanese telecommunication services will be reviewed. Based on research conducted by the APEC in 1995, which complied an international comparison of trade impediments, the relative openness of the Japanese telecommunications market will be examined. Second, the existence of trade impediments will be reviewed. Within the 16 APEC countries, Japan's openness led it to be ranked first in Basic Telecom and fourth in Value Added. Many limitations and restrictions, however, are reserved in the WTO's schedule for concession.

In section 2.3, the results of research on domestic price differentials will be introduced. This will show that Japanese telecommunication charges are 1.63 times higher than that in the U.S.

If trade impediments in telecommunication services are eliminated, domestic price differentials should shrink by themselves as service charges are lowered. In section 2.4, the

proposed liberalization in this field will be reviewed, and the sources that have built up existing domestic price differentials will be examined. If the wages and depreciative costs, which are higher than that of other developed countries, were lowered to the level of the U.S., domestic price differentials would be improved to 1.32. There is a hope that the ongoing transformation of industries, started in 1997, will accelerate competition and promote further deregulation. The improvement of domestic price differentials, however, can be achieved only if the differentials in other service industries, such as construction and labor supply are equally improved.

2.2 Market Openness of Japanese Telecommunication Services

2.2.1 Definition of Telecommunication Services

Telecommunication services in the broad sense include broadcasting and some sectors of computer services as well as telecommunications. The definition telecommunication services is base on the APEC definition since our analysis stems from reexamination of research conducted by the APEC. Therefore, telecommunication services include two service categories within 28 services defined by the APEC (1995a, p.76). The subdivisions of these two services are shown in Table 2-1. Such classification is originally derived from GATT GNS negotiation groups where negotiating countries made liberalization commitments for each of its services according to their countries' domestic policy goals. Frequency Measures introduced by the APEC(1995a) are also derived from the reports that member countries have submitted to the WTO. This schedule will be shown later.

As for the correspondence of these services with the classifications of Japanese industries, 7312-01 Domestic Telecommunications, 7312-02 International Telecommunications, and 7319-19 Other Communication Services are approximately equal. It is unknown if 4132-03 Construction of Telecommunication Facilities was included.

2.2.2 Regulatory Framework of Japanese Telecommunication Services

Prior to the examination of market openness, let us make an overview of the regulatory framework and the actual state of Japanese telecommunication services. In Japan, fundamental reforms of the telecommunication industry were conducted in 1985. It was at that point that NTT was privatized and, at the same time, competition was introduced. The regulatory framework that was established, still exists now. The outline of regulations related to trade impediments are as follows.

Telecommunication business is not classified and regulated according to its services. Rather, it is regulated according to the ownership of telecommunication facilities. Carriers operating services with their own facilities, Type I carriers, are more heavily regulated than those without facilities, i.e. Type II carriers. Accordingly, Type I carriers can provide all of the services that Type II carriers can. Among 131 Type I carriers (as of September 1, 1996. 111 carriers as of April 1, 1995), 28 carriers were permitted to operate voice telephone services, as carriers with fixed telecommunication facilities. These carriers included 25 domestic telecommunication carriers such as NTT, DDI and TTNet, and three international telecommunication carriers such as KDD, ITJ and IDC. The other 100 of Type I carriers were mobile, PHS and satellite telecommunication carriers who were allowed to provide services under a limited categories. NTT and KDD were also allowed to provide Telegraph services. These carriers were rather obliged to provide telegraph services which always generated deficits.

In order to become a Type I carrier, a company needs to obtain authorization from the Minister of Post and Telecommunications. The Minister determined whether or not to give authorization according to the balance of existing capacity in relation to market demand; which is the so called 'excess capacity clause'. A tariff is set, along with a rate of return, which often created an incentive to invest more than necessary, then filed with the acceptation of the Ministry. The Ministry's authorization is also required when starting a new service: the plausibility of submitted demand forecasts for prospected services are evaluated. As for foreign capital ownership, up to 20% was authorized for NTT and KDD, and 33.3% for other Type I carriers. For satellite communication carriers dedicated to international leased line services, in exceptional cases, 100% foreign ownership is authorized. By the end of 1996, the

prolonged dispute regarding NTT's business reforms were finalized. In exchange for NTT divesting into three companies, every Type I carrier, including NTT and KDD was able to provide both international and domestic services. As early as the beginning of 1997, dynamic transformations in the industry started, including mergers and partnerships. The tariff permission requirement for mobile services is to abolished before the end of 1997. In a couple of years, Type I businesses will be significantly deregulated.

On the other hand, there were 3,833 Type II carriers (as of September 1,1996. 2,107 carriers in April 1, 1995). They can provide all, except for voice telephone and telegraph services, without ownership of telecommunication facilities, by borrowing them from Type I carriers. These carriers are farther classified into two types: Special Type II Carriers (62 carriers are registering) who can provide international services and /or provide services for anonymous users and ; General Type II Carriers (2,063 carriers are reporting) who can provide domestic service for closed users. The latter is less regulated than the former. Regulation for Type II carriers is looser than that of Type I carriers: registration and reports are required for the commencement of services and the change in service tariffs. There is no restriction for foreign ownership. European and American carriers/ companies such as AT&T and IBM, and telecommunication consortiums such as Concert and Global One actuary operate telecommunication services in Japan as Type II carriers directly through affiliate companies.

