The Experience of Railway Privatisation in Japan

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1. Railway Privatisation and Its Impacts

1.1 The Road to Railway Privatisation

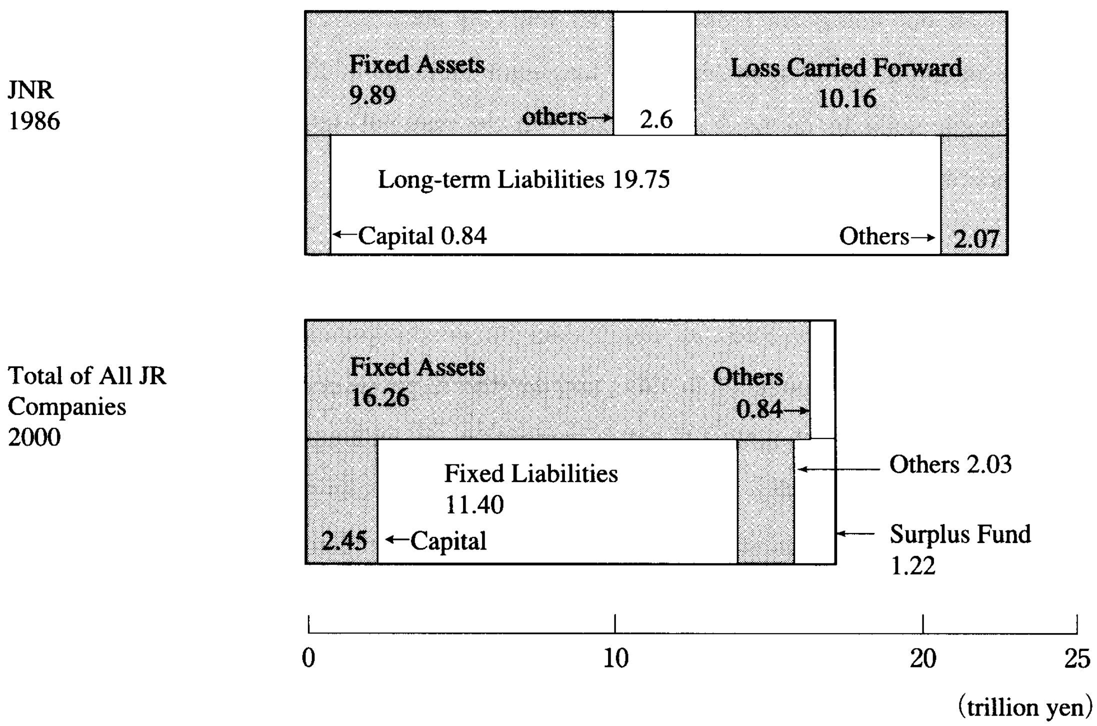
Railways in Japan was initially founded by the government in 1872, and in 1906, the government purchased railway lines which were run by private companies, thus all the main lines were nationalised. In 1945, Japan was defeated in the Second World War, and the social and economic systems that were in place for more than half a century, since the establishment of a modern state, were changed dramatically. Within that framework, the national railway was reorganised as a public corporation, the Japanese National Railways (JNR). During this period, the railways continued to make profit for approximately 90 years, and contributed to the Japanese economy's modernisation and recovery from war devastation. However, after JNR plunged into the red in 1964, it increased its deficit without returning to the black once and for all; especially after the oil crisis in 1973, its losses per year amounted to an enormous sum of 8 billion dollars, if one calculates 1 dollar as 120 yen. As accumulated losses and funds for capital investment were almost all covered by loans, the long-term liabilities of JNR, including loans to pay for the interest of loans, grew to an amount equivalent to the national deficit of several semi-advanced countries. It reached 165 billion dollars in 1986.

The JNR Reform Law was passed in the end of 1986, and in April 1987, JNR was divided and privatised. It made a fresh start as JR companies, all shareholder-owned companies. Privatisation was a drastic reform, comparable to the nationalisation in 1906, and the shift to public corporation in 1949. Hereby, the railway business was divided into a total of seven companies, six passenger railway companies and one freight railway company. The method used to separate the passenger railway companies, by region, is one of the characteristics of the Japanese reform. East Japan Railway Company, Central Japan Railway Company and West Japan Railway Company, are the three passenger railway companies that are located in Honshu, the main island of Japan, while the other three passenger railway companies operate in the other three local islands, Hokkaido, Shikoku, and Kyushu. The railway network itself links each of the three islands and Honshu by underwater tunnels and bridges over seas. As for the freight railway business, one company operating for the whole country was maintained. JR companies' shares were primarily, just after privatisation in 1987, completely held by the government the JNR Settlement Corporation, to be accurate even though they became shareholder-owned companies. However, the three companies located in Honshu became fully private enterprises in 2001, with the listing of their shares.[1]

