

COMPARATIVE ANALYSIS OF THE EFFECT OF
RAIL OWNERSHIP ON PERFORMANCE

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ABSTRACT:

During the last decade, major railway systems around the world have undergone a fundamental reappraisal of their place in the national economy, in general, and their transport purpose, in particular. Attention has focussed on their technical and financial performance in a highly competitive environment. The paper examines the nature of the challenges faced and the methods adopted to meet them, in a variety of countries, including Australia. It is evident that adjustments have been made at different rates and in different directions, commensurate with local circumstances and political philosophies. As a result, efforts to transform predominantly publicly-owned railways into more commercial enterprises have included both corporatisation and eventual privatisation. This has involved varying levels of investment in new technology, reorganisation of management and operational structures and diversification of business interests. In some cases, results are encouraging, in others, changes are too new to assess their effects.

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INTRODUCTION

Background

For almost a hundred years until World War II, railways formed the backbone of the public transport systems of many countries. They also quickly established their suitability as major tools for regional development, used especially by the governments of isolated and sparsely populated countries.

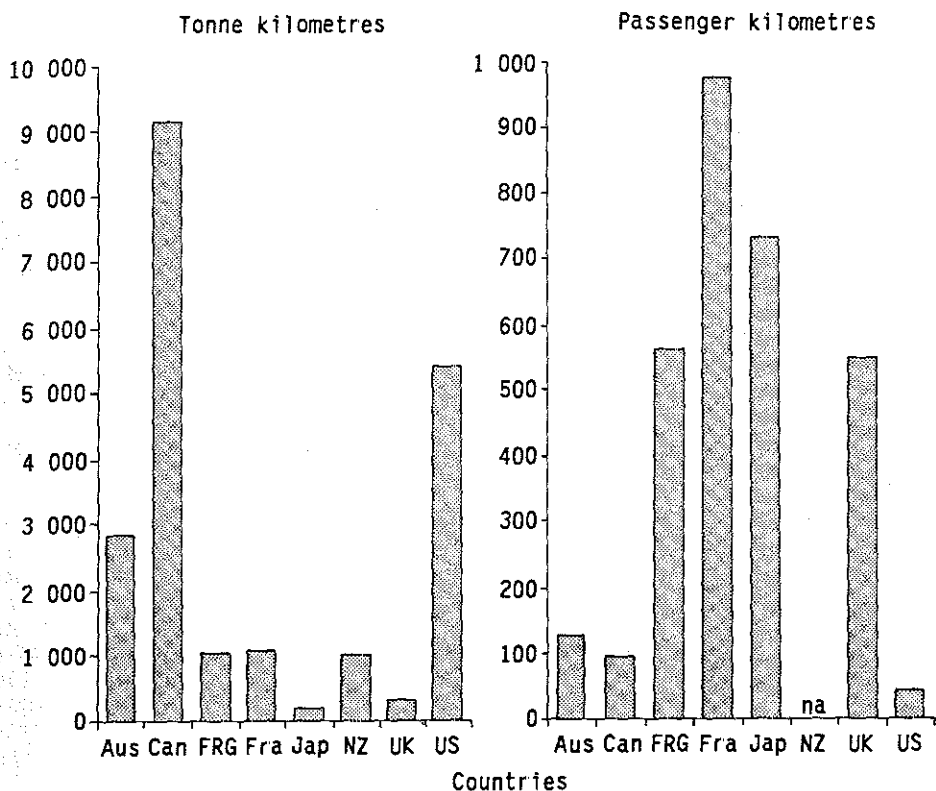
Given the unchallenged position of railways until the advent of private motorised transport, they expanded in size and number to occupy a significant position in the economy (Heinisch 1986). Increasingly, however, road transport was able to compete effectively against railways through massive highway building programs, rapid advances in automobile technology and low road cost recovery rates from heavy trucks. In addition, shifts in population exposed the railways' inflexibility to meet changing transport demands. Railways were beginning to lose their freight and passenger markets, forced to downgrade services or to accumulate deficits. Faced with these difficulties and in order to remain competitive, private railway owners tended to rationalise their industry by mergers (Hirschey 1979); on the other hand, governments sought to limit competition with State-owned railways by regulating road transport.

Neither of these alternatives proved to be successful in the long term, and 'real' solutions were called for (to solve 'real' economic problems). In addition, especially in continental Europe, railways were increasingly being seen as an environmentally sound alternative to road transport (Der Spiegel 1984). This paper examines some of the measures taken by selected countries to ensure their railways' survival.

