Chapter 12

Effects of Privatisation on Efficiency, Wages and Labour Productivity: A Case Study of Japan Railway

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Background to the Study

Like in many other countries, privatisation of the Japanese National Railways (JNR) was triggered by the financial crisis of the Japanese Government, which began in the latter half of the 1970s. Huge debts and deficits of the JNR and the resulting financial burden on Government had reached an enormous and unacceptable level by 1980. The relative decline of the railway sector was in a sense inevitable due to the development of different and increasingly sophisticated modes of transportation. JNR could not cope properly with this change, which had accelerated the deterioration of the JNR's financial situation. After the failure of the reconstruction plans by the JNR management and frequent strikes by the JNR's labor unions in the 1970s, by 1980, there existed a widespread perception that restructuring and privatisation was essential in order to address some of the problems mentioned above.

By the latter half of the 1970s, government finance in Japan had reached a crisis level. In order to respond to this crisis, in 1975 the government began issuing special bonds

(so-called deficit bonds) to help cover administrative expenditures. These bonds were in addition to the construction bonds the government was already issuing to cover investment expenditures. By 1979, bonds had been issued to the tune of US$521 billion (¥57.3 trillion) and the government dependence on them had reached 39.6% of its total budget (Fukui K, *et al*; 1994). This level was extremely high compared with other western countries, whose dependence ratios in 1979 ranged from 5.6% (United States) to 14.2% (West Germany).

According to Fukui, *et. al*., three factors contributed directly to this crisis: first, prices and wages in Japan had increased dramatically in the wake of the oil crisis of 1973, resulting in greatly increased expenditures for social security, education, and other areas where Japan was just trying to achieve parity with other developed countries of the west. Second, in 1974, Japan experienced negative economic growth for the first time since the Second World War. After 1976, in an effort to achieve more stable level of economic growth, the government increased a number of public works projects. Third, the slow-down in economic growth led to a reduction in tax revenues, which in turn led to decrease in government expenditures. In order to cover these expenditures, the government had to issue more bonds. As a result, the government was confronted with an increased burden in meeting principal and interest payments on the bonds.

In March 1981, the Provisional Committee on Administrative Reform (the Provisional Committee), was appointed under the Cabinet's jurisdiction and charged with devising the drastic measures necessary to achieve fiscal reform without raising taxes. The Committee was headed by Mr. Toshio Doko, honorary chairman of the Federation of the Economic Organisations (Keidanren), who had an excellent record of successfully rebuilding private enterprises. The

Committee also included experts from various fields including finance, government and labor.

The Provisional Committee discussed how to achieve an effective, flexible administrative system that would be able to accommodate changes in social and economic conditions. In addition to recommending a radical reform of Japan's administrative system, the Committee also proposed the privatisation of Japan's three largest public corporations namely, JNR, Japan Monopoly Corporation (tobacco and salt), and Nippon Telegraph and Telephone Public Corporation. The Committee also suggested that private initiative should be used to construct social infrastructure, which in the past had been achieved primarily through public works.

It was based on these recommendations that the following steps were taken: (a) all items that required administrative approval and government funding should be reviewed, (b) the three public corporations mentioned above should be privatised, and (c) large projects, such as Tokyo Trans-Bay Highway and Kansai International Airport in Osaka, should be implemented on the basis of private initiative.

Out of all the Provisional Committee's tasks, by far the largest in scale and most critical was the privatisation of the JNR, Japan's largest public corporation. In 1980, JNR employed nearly 414,000 workers and its huge annual losses were increasing yearly (MT Fact Book, 1986). The Provisional Committee concluded that restoring JNR's financial health was impossible as long as it was operated as a centralized, nationwide public corporation. The Provisional Committee recommended the establishment of a Supervisory Committee for JNR Reconstruction to formulate and implement concrete policies for the corporation's reorganisation. In 1987, JNR was broken into six regionally based railroad passenger companies and a seventh company to handle the freight transportation for the entire country. These companies are referred to as JRs in this work. The

major portion of JNR's debt, which had reached $337 billion by the end of 1986, was reassigned to the Japan National Railways Settlement Corporation along with any surplus real estate of JNR and the shares of the newly created JRs.