2.2.3 Relative Degree of Openness in Japanese Telecommunication Services

In this section, we will examine the degree of openness of Japanese telecommunication carriers compared to other services and other countries. Within the 28 services[1] surveyed in the APEC(1995a), telecommunication services were ranked fifth for openness of Value Added and ninth for Basic Telecom. The frequency measures are relatively small compared to the other 26 services provided in Japan. Frequency measures of Transport Services (Road, Air, Auxiliary, Maritime, Rails and Space), Courier Services, and Postal Services are high. The

[1] The openness of all services are introduced in Chapter I by Yamazawa.

low degree of frequency measures in telecommunication services, which are considered as the substitutes of these services, represent a good contrast.

Next, the frequency measures from Japan will be compared with those of other countries. As shown in Table 2-2, Japan is not only ranked fourth in openness of Value Added services, but also first in Basic Telecom services within the 16 APEC countries. It is necessary to take the following aspects into account when evaluating Japan's high performance. First, the corresponding aspects of the service categories and the regulatory framework. For example, the frequency measure in the U.S. is 11 in Value Added, which is the highest degree of openness among all countries, and 100 in Basic Telecom, which is the lowest. Such extreme figures in the U.S. stem from the good matching of the U.S. domestic regulatory framework with the international tool for its measurement. In the U.S., Basic Telecom (2ca-2cg), particularly those who transmit voice messages, are heavily regulated while Value Added services (2ch-2cn) are not. If the U.S. took the initiative of the WTO/NGBT(Negotiating Group for Basic Telecom) negotiation, as it did in every international arena, the American way of service classification, in accordance with its domestic policy framework, would be adopted as an international standard supported by countries who had been following the American way of regulation.

On the contrary, the Japanese regulatory framework is such that, heavier regulation is levied on carriers who own telecommunication facilities. Regulation does not restrict services to be provided by those who do not own a telecommunication facility except for voice telephone and telegraph. This is one of the reasons why the Japanese frequency measures for Basic Telecom were extremely low while, Value added measures were not.

The second aspect that requires attention is that some countries have ordinary levels of frequency measures in telecommunication services, such as Indonesia, Canada and Korea.: frequency measures in Value Added services are the lowest among the 28 services within these countries. Such performances in telecommunications sector are worth while for noted for appreciation; it is a signal of success in telecommunication services negotiation in the WTO/NGBT which in turn will lead to fruitful results in liberalization commitment in the APEC meeting.

The third aspect is that the global trend of deregulation in telecommunication services, will farther lower countries' frequency measures, after the date of examination. For example, New Zealand eliminated all the regulation proprietary for telecommunications in 1995: the antitrust law is the only law that monitors telecommunications business. Of course, Japan is also undergoing. Other countries, however, could be deregulating faster so that Japan's ranking for market openness could become somewhat retarded.

2.2.4 Components of Trade Impediments

Japanese frequency measures are 55 in Basic Telecom and 38 in Value Added. Table 2-3 shows Graded Points by telecommunication sub sectors; every seven sectors; i.e. 2ca-2cg and 2ch-2cn, represent Basic Telecom and Value Added services, respectively. In this section, the Japanese trade impediments will be analyzed by referring to the WTO concession schedule submitted by the Japanese Government.

Prior to the examination for sub sectors, the following will illustrate examples of trade impediments in eight different measures; i.e. four different modes of supply by two different modes of access. Table 2-4 shows such examples in accordance with Japanese telecommunications and other legal frameworks. Indexes such as (2ca) refer to sub sector cords denoted in Table 2-3. Based on this table, trade impediments in different sub sectors shall be examined.

It is notable that points are graded quite systematically. Except for Voice Telephone(2ca) and Telegraph(2ce), four modes of supply are graded as 1.0, 1.0, 1.0 and 0.5, from left to right within the Market Access Mode, and 1.0, 1.0, 0.5 and 0.5 within the National Treatment Mode. As stated earlier, 14 sub sectors were classified into two sectors in the American system; Basic Telecom (2ca to 2cg) and Value Added (2ch to 2cn). Japanese frequency measures are 55 and 38 respectively. If we recompose the 14 sub sectors using the Japanese system, i.e. Voice Telephone(2ca) and Telegraph(2ce) are Basic Telecom that Type I carriers solely can provide while all other services are Value Added that Type II carriers can provide. Frequency measures of basic Telecom were 100 while Value Added were 38. These frequency measures are coincidental with those of Australia and New Zealand.

It should be noted that Japan gave concessions only for Type II carriers' services. Further, five services in Basic Telecom, i.e. Packet Switched(2cb), Circuit Switched (2cc), Telex(2cd), Facsimile(2cf) and Private Leased Circuit(2cg) are given a limited concession for "Domestic" services provided by "Type II carriers". In other words, neither market access nor national treatment is promised for international/ domestic services provided by Type I carriers and international services by Type II carriers.

Why were Type I carriers excluded from the concession schedule? It is plausible to assume that the foreign capital ownership was limited to only one-third (one-fifth for NTT & KDD) for a Type I carrier. If a foreign capital is to enter the Japanese market as a Type II carrier, most of the services can be provided without any restrictions, which can make the performance of frequency measures to be as low as 55 for Basic Telecom. Nevertheless, the fact that Type II carriers are not allowed to own telecommunications facilities seems to be a significant "barrier" for us even though this fact is not explicitly stated.