1.2 Railway Business Takes a Favourable Turn After Privatisation

Next, one should see the changes after railway privatisation by comparing some data. Figure 1 contrasts the balance sheet of JNR in its final year with that of the total of all JR companies in 2000. In the JNR era, the loss carried forward was more than its fixed assets, and most of that amount was covered by long-term liabilities. Other than this, there were long-term debts taken from JNR's account to that of the government, hence the accumulation of long-term liabilities was even much larger. On the other hand, as for JR companies, their fixed assets increased, but they inherited JNR's long-term debts as fixed liabilities within a range that would not suppress management; therefore, the companies' financial situation improved dramatically. Even then, it seems that a heavy burden was placed on the three JR companies operating in Honshu, which took over a portion of JNR's long-term liabilities. The long-term liabilities of JNR that were not carried over to the three Honshu JR companies were inherited by the JNR Settlement Corporation, which was to pay it back by selling assets to produce financial resources. The amount remaining, which could not be paid back, was to be charged on the taxpayers' bill in the end. If one

Figure 1 Balance Sheet of JNR and JR Companies



examines the trend throughout the 15 years after railway privatisation, the liabilities inherited by JR companies have been repaid as scheduled, but the repayment of debts carried over to the JNR Settlement Corporation cannot be said to have gone smoothly. The JNR Settlement Corporation was to use the profit gained from selling land owned by JNR as its financial resource to pay back the debts. Nevertheless, the organisation was not able to accomplish what was planned, as the selling of land itself was delayed due to the government's measures to cope with the soaring land prices at that time.

Figure 2 compares the profit and loss statement before and after privatisation. Operating ratio (operating costs／operating income × 100) has improved greatly, from 147 percent to 86 percent. Both cost cuts and an increase in operating income have brought about improvement in the balance between income and expenses. Concerning cost reduction, 60 percent of the amount was realised through cutbacks in personnel expenses. The labour cost was reduced mainly due to the decrease in the number of employees in the freight division, not by cutting the wages of each personnel. On the other hand, the rise in passenger traffic volume is the major reason for the growth in operating income. After being privatised, the three Honshu JR companies have not raised their fares; hence, the income was not increased by raising fares, but rather by gains in the volume of passenger transport. One should now compare major statistics concerning railways before and after railway privatisation by taking a look at Table 1. When one examines the scale of operation by looking at the kilometres under operation, the figures for passenger traffic has increased, and that of freight transport has decreased, though the changes are both small, thus