Privatisation of Japan National Railway (JNR) in 1987 marked the first sweeping reform of a national railway in the world. Privatisation has been accomplished in various ways in different countries. Indeed, railway restructuring in Japan has been markedly different from that of European and other countries. In this paper we attempt to examine the effects of JNR's privatisation on efficiency, wages and labour productivity of the newly privatised JR companies. The paper also discusses the experiences gained and lessons learned from the privatisation process.

Objectives of the Study

This paper examines the effects of Japanese railway privatisation. It specifically evaluates the effects on efficiency, wages and labour productivity in order to ascertain whether there are improvements since privatisation (1987 through the year 2005). We use purely descriptive and analytical methods to examine the performance indicators such as cost-revenue ratio, operating costs, labor productivity. This study draws some policy lessons for developing countries based on the Japanese experience.

Data and Methodology

Data for this work essentially comes from secondary sources, specifically, rail fact book, annual reports and financial statements of the JR companies. Due to the unavailability of data before privatisation, we use the data for the privatisation year as a benchmark as well as the performance of 15 large private railways for the purpose of comparison. We then examine the changes that have taken place since privatisation by looking at the empirical proxies

of our performance measures such as, revenue-cost ratio, average operating costs as well as monthly wages.

Findings

In this section, we attempt to evaluate the performance of JR companies since privatisation as it relates to efficiency, wages and labour productivity. The tables below summarize the performance of the seven JR companies by comparing seven time-periods: the beginning of privatisation year (1987), taking average performance using a three-year interval through the year 2005. In this analysis, 1987 and the performance results of fifteen large private railways are used as benchmarks. We follow the techniques of Preston and Root (1999) in order to evaluate post-privatisation performance indicators of the above measures. Let us take each in turn.

Effects of Privatisation on Efficiency

By throwing state-owned enterprises to competition, government clearly hoped that these firms would employ their human, financial and technological resources more efficiently. The shareholders (including employees) in a private company capture most of the benefits of efficiency improvements, but they also suffer most if efficiency is not improved. In removing the non-economic objectives of the firms, government explicitly state that, the trade off it expected is increased operating and financial efficiency (Megginson, *et. al*. 1994).

Table 12.1: Average-Operating Cost (in Yen/Car KM)

Year	Large Private	JR East	JR Central	JR West	JR Hokkaido	JR Shikoku	JR Kyushu	JR Freight
1987	1.172	1.222	1.086	1.091	0.561	0.681	0.810	1.065
1990	1.087	1.231	1.110	1.129	0.432	0.699	0.823	1.201
1993	1.193	1.284	1.567	1.156	0.632	0.855	0.864	1.024
1996	1.037	1.308	1.783	1.099	1.597	1.783	0.766	1.005
1999	1.129	1.178	1.429	1.108	0.701	0.812	0.897	0.974
2002	1.222	1.201	1.399	1.103	0.836	0.901	0.899	1.109
2005	1.198	1.457	1.402	1.111	0.822	0.822	0.901	1.116
2005/ 1987	1.022	1.192	1.291	1.018	1.465	1.207	1.112	1.047

Source: Computation by author

We compute this measure by taking the ratio operating revenue by operating cost. The aim of this is to evaluate whether JR companies improved their revenues in relation to operating costs. When we compare cost-revenue ratios for the JR companies, our results reveal that companies improved their financial performance. However, JR Hokkaido and JR Shikoku recorded high ratios in 1996. In addition, JR Central and JR East recorded high ratios in 1993 and 1996, respectively. Figures for 1993 appeared dismal for the same companies; this is perhaps due to the recession in the Japanese economy. Overall, results have shown that JR companies have improved their revenues and reduced their costs since privatisation. This conforms to expectations.