It is also questionable why international services were excluded from concessions for Basic Telecom while it is included explicitly in Value Added services. Services in sub sectors 2cf-2cg are treated equal with Value Added services in Japan where Special Type II carriers can provide them both domestically and internationally. Again, it would be plausible to judge it as a government level international strategy. In fact, all services in Value Added are given concessions; it does not exclude domestic nor international service. As stated in the concession schedule, "Value added services provided by Type II carriers include the following": i.e. liberalization of both domestic and international Value Added services. Services such as 2ch-2cd and 2cf-2cg could have been given the same degree of concession without any change in the current regulatory framework nor ongoing facts. Negotiating members were supposed to receive concessions for domestic services only for Basic Telecom and Japan voted for the majority for the time being. By doing so, Japan could strategically open its Basic Service market internationally without incident. It is doubtful whether international negotiation law allows such concessions, which are more restrictive than ongoing facts.

As to 2ch-2cd, 2cf-2cn, all the clauses in Presence of Natural Persons of Market Access Mode, Commercial Presence and Presence of Natural Persons of National Treatment

Mode are graded as 0.5. In the WTO/NGBT concession schedule, it is stated that they, "Do not promise except for the statement in common promise applied to all service sectors." The limitation in Presence of Natural Persons stems from immigration laws that restrict foreigners permission to work. Limitation in the Commercial Presence of National Treatment Mode stem from Commercial Law that requires special procedures for foreign capital ownership such as denied use of joint account financial statements or applications for a different rate of corporate tax.

2.3 Domestic Price Differentials in Japanese Telecommunication Charges

It has been widely discussed that Japanese price levels are higher than other countries. Telecommunication services are no exception. According to Kawai(1996), the domestic price differentials in telecommunication charge is 1.232, i.e. Japanese telecommunication charge is 1.232 times higher than that of the U.S., which is smaller than that of other services such as construction(2.505), wholesale and retail(1.578), financial services (2.404), real estate(1.290) and road transport and storage(6.908). Nevertheless, as international niche services targeting in Japanese domestic price differentials such as "call back" services, emerged as a result of innovations in information technology and with the increase in demand, derived from economic globalization, domestic price differentials in telecommunication services are attracting national interest. In this section, some features of a survey of domestic price differentials conducted by the MPT will be examined and current price differentials will be compared with other developed countries such as the U.S. and in Europe.

Table 2-5 shows a comparison by different telecommunication services in the U.S. and Japan. The overall price differential is 1.63 times: Which is higher than stated by Kawai(1996). This is because our calculation is based on the OECD model for domestic voice telephones which amount to 85% of telecommunications revenue which also takes into account, subscription fees and monthly fixed charges in addition to valuable charges.

2.3.1 Domestic Voice Telephones

According to the MPT(1996)[2], comparisons of domestic home use voice telephones in five Japanese cities are shown in Table 2-6. Telephone charges for domestic home use voice telephones in Tokyo was the highest among the five cities. In particular, long distance charges and fixed subscription and monthly charges are the most expensive while local call rates are the lowest. Telephone charges calculated, using the OECD model[3], which also included subscription fees, monthly fixed charges and variable charges in the calculation formula.

Long distance variable charges vary by time zone. The night discount rate applies between 7-11pm on weekdays and 8am-7pm on weekends and holidays. The midnight discount rate applies between 11pm-8am on weekdays. If we take these discounts into account, annual telephone charges are lowered by 1,500 yen in the U.S. and 4,800 yen in Japan. This, however, does not change the ranking. Moreover, discounted time zones are mostly utilized by home-users whereas, the results of our comparison will eventually be used for Input-Output analysis, where business use is targeted.

Even though the comparison made here was targeting the "home use market", voice

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[2] The outline of the research is as follows.

Date of research: January 1, 1996.

Exchange rates: one US dollar = ¥94.06, one pound = ¥148.47, one franc =¥18.84, one Deutsuche mark = ¥65.63: converted according to the average exchange rate in 1995, "International Financial Statistics", IMF.

Place of research/ Carriers investigated:

	Tokyo	NYC	London	Paris	Dusseldorf
Domestic Voice Telephone & Leased Line	NTT	Local: Nynex New York Telephone Long Distance: AT&T	BT	France Telecom	Deutsche Telecom
International Voice Telephone and Leased Line	KDD	AT&T	BT	France Telecom	Deutsche Telecom
Mobile Telephone	NTT DoCoMo	Nynex Mobile Communications	Borderphone	FT Mobile	DD Mobile

[3] The formula for the OECD model(domestic voice telephone): Domestic Telephone Charge Basket = Annual Fixed Charge (= Fixed Monthly Charge X 12 + Subscription Fee X 5%) + Annual Variable Charge (= Weighted Average of Actual Distribution of Calls by Distance and Time zones)

telephone, subscription fees and variable charges are the same for home and business users alike. The only difference in charges was in monthly charges which were 1,750 yen per month for home users and 2,600 yen for businesses. Therefore, overall telephone charges calculated here can be used as a good approximation of charges for business use.

Domestic Telephone services are used both in home and business. The share of business users was 58.4% of the number of calls which totaled 78,201 million times in the 1995FY, 38.0% for the duration of calls, which totaled 3,535 million hours, or 44.9% for telephone revenue which totaled 2,138,308 million yen (InfoCom Research(1996, p.85). The difference in percentages of these three statistics tells us the fact that business calls are shorter (106 seconds) than that of home use calls (242 seconds) , and that business-traffic is concentrated in the daytime zone - 8am-7pm on weekdays when no discount applies (ibid. p.86).