Scope

The analysis centres upon the non-urban operations of major railways in a number of developed countries, and represents a variety of passenger and freight market mixes (see Figure 1). In the United Kingdom (UK), France (FRA), the Federal Republic of Germany (FRG) and Japan (JAP), a single railway owned by the government operates as the national railway system. Data and developments relating to these countries are therefore from a single railway in each country. In Australia (AUS), aggregation of the five government-owned railways is used to assess Australian railway performance. In the United States of America (US) and Canada (CAN), a number of major privately-owned and government-owned railways operate. The 23 major railroads in the US account for over 90 per cent of the railroad system, and are grouped together as Class 1 railroads. They are used in this paper to represent US railroad performance overall. In a similar manner, Canada's three Class 1 railways comprise 90 per cent of the railway system, and their performance is examined on both an aggregate and individual level.

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na Not available.

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Figure 1 Non-urban railway task performed per head of population: selected countries, 1985

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While presenting productivity measures on freight and non-urban passenger operations, it should be noted that statistical information does not allow categorising employees on the basis of their task. Measures are therefore based on total employees. The exceptions to this relate to Canada and the US, where railways function as either freight or non-urban passenger operators only.

INSTITUTIONAL CHANGES AND OWNERSHIP

United States of America

During the 1960s, it was becoming evident that the passenger train in the US was becoming a liability to the private railroads, which were forced to operate passenger services under the regulations of the Interstate Commerce Commission. Initial efforts to meet difficulties were directed at industry contraction of the number of firms through mergers. After the crash of Penn Central in 1970, it became clear that more fundamental solutions were required.

As a result, the Rail Passenger Service Act 1970 established the National Railroad Passenger Corporation (Amtrak) as a for-profit enterprise. Amtrak's mandate was to restructure and rationalise rail passenger services nationally by engaging in contracts with private railroads. Railroads were free to join the new system or continue without public subsidy.

Amtrak reports directly to Congress. The Department of Transport has no jurisdiction over policy or management related matters. To this date, Congress establishes policy guidelines and monitors Amtrak's performance. These practices have kept the Corporation accountable and have helped to establish an impressive degree of financial discipline (Cubukgil and Soberman 1984). Apart from this involvement by Congress, however, Amtrak is not subject to policy intervention by the Administration or regulation by the Interstate Commerce Commission over rates or service levels. This has given Amtrak the opportunity to engage in effective route and service planning and to adopt a flexible pricing policy.

On the freight side, the Consolidated Rail Corporation (Conrail) was created by the Regional Rail Reorganisation Act (amended) 1973 to acquire and revitalise most of the freight operations previously provided by six bankrupt carriers in the north-east quadrant of the US. Conrail began operations in 1976 as a public corporation (85 per cent of common stock was held by the Department of Transportation). After a significant investment of public money, which enabled Conrail to improve its service reliability and efficiency by replacing obsolete equipment, but not enough freedom from regulations to achieve financial self-sufficiency, the Reagan Administration sold this only government-owned Class 1 railroad (except Amtrak) in 1987 to private interests.

In the meantime, the American Association of Railroads continued to press the Federal Government to face economic realities and ease some of the constraints on railroad marketing efforts. First, the Staggers Rail Act 1980 enabled rail managers to respond to price and service

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competition and to begin to shed unproductive plant. At the same time, the Economic Recovery Tax Act 1981 materially enhanced the cash flow resources available to railroads for a five-year period. These measures generated a substantial reinvestment in plant and increased productivity, with noticeable benefits to the public in terms of better service and lower costs (Blanchette 1987).

Canada

A similar concept to Amtrak was initiated in Canada in 1977. VIA Rail Canada (VIA) was first incorporated as a subsidiary of the Federal Government's Canadian National Railways (CN), but was later established as a separate Crown corporation to operate non-urban passenger services. VIA eventually also took over the privately-owned Canadian Pacific Limited's (CP) passenger services.

Canadian railways had historically been obligated to provide passenger services and been expected to recover their losses on passenger services from the more remunerative aspects of their operations (Cubukgil and Soberman 1984). The introduction of the National Transportation Act 1967 was designed to end cross-subsidisation and to allow railways to adjust rates to meet competition. Under this arrangement, the government provided direct subsidies to offset losses on a route-specific basis for non-remunerative services.