Table 12.2: Average-Operating Cost (in Yen/Car KM)

Year	Large Private	JR East	JR Central	JR West	JR Hokkaido	JR Shikoku	JR Kyushu	JR Freight
1987	545	743	1096	713	1221	926	817	133
1990	544	722	963	688	1001	933	784	132
1993	546	670	697	641	1021	824	608	136
1996	530	741	784	644	987	761	602	141
1999	544	717	812	634	817	722	607	138
2002	555	698	822	626	827	712	588	136
2005	524	702	801	628	811	688	586	122
2005/ 1987	0.961	0.945	0.731	0.881	0.664	0.743	0.717	0.917

Source: Computation by author

In terms of average operating cost, results reveal that since the beginning of privatisation, JR companies have succeeded in reducing their operating costs. As stated earlier in this section, this is one of the objectives of privatisation. JR East and JR West recorded a large decline in costs in 1993. Several reasons may have been responsible for this; among which is the rationalization of workers, which was done along with the implementation of privatisation. Reduction in personnel and other related costs has actually helped JR companies in reducing their operating costs. It is important to note that, when we compare the operating costs of JR companies and that of large private railways, the rate of decrease is higher for the JR companies. However, we may not attribute costs reduction especially for the island JRs (JR Hokkaido, JR Shikoku and JR Kyushu) entirely as a result of their efficiency, because they continue to receive government subventions even after privatisation.

Effects of Privatisation on Labour Productivity

The great fear which most people have expressed is that, the objective of efficiency and profitability can only be achieved at the cost of large-scale job losses. In other words, people expect large decline in employment levels as well as increase in labour productivity from privatisation (Megginson, *et.al.* 1994).

Table 12.3: Labor Productivity (Car KM/No. of workers)

Year	Large Private	JR East	JR Central	JR West	JR Hokk	JR Shiko	JR Kyushu	JR Freight
1987	28,250	22,734	39,457	21,070	9,587	14,009	15,354	117,010
1990	28,222	23,580	42,002	24,333	9,888	14,886	20,687	125,741
1993	32,170	32,717	48,228	26,482	12,945	19,110	26,524	152,970
1996	34,246	32,227	46,120	23,088	12,654	20,187	28,874	145,875
1999	36,067	34,725	44,463	30,569	16,132	23,138	29,867	166,114
2002	36,888	35,898	45,778	32,122	18,731	22,471	32,147	177,825
2005	38,200	36,331	48,341	33,125	17,156	23,562	32,582	170,009
2005/ 1987	1.3522	1.5981	1.2252	1.5721	1.7895	2.4577	2.1221	1.4529

Source: Computation by author

Among the efficiency measures that have been improving since privatisation is certainly labor productivity. We compute this measure by taking the ratio of car kilometer by the number of employees. At the beginning of privatisation, labor productivity for JR companies is seen as inferior to that of the private railways. However, the difference gradually disappeared. In fact, the measure for JR Central was higher than for private railways from 1993 through the year 2005. In addition, when we compare the total productivity growth of JRs with that of private railways, the average annual growth rate of JRs shows much high values.

Effects of Privatisation on Wages

It has been argued that, privatisation would lead to increased risk of unemployment through massive job losses which will lead to general uncertainty resulting from insecurity of the labour force and a reduction in workers' welfare as well as abuse and exploitation, which is inherent under private sector management. On the other hand, wages are expected to rise since with privatisation, firms would no longer accept politically motivated levels of employment and would have to motivate workers towards higher productivity (Boycko *et al*., 1996).

Table 12.4: Average Monthly Wages (in Yen per Employee)

Year	Large Private	JR East	JR Central	JR West	JR Hokk	JR Shiko	JR Kyushu	JR Freight
1987	274,576	256,889	264,549	256,617	265,085	234,185	247,844	252,190
1990	288,450	280,741	270,002	280,456	277,650	240,302	250,780	280,638
1993	286,304	306,487	269,220	302,548	299,103	220,548	260,326	295,486
1996	320,120	320,566	300,120	320,438	305,168	232,540	320,140	288,877
1999	336,039	360,814	310,362	333,240	318,293	305,127	322,240	275,608
2002	345,145	366,170	312,850	340,746	320,777	306,721	325,137	290,666
2005	346,170	362,450	315,521	339,786	315,780	305,146	331,176	285,006
2005/ 1987	1.2607	1.4109	1.1927	1.3241	1.1912	1.3030	1.3362	1.1301

Source: Computation by author

This measures the average monthly salary per employee in a rail division. Looking at the figures, we find that at the beginning of privatisation, wages were lower for JRs compared with private railways. However, with the commencement of privatisation, wages began to rise for JRs and by 1999 wages in JR East were higher than that of the private railways. Even the island JRs have also recorded increases in their wages since privatisation. This result conforms to expectation.