2.3.2 Domestic Leased Lines

A comparison of the domestic line service charges of the five Japanese cities surveyed by the MPT(1996), are shown on Table 2-7. Domestic leased line charges in Tokyo are about average for conventional services for analog voice telephones (narrowband), but are extremely high for new service such as digital high speed data (broadband) which can be used for video transmissions among computers.

The calculation of these charges were made in accordance with the OECD model[4]. It does not merely compare monthly charges of a sample bandwidth, but apportions the number of lines by distance based on the actual average usage. In fact, the monthly charge for digital high speed data (1.5Mb) is ¥1,536,000 for Tokyo-Osaka, and ¥2,522,000 for Tokyo-Kagoshima (NTT's charge).

Even though communication through home-based computers is becoming popular, it is plausible to assume that almost all the leased line users are for business. One of the reasons why Japanese leased line charges for analog voice telephones are "modest" among the five

[4] Formula for the OECD Model (domestic leased line): Leased Line Charge Basket = Monthly Charge Weighted by Actual Distribution of Bandwidth and Distance X 12.

cities is because, in some countries, voice telephone is often treated as a special service different form data or video which is protected or highly regulated. Particularly in the U.S. where voice telephone is explicitly classified as Basic Telecommunications, charges for voice telephone leased lines are higher than that in other countries. This is an intentional difference derived from American telecommunication policy.

2.3.3 Domestic Mobile Phones

Mobile phones were first introduced in the beginning of 1980's in Japan as a telephone that can be installed in an automobile. As the weight of the terminal became lighter and telephone charges lowered, it started to disseminate among business users. After April 1995, when terminals were allowed to be owned by users other than those being rented from a mobile phone carrier, home and individual users began to enter the market. There popularity increased at an unimaginable rate. In 1995, digital mobile phones were also introduced into the market. At the time of comparison, however, digital mobile phones had not yet been introduced into the U.S. Therefore, a comparison of the charges of analog mobile phones from the five cities surveyed by the MPT(1996) will be made. Table 2-8 shows these results. It can be seen that the charges were extremely high in Paris, and Tokyo had the highest charges among the five cities.

Calculations were made using the MPT Model[5], where subscription fees, fixed monthly charges and variable charges were included in the calculation formula. Even though subscription fees, in Japan, were lowered drastically in April 1995, from 24,000 yen to 9,000 yen, it is still high in the relative sense. The high rate of subscription fees and fixed monthly charges were the reasons for Japanese mobile phone charges being the second highest next to France. Here, we observe the similar tendency for domestic voice telephones. From April 1997, a new option for charging systems was introduced in Japan where subscription charges were totally eliminated in exchange for a higher fixed monthly charge. Variable charges were

[5] Formula for the MPT Model (mobile phone): Mobile Phone Charge Basket = Fixed Monthly Charge X 12 + Variable Telephone Charges Weighted by Peak & Off Peak Average Duration of Call Within 160 km + Telephone Charges Exceeding 160 km.

also lowered as a result of competition with the PHS system. Such reductions, however, are made in other countries as well so a similar result would be observed even if we compared the latest charges.

2.3.4 International Calls

References can be made to the MPT(1996), comparison of international telephone charges for the five cities, shown in Table 2-9. For a comparison of international charges, it is useful to compare charges between two destinations from different directions; i.e. which is more expensive to call from Tokyo to NYC or from NYC to Tokyo. In order to make such a comparison, the KDD model[6] was used for the calculation. The calculation is made according to the average usage for home use international calls.

It showed that calls from Japan were more expensive than those from three other European cities. The difference, by destination varies, depending on the charges of each of the cities in Europe because, KDD applies the same rate to all Western European countries. It should be noted that the charge from NYC was higher than that from Tokyo. This is the result of a strategic tariff setting by KDD who lowered the call charge to the U.S. by 10% in December 1995. From the end of 1994, so called "call back" service carriers started their business, where a call which originated from Japan was "transformed" to be of U.S. origin, so that a call charge was lowered by 20% to 50% compared to KDD's normal call charge. National users started to pay attention to KDD's charges and held the impression that the KDD charges were due to an extremely high tariff. For the comparison of call charges, it is common in Japan to use Japan-US daytime three minutes call charges. Therefore, KDD intentionally lowered its charges to the U.S. just enough, to make them lower than those from the U.S. A daytime three minute call charge to the U.S., is 480 yen but it is 524 yen from the opposite direction. (5.31 dollars, one dollar = 98.75 yen as of September 1, 1995, Infocom Research(1995), p.84.). In fact, if we use less time, a call charge, which originated from Japan, became more expensive because charged unit by seconds differed between the carriers.

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[6] Formula for the KDD Model (International Calls): International Telephone Charge Basket = Annual

Nevertheless, calls to the U.S. are dominant in KDD's revenue as the total time share of U.S. bound international calls was 19.75% , which was the largest. The second longest, among the five cities was to the U.K which occupied only 3.15% of total call minutes, and was ranked ninth by the MPT (MPT Telecommunications Bureau(1995)). Therefore, it holds significant impact in the economy that charges to the U.S. were lower than those to Japan even though KDD strategically lowered them as a tool of demonstration[7].

2.4 Liberalization in Trade in Service and Domestic Price Differentials

How can we expect the improvement domestic price differentials when the regulation that impede trade are eliminated. In this section, we will introduce Japanese prospect for liberalization which is declared by the government itself or required by foreign government, and seek possibilities for price differentials to be eliminated by referring to analysis on the domestic price differentials conducted by the MPT(1996).