Figure 2 Profit and Loss Statement of JNR and JR Companies

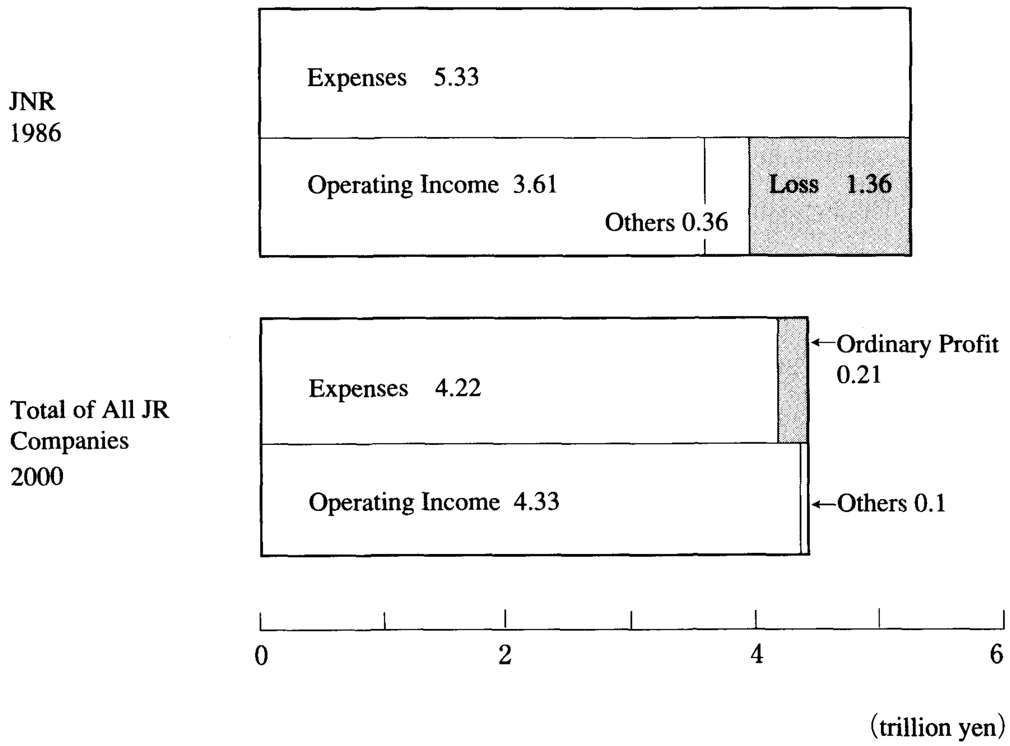


Table 1 Comparison Before and After Privatisation

Category		Unit	Before Privatisation 1986	After Privatisation 2000
Route Kilometres	Passenger	1000km	19.4	20.1
	Freight	1000km	10.1	9.6
Passenger Kilometres		billion km	198.3	240.7
Tonne Kilometres		billion km	20.1	21.9
Traffic Density	Passenger	persons	26,819	32,948
/km/day	Freight	tonnes	3,708	6,245
Operating Ratio		%	147.2	86.3
Number of Employees		1000 persons	223.4	147.2
Personnel Expenses		trillion yen	2.12	1.43

it has not changed greatly after privatisation. It should be noted that since privatisation, passenger traffic volume, passenger kilometres, has grown sharply, but freight traffic volume, tonne kilometres, has not changed.

2. Profitable and Unprofitable Businesses

2.1 Shinkansen and Commuter Trains in the Tokyo Area Support JR

Looking at traffic volume after privatisation in terms of traffic density (passenger kilometres/tonne kilometres／route kilometres under operation／number of days under operation per year), the passenger traffic density is around 30,000 people, and the freight traffic density is approximately 6,000 tonnes. If one examines similar statistics in European railways, in Germany, passenger traffic density is 4,000 people, and freight traffic density 7,000 tonnes; in France, the figures are 4,500 people for passenger traffic density, and 5,000 tonnes for freight traffic density. It is noticeable that the traffic density for passenger railway transport in Japan is six to seven times more than that of European railways, an enormous volume. The population density in Japan is 1.5 times more than Germany, and three times more than France, but railway passenger traffic density is even two to four times more than that. The reason for this is that railway's share in the passenger transport market is at a high level of 30 percent. Within Japan, the markets where railway transport is in a position prior to other modes of passenger traffic are in the metropolitan areas of Tokyo and Osaka, where commuter electric trains are operated, and in the intercity Shinkansen network linking Tokyo and Osaka, a distance of 550 kilometres. The business situations of the three Honshu JR companies, which operate in these markets, are favourable. On the contrary, the operation of the other three JR companies running in the local islands have been anticipated to face difficulty from the start of privatisation, thus a scheme called the Management Stabilisation Fund was created to support their businesses. Nevertheless, it has become impossible to support the operations of the three island JR companies by investment returns on the Management Stabilisation Fund, as the interest rate has fallen since privatisation was carried out. Hence, a new cost burden has risen for the government.

Additionally, initially after privatisation, the Shinkansen network, obviously including the Tokaido Shinkansen connecting Tokyo and Osaka, earning the most profit, were all to be owned by the government, the Shinkansen Holding Corporation. The three Honshu JR companies leased the lines, and paid usage charges for the tracks. However, JR companies could not depreciate Shinkansen assets under this system, while the Shinkansen Holding Corporation also did not have a means to depreciate, thus the JR companies bought the Shinkansen assets instead. In this manner, the Japanese style separation of infrastructure and operation, which began in the Shinkansen network, ended in a short term. The separation of infrastructure and operation in the Shinkansen system was exercised to use the payment of usage fees as financial resources for the Management Stabilisation Fund which was established to support the operation of the three island JR companies, as well as for the repayment of JNR's long-term liabilities, rather than to implement competition in the field of operation. Japan's policies toward railway privatisation is different from that of European countries, in that there is totally no focus on bringing about competitiveness, a point that can be noted as a major characteristic.