Nevertheless, passenger services continued to deteriorate, and VIA was formed to manage passenger services under contract to the Federal Government. Service levels are determined by the Transport Minister, as are service quality, rates and discontinuance of services. Operating losses incurred in the provision of required services are covered by the Government, and appear as contract revenues in VIA's financial statements, similar to the French and the FRG railways (see later). In addition, VIA receives financial support from the Government for its capital expenditure, earmarked for the purchase of locomotives and passenger cars for VIA to retain a competitive position.

In essence, VIA is only a service broker, between the Government and the railways. It engages its own marketing, advertising and promotional programs, and operates its own ticketing and reservation service. Operational aspects, however, are carried out by CN and CP under confidential contract. Costs incurred by the railways are not subject to VIA's audit; in addition, the Canadian Transport Commission can scrutinise the books only on the basis of accounting principles; it cannot monitor railway performance on functional grounds.

The new National Transportation Act 1987 lays the groundwork for even greater competition in the transport market as a whole, based on extensive consultation with metropolitan, rural and regional authorities and interest groups. In essence, it provides even greater freedom for individual shippers to negotiate for improved rates and services in a freight market which has traditionally been unregulated.

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Japan

The Japan National Railways (JNR) was established in 1949 as a public corporation. With its capital wholly owned by the state, power effectively belonged to the Government rather than the railways' management. All matters relating to personnel, budgets, wages, fares and operating and investment programs were decided by Parliament. As a result, the technical and operational excellence of JNR was overshadowed by highly centralised and, often, inappropriate decision-making (International Railway Journal 1986).

To resolve this situation and confer more potency on JNR's management, a Management Improvement Plan was put into place in May 1981; it clarified business sectors and identified targets on which JNR should concentrate to maximise the distinct advantages of the railways.

Further to this Plan, JNR's administration was decentralised in April 1987, legally breaking up into a number of private companies headed by government appointees. The new structure, known as Japan Railway group (JR), comprises six regional passenger railways, a national freight railway company, a Shinkansen organisation, and a number of peripheral companies specialising in telecommunications, information systems, road transport and research. As a result of this reorganisation, 62 000 employees were estimated to be surplus to requirements and encouraged to retire voluntarily. In effect, more employees than expected took up the retirement option, leaving the new structure undermanned in places (International Railway Journal 1987).

Japan's Ministry of Transport has given the JR group permission to operate a wide range of extra businesses, as part of its overall profit philosophy. These new ventures include engineering works, theatre and cinema ticket kiosks, construction of sports facilities, development of computer software and the establishment of storage and forwarding businesses (Knutton 1987).

United Kingdom

In United Kingdom, the transport industry, including the railways, was nationalised in 1947 under the Transport Act. Since then, a number of administrative, structural and institutional changes have occurred. In 1962 the railways were freed from all obligations to accept traffic. The Transport Act 1962 also removed the obligation to publish tariffs and to submit their charges to external regulation.

At the same time, the British Railways Board (BRB) was established, in tandem with Regional Railways Boards, to emphasise regional autonomy. The amended 1968 Act, however, abolished the statutory nature of the regional boards. For the next ten years, successive Acts varied the functional status of regional boards and eventually put an end to attempts at devolution of authority.

In 1982, the Chairman of the BRB took over direction of newly created business sectors, as well as retaining oversight of production. Production included the regional managerial structure, operations and engineering. In effect, the 1982 Transport Act created a functional

structure that was based on the BRB and, in 1987, placed the strongest direct control over the railways in the hands of the government, including limited companies such as British Rail Engineering, Freightliners, Transportation Systems and Market Research, and British Transport Advertising Limited. The Transport Act 1981 had earlier enabled the government to introduce private capital to, or privatise, all the subsidiaries of British Rail (BR). With this direct control, the government was now in a better position to implement the 1981 Act's provisions.

In common with other European railways, BR has a Public Service Obligation (PSO) under the Railways Act 1974. This Act requires it to maintain the same level and quality of passenger services in the future as existed in 1974 and, at the same time, to cover total costs out of fare revenue and PSO grants combined. Under European Economic Community (EEC) law, this PSO grant is calculated on the basis of efficient operation. Given BR's small freight task relative to its passenger traffic (see Figure 1), Section 8 of the Act also supports the movement of freight by railway on environmental grounds, by providing for Freight Facilities Grants to help private businesses with the construction of sidings, thus encouraging greater use of BR's Speedlink Distribution freight network.