In sum, the high cost structure of Japanese telecommunication carriers are determined by external factors such as high wages, construction charges and land prices as well as internal factors such as, excessively high quality and depreciation. Within the latter, a high quality of telecommunication circuits should be reviewed by carriers themselves in such a way that the excessive investment, maintenance and quality control were reduced.

A high rate of depreciation is closely related to tariff regulation which requires a rate of return pricing. The negative side effects of the authorization of tariffs have been pointed out by academics as well as by carriers themselves. The new way of regulating tariffs, such as price capping, should be adapted for the time being, but the total elimination of price regulation is the ultimate goal for total elimination of any price distortions.

Variable Call Charge Weighted by the Actual Distribution by Time Zone X Duration of Call by Time Z one.

[7] The research on International Leased Line is conducted by the MPT(1996). It resulted in the highest charges in Japan both for analog voice telephone and high speed digital leased lines among five cities. International leased lines are omitted from our calculations for domestic price differentials because the sales were as little as 26.1 million yen in 1994.

2.4.1 APEC Action Plan

The following is a review of Japan's future plans for the liberalization of telecommunication services, according to the Action Plan(APEC 1996) submitted in 1996. Even though the liberalization plan emphasizes telecommunication cooperation and deregulation in broadcasting services, in the following will concentrate on the three points related to telecommunication service liberalization.

(1)Full Liberalization of Voice Telephone Services by International VAN Carriers in 1997.
<commentary> Such liberalization will replace six zeros in voice telephone (2ca) to 1.0s. As a result, the frequency measure in Basic Telecom was lowered from 55 to 46.

(2) Reviewing the maximum volume of circuits that General Type II carriers are permitted to hold within 1997 (Over a certain volume, a carrier should register as a Special Type II carrier)
<commentary> It will urge potential Type II carriers to enter into market as General Type II carriers who are less regulated than Special Type II carriers in the sense that the former are required to report while the latter are to register. This liberalization plan seems to be posted as a solution of the problem pointed out by the USTR which will be outlined later. The frequency measures will not change, but the actual situation is to be closer to the concession.

(3) The abolition of the "Excess Capacity" clause in Telecommunication Business Law which is said to impede entry into the Telecommunications Business. A new Framework was built for the Telecommunication Business within the Public Utility regulatory framework. (The date of accomplishment is not specified but the year 2000 was set as a short time goal)
<commentary> Ongoing changes in telecommunication law requires the Minister to authorize the commencement of Type I carrier business in accordance with the market demand. Applicability of "Excess Capacity" was questioned by the U.S. at the time of the new entry of mobile or satellite carriers who were also classified as Type I carriers. The WTO/ NGBT concession schedule, however, limited its application to Type II carriers. Therefore, frequency measures will not change by this liberalization. A new Telecommunication Law was

submitted to the Diet in February 1997 that streamlines the existing carriers' business sphere after the break up of NTT. This law could possibly be interpreted as a new framework.

2.4.2 The USTR's "Foreign Trade Barriers"

The following is an outline of the types of barriers that are identified by the U.S. according to the report, "Foreign Trade Barriers" published by USTR(1996). Many telecommunication related barriers are listed in the report in the area of U.S. trade such as, satellite usage and NTT procurement, which is identified as government procurement. Among them, barriers directly relating to our classification of telecommunication services are introduced below.

(1) Several U.S. firms preparing to enter the local telephone service market in conjunction with offering cable TV services face a major obstacle in obtaining fair interconnection to NTT's local network. This is because NTT has little incentive to negotiate competitive interconnection rates. The MPT should enforce its power by requireing NTT to adopt pro-competitive interconnection rules. (USTR(1996), p.194)

<commentary> The USTR requires the Japanese government to enforce regulation rather than deregulation. Lowering interconnection charges would cut operation costs for carriers other than NTT which in turn could lower competitors' telecommunication charges. The agreement between NTT and the MPT to divest NTT into three companies held in December 1996 made it easier for the regulators to enforce the new NTT Local Telephone companies to lower interconnection charges. It is controversial that local phone charges, however, should be raised if revenue from interconnections decrease.

(2) The U.S. has requested that Japan permit 100 percent foreign investment in basic services in the WTO/ NGBT (USTR(1996), p.194)

<commentary> Telecommunication law accepts up to 33.3% foreign capital ownership for Type I carriers (20% for NTT and KDD). Actual participation of foreign capitals exist only in ITJ and IDC and they are less than 33.3% . In the U.S., there is no limitation for foreign capital ownership in common carriers. However, the U.S. limits the licensing for radio wave to

up to 20% for foreign participation; common carriers can not operate a business without a radio wave license. If Japanese foreign capital limitation is eliminated, the concession schedule can be easily applied to Type I carriers in addition to Type II carriers.

(3) The U.S. has urged that Japan clarify and streamline licensing procedures for new telecommunications service entrants, such as through eliminating the requirement for new entrants to submit detailed business plans in their applications to the MPT. It should eliminate the role in granting or denying applications based on its estimates of market demand. (USTR(1996), p.194)

The MPT should expand its area for cellular mobile phones to Tokyo and Nagoya. The agreement between USTR and MPT in 1994 include highly detailed schedule of commitments on infrastructure deployment and marketing efforts designed to ensure full implementation. (USTR (1996),p.201)

<commentary> The former is interpreted as a requirement in abolishing the Minister's authorization for the commencement of business for Type I carriers. Elimination of the entry requirement is posted as a goal by the government in the APEC(1996). The latter, the requirement of service area expansion of Motorola's system, has been an issue since 1989. The requirements have since expanded gradually. Currently, the analog mobile phone has been replaced by the digital mobile phone. The MPT declared, in March 1997, that it will promote North American Digital Mobile systems rather than NTT nor European. Therefore, the U.S. requirement will be withdrawn in the future.