2.2 Local Lines and Freight Transport Were the Causes of JNR's Debt

As for the three JR companies in the three local islands, fares have been raised, and also local governments have been giving financial assistance. Though local governments never subsidised JNR, after privatisation, they have been supplying funds for projects such as improving facilities to speed up the trains. This point is clearly a social change brought about by railway privatisation. One of the reasons why JNR incurred debt was that the corporation operated local lines in rural areas such as those run by the three island JR companies, but another primary reason for the accumulation of liabilities was in freight transport. Although freight railway's traffic density in Japan is quite the same scale as those in European railways, railway's market share in domestic freight transport is only four percent, considerably lower than those of European countries. Railway's share in the freight transport market was 40 percent in 1960, but continued to decrease afterwards, and since 1985, it has been hovering at a level under five percent. The status of railway freight tumbled partly because as industries shifted their energy source from domestic coal to cheap imported oil, the transport of coal, a field railway was strong in, became unnecessary. Another factor was that trucks became more competitive, with the drastic improvement of roads. Since the latter half of the 1970s, the shifting of the industrial structure in Japan led to an increase in transportation of loads light and small in volume, which the consignors were willing to pay high carriages for. Also, the just-in-time system became popular during the same period. These two factors made it common to use trucks, which are more mobile. Furthermore, the role of coastal shipping within the area of heavy freight transport has been conventionally substantial for domestic freight transport in an island country like Japan. Moreover, as Japan is mountainous, unlike the United Kingdom, similarly an island country, many good ports that are deep in depth have been established, hence coastal shipping has maintained a stable market share of 40 percent.

3. Drastic Changes in the Transport Market

3.1 Slow Down in the Japanese Economy and Railway Business

Railway freight, which had gone under attack from both road transport and coastal shipping, had no choice but to reduce its scale to balance its income and expenditure. It pulled out of nationwide transport using the yard system, and switched to direct transport using main central stations. As the scaling down of the freight division was implemented together with a massive reduction of employees, it had the effect of cutting down personnel expenses in the new railway enterprise after privatisation. Nonetheless, this reduction of personnel was accompanied with a considerable burden on the public, not only concerning the workers who lost their jobs and their families, but also issues such as breaking up of trade unions, division in public opinion, and prolonged trials. Japan Freight Railway Company (JR Freight) has maintained its nationwide scale, transporting cargo by leasing tracks owned by the passenger railway companies. The usage charges for the rails are decided based on the avoidable cost method, to reduce the burden on JR Freight. However, in the case of the three island JR companies, which do not have much business stability, this scheme of taking over an unnecessary burden for JR Freight is itself, unreasonable. Although the typical feature of railway privatisation in Japan is in regional division, it was inconsistent in the area of freight; this signifies that the method was imperfect. In addition, the fact that policies to adjust the inequality in earnings that arouse with the regional division of JR companies, such as the Management Stabilisation Fund and the system to lease Shinkansen lines, were revised drastically, suggests that the system of regional break down had an abnormal aspect. Railway business can never be free from the market of the region where the railway line is built. Also, the scale of the market in each region is very much diverse. This means the policy of guaranteeing sound management for railway companies located in each and every region simply has unreasonable perspectives. The author cannot agree to the idea of fully privatising the three JR passenger railway companies operating in the three local islands, and the freight railway company, all of which are primarily unprofitable.

Since railway privatisation took place in 1987, the operations of the JR companies have been going favourably, with the prosperous Shinkansen operations, such as the line connecting Tokyo and Osaka, and transportation in the Tokyo metropolitan area using electric trains, as the basis; moreover, by narrowing down the freight business, and cutting back investment. In the background of this prosperity was the unprecedented boom in Japanese economy from 1987 to 1992, but since then, the country's economy is in a serious depression, a situation never experienced before. Already from 1996, the traffic volume of JR companies, both passenger and freight, have been on a downturn, but as it is difficult to raise tariffs, with continuing deflation, decrease in income from fares and carriages cannot be avoided (see Figures 3 and 4). Furthermore, the number of children is decreasing nationally, and the population of retired elderly people is increasing. These are both factors that lower passenger traffic volume, no matter how the economy fluctuates. Finally, it must be stated that through railway privatisation, the explicit interference of politicians in railway business has faded away. The three JR companies operating in Honshu which are fully privatised, must clear the way for a bright future by themselves, under the severe economic environment facing them, by combining railway business with other businesses.

3.2 Issues Surrounding the Management of Private Railways

In privatising JNR, the people who promoted privatisation referred to two previous cases. One was the division and privatisation of electric power companies, called the realignment of the electric power industry, and the other was the operation of private railway companies. The breaking up and privatisation of electric power companies was carried out in 1949, after Japan was defeated in the Second World War.