Policy Lessons for Developing Countries

A number of policy lessons for developing countries have been identified based on the Japanese experience. A developing country like Nigeria contemplating on the option (s) for its rail restructuring may consider some of these options. Let us briefly explain some of these features.

Regional Sub-Division

The main problem with JNR was that it was too large an organization to be managed properly and it was expected to operate even unprofitable lines that were built for political reasons. Therefore, it was decided that the company should be separated into six regional passenger railway companies and each company would gain control over decision about which lines to operate and which lines to close. After consideration of several options for separation, regional sub division by geographical demand was decided upon. The smaller sub divided companies would be expected to meet their users' local needs and to compete with each other to improve their performance. In this sub-division, 95 per cent of all trips would be completed within the borders of these sub-regions. In addition to two distinct regional JRs- JR East and JR West in the Tokyo and Osaka metropolitan areas, respectively – JR Central based in Nagoya was appointed the operator of the most profitable trunk line, *Shinkansen*, between Tokyo and Osaka.

Horizontal Separation

With the growth of the truck industry, whose increasing success had caused a severe decline in the share of rail freight business, it was decided that JR Freight should be separated from the passenger JRs. Where JR Freight should remain within the fold of the passenger JRs, fear has been expressed that managerial responsibility for its losses would

be vague and its poor performance could damage the morale and the good results, which the healthier passenger companies were bound to achieve. In order to avoid an excessive financial burden on JR Freight however, it would be allowed to borrow tracks from infrastructure holding passenger JRs, instead of holding the infrastructure itself.

Vertical Integration

Unlike in the British rail privatisation, vertical integration was maintained after privatisation. In theory, it was possible to introduce vertical separation of track ownership and rail operation, but this was not seriously discussed before privatisation (Suga, 1997). Most railways in Japan are privately owned, integrated systems and their success most likely made vertical separation seem an unattractive and excessively complicated option. Furthermore, since major urban private railways have been increasing profits by diversifying into various businesses, (such as running department stores and hotels at stations, developing residential land along the tracks and promoting tourism) privatised JRs were also expected to behave likewise. This makes the integration of tracks ownership and train operation desirable in the light of the possibility of diversification (Kitani, 1997).

Provision of Lump-Sum Subsidies

In order to stabilize the management situation of smaller JRs, a lump sum subsidy was implemented through the Management Stabilization Fund (MSF), with interest revenues from the fund to cover these subsidies. Since the three island JRs were handicapped by geographical locations with rapidly decreasing populations and the rapid development of their regions of highway networks, lump sum funds (1,278 billion yen) was channeled to these JRs. The fund, which originally took the form of a ten-year debt owned by the JNRSC, was supposed to yield interest and subsidies the operating losses

of these JRs (MT fact book 1986). However, the market interest decreased so that the interest revenues could not cover the operating deficits of the three island JRs. Therefore, a new scheme was implemented in 1997 whereby the Corporation for Advanced Transport and Technology (CATT) borrowed portions of the MSF funds of the three island JRs at a fixed interest rate of 4.99 per cent higher than the market rate. It was scheduled to be eliminated by the end of fiscal 2001, but it was extended to fiscal year 2006. It should be noted that, without MSF the three JR would go in the red, making them unattractive candidates for listing on the stock exchange.