(4) Foreign value-added service providers doing business in Japan have complained of overly burdensome regulation for Special Type II carriers. (USTR (1996) p.202)

<commentary> The Japanese government promised to deregulate the requirement of General Type II carriers in the APEC(1996). It intends to transform some of the existing Special Type II carriers into General Type II carriers so as to fill the gap between the WTO/ NGBT concession schedule and the actual situation.

2.4.3 Factors affecting Domestic Price Differentials

In this section, NTT's service costs will be compared with those of five other carriers, in four cities, to derive the factors affecting domestic price differentials.

(1)Total cost

Table 2-10 compares service cost components of NTT and KDD with the other five carriers. The characteristics of NTT is its share of miscellaneous factors; i.e. excluding wages, depreciation, taxes, interconnection charges, interest rate payments and R&D. It includes charges for load usage. NTT paid 5,000 million yen in 1994 while Nynex, BT, France Telecom and Deutch Telecom were not obliged to pay.

KDD's cost structure was also characterized by a high share of miscellaneous factors. It is also noted that its share of interconnection charges were high next to AT&T. This was because it paid all its interconnection charges for domestic lines to NTT, since KDD had been prohibited by law to operate domestic services. It also paid interconnection charges internationally : the call originating country paid a certain amount of charges to the designating country and vice versa; the number of calls that originated from developed countries normally exceeded that of developing countries. As a result, the developed country normally paid more international interconnection charges than they received.

(2) Cost per unit of circuit

When we decompose telecommunication costs per unit of circuit, the high cost for Japanese telecommunications services are revealed. Table 2-11 shows the cost per unit of circuit and the wage and depreciation costs as subdivisions of the total costs. High level of wages are not a proprietary character of Japanese telecommunications but a general phenomena of the overall Japanese labor market. It should be noted, however, that it is higher than Germany who also has a reputation of paying high wages. Furthermore, Deutch Telecom , at the time of research, held the monopoly. We should not forego the fact that wage payments of a carrier facing competition for more than 10 years are higher than a monopoly which is generally considered to be inefficient for keeping an unnecessary number of workers inside.

Therefore, the high wages are not reduced by factors raised from outside and is uncontrollable within the telecommunications sector.

Depreciation costs are also high next to Deutch Telecom. A high rate of depreciation in Germany was reasonable because it was under the heavy construction of infrastructure in the East side of the country. High depreciation was, therefore, accompanied by a high rate of interest payment. On the contrary, the reason for NTT having such high depreciation costs was because of the high accumulated amount of investment. Otherwise, we cannot explain why NTT was burdened with high depreciation when no waiting subscribers existed for the last 20 years: i.e. the new construction does not exist and the recent investment was dedicated to maintenance and replacement. These factors partially lowered to the ones outside that of the telecommunications sector: high construction cost and land prices. But there are factors within the telecommunications sector as well, namely, excess investment and telecommunications construction costs.

First, excessive investment. Table 2-12 denotes the annual number of accidents. Japanese telecommunications are proud to have an extremely high level of performance in quality. In other words, this high quality has been maintained by excessively heavy investment in telecommunications facilities. BT, who pays depreciation costs of less than half of NTT, generates eight times more accidents. The optimal level of investment, however, depends on the needs of users.

Next, reference is to be made to the level of construction costs. Most of the factors are from the outside of the telecommunications sector. In this sense, we have to wait for the results of domestic price differentials in the construction service. One of the factors, however, reduced to the oligopolistic (oligarchical) telecommunications facility construction market where the so called "NTT Family" composed by group companies and affiliates are entitled to construct telecommunications facilities. Moreover, the current rate of return regulations for telephone charges for Type I carriers gives carriers the incentive to over invest. Such regulations in turn make carriers overlook the appropriateness of construction costs and the prices of facilities but rather react too sensitively to the reputation by Japanese users who often are over concerned with the quality.

As we see the factors affecting domestic price differentials, high telephone charge can not solely be reduced by the uncontrollable factors. If the wages and depreciation waereto be lowered to that of Nynex, i.e. 32,478 yen, the total costs would have amounted to 71,616 yen, which would be 19% lower than current costs. If such a cost reduction was totally transferred to telecommunication charges, the domestic price differential would shrink to 1.321.

(3) The future direction of liberalization and deregulation

In 1997, the Japanese telecommunication market is experiencing drastic reform. As soon as the prolonged discussions on the divestiture of NTT were settled at the end of 1996, domestic and international service carriers started to merge or make partnerships. At the same time, the government is proceeding with its deregulation plans in the fields of tariff authorization, entry evaluation in light of excess capacity, and foreign capital ownership. All of these movements will make the telecommunication business more competitive. In order to reduce domestic price differentials in the telecommunications service, liberalization and facilitation of competition is required in the construction and labor sectors in addition greater efforts in the telecommunications sector.