Figure 3 Passenger kilometres

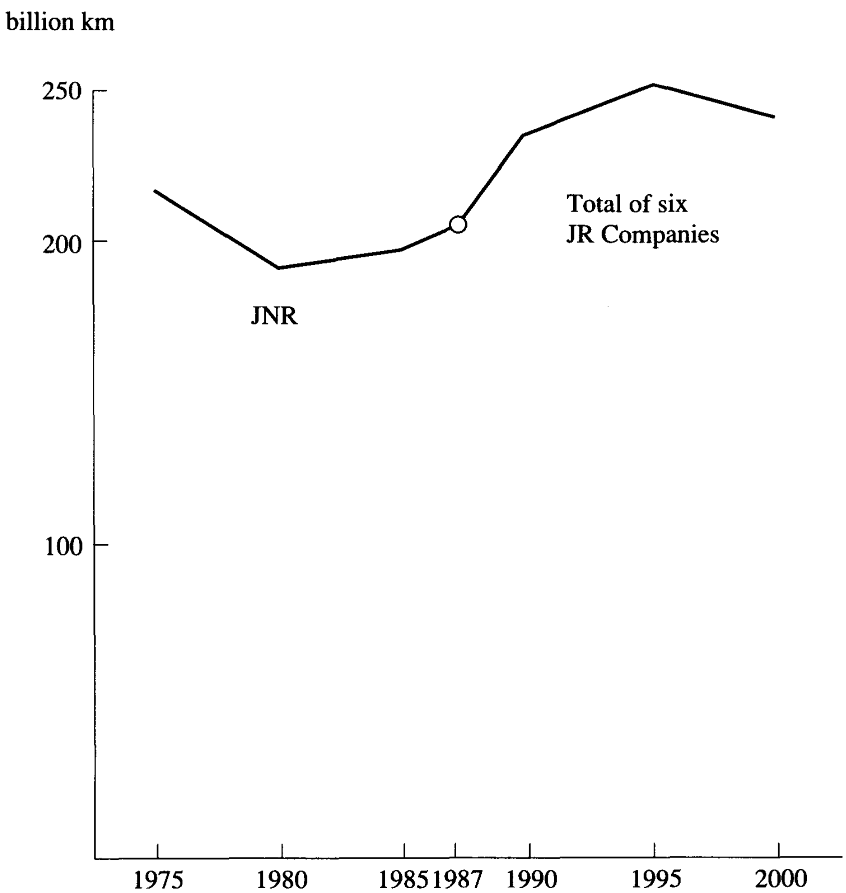
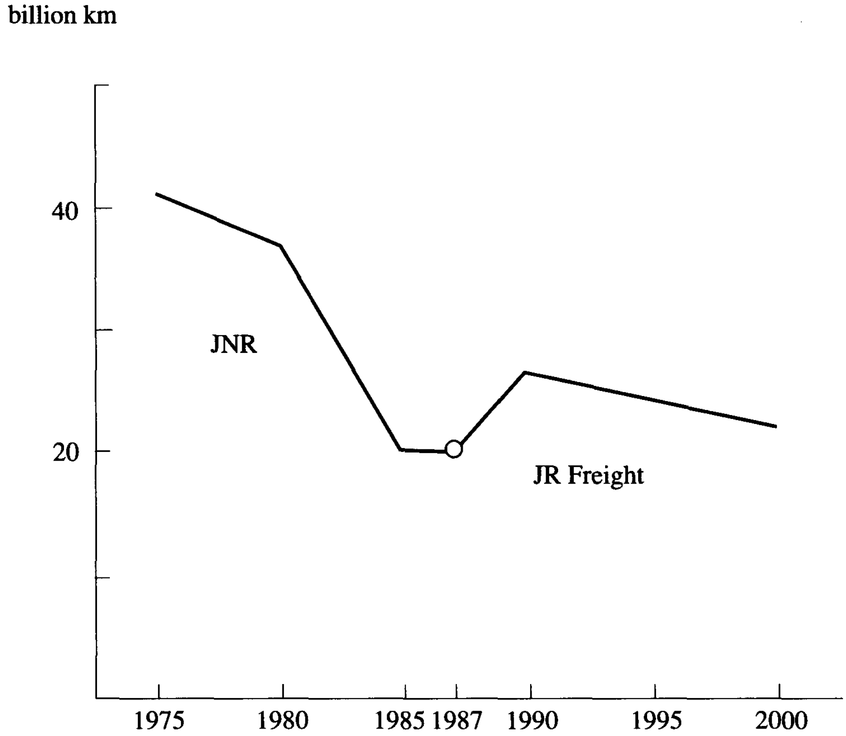