Establishment of an Intermediate Institution

The Japan National Railway Settlement Commission (JNRSC) was set up as an intermediate institution to repay the debts of the JNR and to find new jobs for the redundant employees. The Japanese government and the JNR management placed top priority on facilitating the transfer of dismissed personnel to other sectors. This was done by enacting a special law for reemployment of former JNR workers in the process of privatisation. As a result, in contrast with privatisation practices elsewhere in the world including Nigeria, little labor rationalization was undertaken. To avoid massive layoffs, every imaginable means was introduced in order to reduce unemployment and social conflict. These include transfers to local governments, public organisations such as National Tax Administration Agency, the Police Agency, the Meteorological Agency, and the flourishing Nippon Telephone and Telegraph (NTT). Moreover, the JNRSC was established to transfer these redundant workers smoothly to other sectors. With generous inducement for voluntary retirement, reduction in the workforce had begun well before the implementation of privatisation, so that only

1,047 remained to be dismissed in the process of privatisation.

Engaging In Non-Rail Service

Just as private rail companies have been doing in Japan for decades, JRs are also allowed to engage in non-rail business. To increase demand for rail transportation, private rail companies conduct such businesses as housing development, tourism, and the operation of other modes of transportation such as buses and taxis. The JR companies have begun to follow the example of these private railways and tried their luck in various non-rail related enterprises.

Yard-Stick Competition

Finally, yardstick competition scheme was introduced. Under this scheme, rail operators compete with each other in order to improve performance and the regulator will assess the operators' performance by using common measures such as fare revision.

Conclusions

Based on the foregoing analysis, the Japanese rail restructuring has succeeded in many ways, by improving productivity, cutting operating deficits, increasing labour income and welfare and providing better services. Although political intervention has lessened after privatisation, JR companies are yet to be independent because privatisation process is yet to be completed. Local rail services in small communities have been maintained in the last twenty years, but there are no guarantees that they will survive any serious financial slump that JRs might someday experience.

While Japanese privatisation has been largely successful, there remain a number of problems that need to be solved in the nearest future. Care must be taken to ensure that

privatisation does not become a simple transfer of monopolistic power from a public corporation to the private sector. To this end, there is the need for widespread ownership of shares so that large amount of shares do not concentrate in the hands of few owners. The success of privatisation depends on whether many kinds of competition is generated in the market, therefore it is the role of government to ensure that a competitive environment is created so that actual and potential competition is promoted in the market or even within the organization itself by using an incentive system. Furthermore, the older and very successful large private railways have served as good role models for the JRs. The cordial relationship that has been going on between them should therefore, be maintained. Finally, this study has identified some policy lessons, which developing countries should emulate.

References

Boycko M., A Shleifer and R. W. Vishny (1996): "A Theory of Privatisation": *The Economic Journal* 106: 309-319

Fukui *et al.* (1994): "Japanese National Railways Privatisation Study II" *World Bank Discussion Paper Series, No.107*

Kitani, S., (1997): *"Privatisation Progress and its Effects on JR West", In Mineika no Kouka to Genjitsu, ed. T. Imamura, 261-287. Tokyo. Chuo Hoki*

Megginson, W. L., Nash, R. C. and Randenborgh, M. Van (1994): *"The Financial and Operating Performance of Newly Privatised Firms: An International Empirical Analysis" Journal of Finance 49(2): 403-452*

Ministry of Transport Regional Transport Bureau; (1986): *"Rail Fact book": Japan Transport Policy Research Center, Tokyo*

Mizutani, F., and K Nakamura (1997): *"Privatisation of Japan National Railway: Overview of Performance Changes". International Journal of Transport Economics 24 (2)*

Mizutani, F., and K., Nakamura (1996): *"Effects of Japan National Railways' Privatisation on Labor Productivity". Papers in Regional Science 75 (2)*

Preston, J., and A. Root (1999): *"Changing Trains: Great Britain", in Changing Trains, (ed.), Van de Velde, 5-78. Aldershot. UK. Ashgate*

Suga, T. *(1997): "The* Separation of Operations from Infrastructure in the Provision of Rail Services: Examples in Japan". In The Separation of Operations from Infrastructure in the Provision of Railway Services (ed); European Conference of Ministers of Transport (ECMT), 153-176 Paris, Organization for Economic Cooperation and Development