Table 2-1 Contents of Telecommunication Services

2C	**C. Telecommunication Services**
2ca	a. Voice telephone
2cb	b. Packet-switched data transmission
2cc	c. Circuit-switched data transmission
2cd	d. Telex
2ce	e. Telegraph
2cf	f. Facsimile
2cg	g. Private leased circuit
2ch	h. Electronic mail
2ci	i. Voice mail
2cj	j. On-line information and data base retrieval
2ck	k. Electronic data interchange
2cl	l. Enhanced/value added facsimile services, incl.. store and forward, store and retrieve
2cm	m. Code and protocol conversion
2cn	n. On-line information and/or data processing (incl. Transaction processing)
2co	o. Other

Source: APEC(1995b), Appendix E, p.EL.

Table 2-2 Frequency Measures in Telecommunicats in Telecommunication Services:

country	value added	basic
Australia	38	100
Brunei	80	90
Canada	25	100
Chile	90	95
China	100	100
Hong Kong	76	97
Indonesia	65	100
Japan	38	55
Korea	25	100
Malaysia	63	90
Mexico	100	100
New Zealand	38	100
Philippines	68	100
Singapore	64	100
Thailand	86	100
United States	11	100

Source: Yamashita from APEC(1995a)

Table 2-3 Graded Points by Telecommunication Sub Sectors

2c	telecommunication	market access				national treatment					
		crossbor-der supply	consump - tion abroad	commer-c ial presence	presence nat'l psn	crossbor-der supply	consump - tion abroad	cpmmer-c ial presence	presence nat'l psn	number of no restrict	inventory score
2ca	voice telephone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	55.4
Basic Telecom											
2cb	packed-swiched data	1.0	1.0	1.0	0.5	1.0	1.0	0.5	0.5	5	
2cc	circuit-swiched data	1.0	1.0	1.0	0.5	1.0	1.0	0.5	0.5	5	
2cd	telex	1.0	1.0	1.0	0.5	1.0	1.0	0.5	0.5	5	
2ce	telegraph	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
2cf	facsimile	1.0	1.0	1.0	0.5	1.0	1.0	0.5	0.5	5	
2cg	private leased circuit	1.0	1.0	1.0	0.5	1.0	1.0	0.5	0.5	5	
2ch	electronic mail	1.0	1.0	1.0	0.5	1.0	1.0	0.5	0.5	5	37.5
Value added											
2ci	voice mail	1.0	1.0	1.0	0.5	1.0	1.0	0.5	0.5	5	
2cj	online info data proc	1.0	1.0	1.0	0.5	1.0	1.0	0.5	0.5	5	
2ck	EDI	1.0	1.0	1.0	0.5	1.0	1.0	0.5	0.5	5	
2cl	enhanced facsimile	1.0	1.0	1.0	0.5	1.0	1.0	0.5	0.5	5	
2cm	code/protocol convers	1.0	1.0	1.0	0.5	1.0	1.0	0.5	0.5	5	
2cn	online info data proc	1.0	1.0	1.0	0.5	1.0	1.0	0.5	0.5	5	
2co	other										

Source; Tony Warren, Working Paper (reprinted under the permission of the author)

Table 2-4 Examples of Telecommunications Trade Impediments

Mode of Supply	Market Access Restrictions	Violation of National Treatment
Cross-border Supply	Provision of domestic/ international telephone/ telegraph services by foreign carriers. (2ca), (2ce)	Restriction of foreign participation in telephone/ telegraph services. (2ca) (2ce)
Consumption Abroad	Use of domestic telephone/ telegraph services in foreign country. (2ca), (2ce)	Application of domestic service menu and rates for the use of telephone/ telegraph services used in foreign country. (2ca), (2ce)
Commercial Presence	Establishment of a telephone company by foreign carrier for domestic/ international telephone/ telegraph services. (2ca), (2ce)	Restriction of foreign capital participation for an establishment of a telephone company for domestic/ international telephone/ telegraph services. (2ca), (2ce) Restriction according to Commercial Law for an establishment and operation of an telephone company. (2ca-2cn)
Presence of Natural Persons	Application of Immigration Law for labor intending to work as a telecommunicaiton worker. (2ca-2cn)	Ban on labor force immigration by Immigration Law for unskilled/ non-professional telecommunication worker.(2ca-2cn)

Source: Yamashita.

Table 2-5 Domestic Price Differencials (Tokyo-New York City) in Telecommunication Services and the Size of the Telecommunications Market

	Tokyo	NYC	NYC=1	Weight(sales/100mil.yen)	Weight(total=1)	Weighted Price Differencial	Notes
Domestic Telephone	100	55	1.82	54834	0.71	1.28	1
Domestic Leased Line-analog	100	130	0.77	5449	0.07	0.05	2
-high speed digital	100	20	5.00	273	0.00	0.02	
Domestic Mobile	100	76	1.32	14187	0.18	0.24	3
International Call	100	119	0.84	2886	0.04	0.03	4
Domestic Price Differencial			1.627575	77629			5

Note1: Revenue from domestic telephones, NTT+NCC(New Common Carriers), 1995FY

2: Revenue from domestic leased lines, NTT+NCC, 1995FY, is apportioned by the number of subscribers in conventional leased line services (1.034.119) and high speed digital transmission services(51.891).

The number of subscribers in different bandwidths are converted to 64kbps leased line subscribers.

3: Revenue from domestic mobile phones, NTT+NCC, 1995FY.

4: Revenue from international calls, KDD+NCC, 1995FY.

5: Total revenue of telecommunications services is 9.887.1mil.yen(InfoCom Research(1996)p.26), which exceeds the total revenue shown in the above table as 7.762.9mil.yen. The difference of 2.124.2mil.yen includes total revenue of Type II carriers(1.090.0mil.yen) and revenue from miscellaneous services of Type I carriers such as satellite transmissions and packet swiching services.