Figure 4 Tonne kilometres



The electric power industry in Japan started as numerous private companies in various regions, which began business from the end of the nineteenth century; they were eventually integrated into five major electric utility companies, by merger and acquisition. The Japanese government nationalised these five major power companies during the Second World War for military purposes. The realignment of the electric power industry was the privatisation of this power company, which was nationalised during the war, according to an order by the occupation forces. The purpose of this privatisation was to suppress left wing labour activities that were arising in state-owned enterprises after the defeated war, rather than to curtail Japan's military abilities.

The realignment of the electric power industry was substantially, the division and privatisation of a national enterprise, and the organisation was broken up by region. There is no doubt that this became a model for the method chosen to reform JNR, division and privatisation. By reorganising the power industry, the left wing trade union with a scale to cover the whole electric power sector was disbanded. A trade union that made it a principle to cooperate with the management was organised in each company. On the other hand, the operation of railways by private companies has succeeded almost only in Japan, thus, the cases of private railways were utilised as "living" precedents of railway privatisation. However, as the author had stated when JNR was being privatised, one has to be careful that, each and every major private railway company is situated in an urban area, and also the fact that their scale of operation is so small they cannot bear comparison with JNR. Major private railways have maintained a high performance by engaging in transportation of business employees and students in urban areas, a field where railways can quite easily make use of its characteristics, while conduct other businesses, which brought in revenue few times more than what they earned from railway operation.

Nevertheless, it is clear that nowadays, the business of private railways has come to a deadlock. The management style of first purchasing land, second constructing a new railway line, then selling houses and constructing buildings to rent, to internalise profit from development, has become something of the past, as there is no more land suitable for development, and because land prices have plunged. When people look at private railways, they tend to focus on various diversified operations in a wide field of businesses, but virtually, the fields of railway and real estate went hand in hand, as if they were two wheels of a bicycle. However, the two are both now in a severe situation, which no one has ever experienced before. The decrease in the population of business workers and students, due to the decline in the number of children and the increase in the number of elderly people, has had a strong impact on the railway sector; the fall in the number of customers taking trains to and from work, as a result of the economic recession, has made the state of affairs even worse. The transportation of business workers has risen throughout a long period, but it has finally gone on a downturn.

Since private railway companies in Tokyo were investing in new facilities to cope with the congestion during rush hours, at the same time as when traffic volume started to decline, this capital investment will become a heavy burden on future management. The real estate sector is in a strenuous situation, as land prices continue to drop, because today's recession is a reaction to the soaring land prices during the bubble economy era. As the population is on a downturn, there is no need for residential areas to expand further to the outskirts of cities, and rather, the people are now moving from the outskirts to apartments in the cities, which seem to have become cheaper, since land prices have gone down. This trend is leading to a decrease in earnings from railway operation. Moreover, the accounts of Japanese companies are now more focused on consolidated financial results, to adapt to global accounting standards, another factor affecting the management of private railway groups. Groups that used to operate with unprofitable companies within their organisations, now cannot do so, as people primarily look at consolidated results, hence there are now cases where companies are being separated from the group. This includes local private railway companies, which have been taken over by major private railways. Local private railways have suffered with poor business results ever since the end of the era of high economic growth after World War II, and it seems that the future survival of some companies may be in doubt.

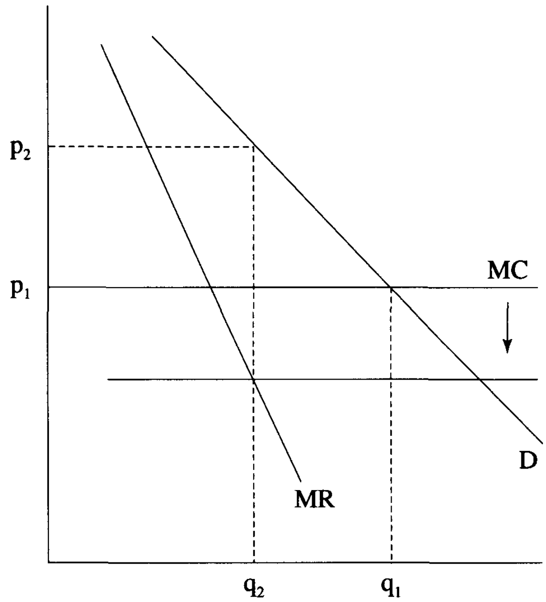
4. Issues Concerning Privatisation

As a result of the division and privatisation policy, the realignment of the electric power industry, two problems arouse; the high cost operation of electric power companies, and high power rates. This is because monopoly is guaranteed, and rates have been decided by rate of return regulation. This seems to be evidence that the point made by Harvey Averch and Leland Johnson was absolutely true. On the other hand, railway fares after JNR privatisation have not been decided by rate of return regulation. The fares of the three companies in Honshu are the same as those of JNR, while the other three JR passenger companies operating on the smaller islands have raised their rates based on JNR's tariff. Since Japan's economy is now in a deflation phase, even in the transport sector, rates of transportation modes such as truck and air are on a downward trend. However, as there is price rigidity in the downward direction in the railway industry, the possibility of reducing fares is considerably low. If this situation continues, it may be the case that the cost competitiveness of railways becomes hampered, leading to a defeat in the competition within the transport market.

In the first place, there is no guarantee that privatisation leads to an implementation of fair standards in deciding fares. The objective of privatisation policies is to improve efficiency of business organisations, which does not necessarily result in an improvement in the efficiency of distributing resources. Toshihiko Hayashi has pointed out as a dilemma of privatisation, that it is possible for fares to become higher after privatisation, on the contrary, than what was in place when the company was in the public sector.[2] Figure 5 illustrates when the marginal cost comes down due to privatisation, if the privatised company which is in a monopolistic position decides its level of supply at point B where the new marginal cost curve and marginal revenue curve meet, in an attempt to maximise its profits, fares become higher rather, than when the public enterprise decided their fares at point A according to a high marginal cost ($P_1 \rightarrow P_2$). It has been said, to avoid this kind of problem, there is a need to implement competitive measures together with prvatisation.[3]

In Japan, railway privatisation policy had no intention of bringing in competitive measures together with privatisation. Similarly, in the reorganisation of the electric power industry, which also was a combination of regional division and privatisation, the concept of implementing competitive policies was of course, absent. After the realignment of the electric power industry, leftist labour movement within the power supplying sector in Japan deceased, and strikes, which were frequent afore, did not occur anymore. Instead, the Japanese economy from then on had to suffer from high power rates, another result of this reform. If this railway privatisation not involving competitive schemes results in high fares, which in turn

Figure 5 Privatisation and Its Dilemma



see, notes 2.

reduces price competitiveness of railways, this railway privatisation policy would not be praised as a success.

Then, how should competitive measures for railway operation be formulated? One suggestion is what was pointed out in the EU Railway Policy, division of infrastructure and operation, and open access. Division of infrastructure and operation is developing in various ways in many European countries, as well as partially in Japan. However, one is unable to say that competitive policies involving open access is increasingly being implemented in countries in the European continent. The railway policy in the United Kingdom, focusing on competitiveness, has virtually failed, as a result of the accident in Hatfield that occurred on October 17, 2000, and the following bankruptcy of Railtrack. Any attempt to bring in free competition to the railway sector has come to a halt since then.[4]

From the experiences of regulating electric power companies and major private railways in Japan, it is clear that one cannot expect sufficient effect from competition under yardstick regulation. However, the scheme of imposing the system of roads as it is on railways, like Great Britain, did not succeed as well. The issues facing the privatised Japanese railways is to strengthen competitiveness by cutting operating costs, and to recognise that there is a limit to developing business diversification. As for the Japanese railways, the problem is, no rules have been established to maintain unprofitable rural lines. Though there are now more cases where local governments share the burden of costs for running railways compared to the JNR era, it would probably be necessary in the future basically for local governments to bear responsibility. Concerning railway freight transportation, public debate, including discussions within the government, is absolutely lacking at present. The author's personal view is, that while the railway privatisation policy in Japan has not definitely collapsed, as with the case in Great Britain, it should be recognised that many problems are still remaining unsolved, thus it is not appropriate to evaluate the process as an unconditional success.