Source: Yamashita from MPT(1996), InfoCom Research(1996), etc.

Table 2-6 Comparison of Domestic Telephone Charges

subdivision/ cities	Tokyo	NYC	London	Paris	Dusseldorf
Domestic Telephone Charge (year:yen)	61,997	33,844	33,407	43,560	51,307
Indexed Domestic Telephone Charge (Tokyo=100)	100	55	54	70	83
Subdivision Local Call (weekday, daytime, three minutes:yen)	10	10	15	12	14
Long Distance (weekday, daytime, three minutes:yen)	180	96	37	116	110
Subscription Fee(yen)	72,800	5,173	14,699	4,767	6,563
Fixed Monthly Charge (month:yen)	1,750	950	998	715	1,392

Source: MPT(1996) pp.2,4.

Table 2-7 Comparison of Domestic Leased Line Charge

	Tokyo	NYC	London	Paris	Dusseldorf
Analog Voice Telephone (month:yen)	5,294	6,903	2,589	5,542	4,796
Indexed Analog Voice Telephone (Tokyo=100)	100	130	49	105	91
High Speed Digital (1.5Mbps:yen)	67,650	17,740	23,029	53,719	39,094
Indexed Analog Voice Telephone (Tokyo=100)	100	26	34	79	58

Source: MPT(1996), p.6.

Table 2-8 Domestic Mobile Phone Charge (Analog)

	Tokyo	NYC	London	Paris	Dusseldorf
Mobile Phone Charge (month:yen)	18,146	13,786	9,869	32,084	13,853
Indexed Mobile Phone Charge (Tokyo=100)	100	76	54	177	76
Subdivision Subscription Fee (yen)	9,000	4,703	7,424	3,957	4,266
Fixed Monthly Charge (month:yen)	7,400	2,817	3,712	9,422	3,367
Telephone Charge (daytime, three minutes)	230	174	111	359	181

Source: MPT(1996), p.8-9.

Table 2-9 Comparison of International Calls

	Tokyo→NYC	NYC→Tokyo
International Call Charge (year:yen) Tokyo to NYC =100	137,880 100	164,248 119
	Tokyo→London	London→Tokyo
International Call Charge (year:yen) Tokyo to London=100	243,480 100	159,846 66
	Tokyo→Paris	Paris→Tokyo
International Call Charge (year:yen) Tokyo to Paris =100	243,480 100	229,437 94
	Tokyo→Dusseldorf	Dusseldorf→Tokyo
International Call Charge (year:yen) Tokyo to D.D.=100	243,480 100	170,113 70

Source: MPT(1996),p.5.

Table 2-10 Decomposition of Total Cost

Original: Annual Reports of carriers, 1994.
Source: MPT(1996),p.10.

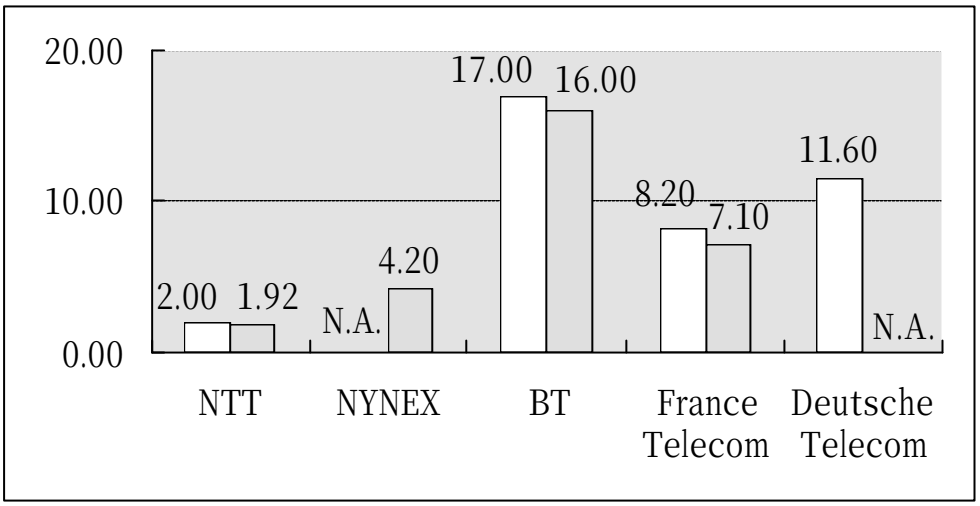
Table 2-11 Comparison of Cost per Circuit

Cost per Circuit / Carriers	NTT	NYNEX (note1)	BT (note2)	France Telecom (note3)	Deutch Telecom (note3)
Total Cost (yen)	88.370	60.752	60.842	68,572	103,182
(NTT=100)	100	69	69	78	117
Subdivision wage (yen)	24,292	18,328	18,209	14,783	22,360
depreciation (yen)	24,940	14,150	11,609	21,532	29,973

Note1: A local telecommunication carrier providing total service within seven states including New York.
Note2: British Telecom. A telecommunications carrier providing local, long distance and international telecommunications service in overall UK. A duopolist with Mercury.
Note3: Telecommunications carriers providing full services in France and Germany, respectively. A monopolist at the time of research.

Source: MPT(1996), pp.10-11.

Table 2-12 Number of Accidents per Year per 100 Circuits



Original: For 1994, annual reports of carriers. For 1992, OECD's White Paper for Telecommunications.

Source: MPT(1996), p.12.