Short History of JR Companies

East Japan

1987 Founding of the company

1990 Joetsu Shinkansen begins to run at 275 km/h

1991 Purchase of Tohoku and Joetsu Shinkansens

Launching of "IO Card"

1992 Commencement of services on Yamagata Shinkansen

1993 Listing of shares

1994 Debut of all double-decker Shinkansen "Max"

1995 Introduction of short distance Shinkansen trains for commuters

1996 Extension of Saikyo Line and electrification of Hachiko Line in Tokyo

1997 Commencement of services on Akita Shinkansen

Commencement of services on Nagano Shinkansen

1998 Opening of Shinjuku Southern Terrace Building in Tokyo

1999 Accepts to pay extra burden of JNR debt

Debut of new limited express trains with sleeper cars to Hokkaido

Opening of Yamagata Shinkansen's extension to Shinjo

2000 Announcement of medium-term business plan

2001 Introduction of IC card "Suica"

Acquisition of Tokyo Monorail (becomes subsidiary)

Enforcement of Amendment Law of JR Law

Achievement of full privatisation

Central Japan

1987 Founding of the company

1991 Purchase of Tokaido Shinkansen

1992 Debut of "Nozomi" (fast Shinkansen trains stopping only at major stations)

Introduction of earthquake detecting system

1996 Completion of Yamanashi Maglev Test Line

Shinkansen Experimental Train 300X records 443.0 km/h

1997 Listing of shares

1998 Debut of new limited express trains with sleeper cars

1999 Accepts to pay extra burden of JNR debt

Completion of JR Central Towers in Nagoya

2001 Frequency of "Nozomi" trains raised to 30 minutes

Introduction of seat reservation via mobile phones

Enforcement of Amendment Law of JR Law

Achievement of full privatisation

West Japan

1987 Founding of the company

1988 Opening of Seto Ohashi (bridge linking Honshu and Shikoku)

1990 Inauguration of 10 "Line Operations Departments" for local lines

1991 Purchase of Sanyo Shinkansen

1992 Shinkansen Train WIN350 records 350.4 km/h

1993 Extension of "Nozomi" to Hakata in Kyusyu

1994 Opening of Kansai Airport Line

1995 Occurrence of Hanshin-Awaji Earthquake

1996 Listing of shares

1997 First operation of Tozai Line in Osaka

Opening of Kyoto Station Building

1999 Accepts to pay extra burden of JNR debt

Implementation of "stored fare" system

2000 Begins operation of new rapid service trains running at 130 km/h all day in Osaka

2001 Opening of Universal-city station in Osaka

Restructuring of travel and hotel businesses

Enforcement of Amendment Law of JR Law

Achievement of full privatisation

Hokkaido

1987 Founding of the company

1988 Opening of Seikan Tunnel between Honshu and Hokkaido

1990 Begins to run limited express trains at 130 km/h

1991 Establishment of transport business offices for local lines

1992 Inauguration of new Chitose Airport Line

1993 Occurrence of earthquake off Kushiro and south western Hokkaido

1994 Occurrence of earthquake off eastern Hokkaido

1995 Abolition of Shinmei Line

1996 Fare raise

1999 Restoration of steam locomotive

2000 Eruption of Mount Usu

Separation of bus operation to an affiliate company

Shikoku

1987 Founding of the company

1988 Opening of Seto Ohashi between Honsyu and Shikoku

1989 Introduction of highway bus connecting Takamatsu and Tokyo

1990 Abolition of Uno-Takamatsu sea link

1997 Fare raise

1998 Debut of new limited express trains with sleeper cars to Tokyo

1999 Enhancement on highway bus linking Shikoku and Osaka-Kyoto region

Kyushu

1987 Founding of the company

1990 Begins to run limited express trains at 130 km/h

1991 Opening of international line to South Korea (sea route)

Carries out ground-breaking ceremony of Kyushu Shinkansen

1996 Fare raise

Inauguration of Miyazaki Airport Line

1997 Opening of Kokura station building

Freight

1987 Founding of the company

1989 Debut of electric locomotive EF66

1991 Completion of new wagon Koki 70

1992 Introduction of electric locomotive EF200

1993 Improvement of transport capacity on Tokaido Line

1994 Launching of freight information network

1996 Introduction of super express containers between Tokyo and Kyushu

2000 Debut of largest locomotive EH500

2001 Government decides on numerical target of 50 percent share for railway freight concerning cargo transported for more than 50 km

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[1] Tatsujiro Ishikawa, Mitsuhide Imashiro, *The Privatisation of Japanese National Railways, Railway Management, Market and Policy*, 1998. Athlone. pp.1-44

[2] Toshihiko Hayashi, *Keizai Seisaku I Gendai Seisaku Bunseki*, 2002. The University of the Air. pp.163-164

[3] John Vickers, George Yarrow, *Privatization An Economic Analysis*, 1988. MIT.

[4] Christian Wolmar, *Broken Rails How Privatisation Wrecked Britain's Railways*, 2001. Aurum.