Federal Republic of Germany

The British move towards functional compartmentalisation of its railways was paralleled by similar moves within the management of Deutsche Bundesbahn (DB). From 1950 onward, FRG railways had experienced continued decline in its passenger and freight markets, due, in large part, to the immense expansion and improvement of road transport infrastructure. By the 1980s, DB's financial performance was causing the German Federal Government to address its level of annual subsidy payments to DB and the railways' own borrowings on the money market. The causes for DB's position were attributed to major external structural effects (for instance, settlement trends favouring outlying areas, changes in economic structures); the deterioration of competitive ability; and in a productivity trend which was due mainly to DB's failure to adjust internal operating performances and capacities to changing market conditions (Heinisch 1986).

A fundamental re-examination of the concept of the railway, not only as a transport system but also as a political tool, was undertaken, resulting in the creation of the "DB'90" strategy, in consultation with the Federal Minister for Transport (and Finance). This strategy rested on the distinctions between 'efforts internal to the DB' and 'external support by the Federal Government'.

The external support requirements were geared to a clear and factual demarcation of responsibilities between State and commercial (entrepreneurial) functions. Internal strategies related to increases in productivity and forward-looking investments to secure a realistic share of the market.

To facilitate the achievement of these objectives, DB created demarcated areas of functional responsibility through all levels of

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management, based on a clear definition of results and tightening-up of decision-making procedures. Central to this reorganisation was the establishment of a specialised marketing department. The many investigations of working procedures by various labour-study methods are also expected to lead to significantly higher efficiency by eliminating functional overlaps and uneconomic working procedures.

In addition, for the first time in over 100 years, investment by the Federal Government is being directed to new rail links outside urban transit systems. This investment is based on estimates of significant increases in traffic volumes and productivity by major reduction in journey times, enabled by the in-house development of advanced train technology. The train destined to use the new dedicated lines is the InterCity Express, somewhat belatedly conceived after Japanese, British and French forerunners.

As part of its general developmental effort, DB has also branched out into associate business ventures which provide resources for infrastructure, energy and research. In addition, DB has interests in tourism and storage and distribution industries.

France

The Societe Nationale des Chemins de Fer Francais (SNCF) became a public corporation responsible for operating, improving and developing the French national rail network under the Transport Law 1982. Since 1937, it had been a semi-private limited company. The new status of the French railways was based on the belief that everybody has a right to transport and choice of mode, not unlike the principle that still underlies the operations of the DB and other European railways, and which finds expression in EEC resolutions. Probably more than any comparative European legislation, however, the Transport Law explicitly recognised the essential contribution made by rail transport to the economic and social life of the French nation (Goldsack 1983). Under the Law, State financial support covered not only operational costs as in the past, but also the railways' developmental costs, including the Train de Grand Vitesse (commonly known as the TGV). In 1985, the Government and SNCF concluded a contract covering the years 1985 to 1989, based on the principles of the 1982 Act. For the duration of this period, the state guarantees support of approximately \$A8 500 million, including payments to SNCF to help amortise its accumulated deficit and stabilise its finances.

To meet the contract, SNCF is required to raise its freight performance. Its pricing freedom is only limited by the concept of fair competition. In keeping with its developmental charter, it is also charged to foster international and intermodal traffic. In financial terms, the SNCF is expected to break even on the total costs of their central enterprises by 1989. As in the FRG, SNCF has been encouraged to diversify its product, particularly in total and intermodal transport systems.

New Zealand

The former New Zealand Government Railways was established as a public corporation, independent of government control, in April 1982. This change of status was followed by the Transport Amendment Bill No. 5 later that year, which effectively proposed to deregulate land transport in New Zealand (Minister Summaries Deregulation Bill 1983). Deregulation was progressively implemented between 1984 and 1987, under the aegis of a new government committed to the restructuring of public sector activities. Long-distance rail passenger subsidies were, however, retained and freight deregulation was tempered by a 'user pays' weight-distance tax on all trucks.

The initial corporatisation of New Zealand railways took an important step forward with the formal establishment of a new organisational structure in April 1987. In essence, the new structure replaced traditional branches and emphasised the functional areas of passenger, and freight business and corporate support (How NZ Railways Sees its Future Role 1987; NZ Railways Adopts New Organisational Structure 1987).

Australia

Railways, which perform a public transport function in Australia are statutory authorities, except in Queensland and Western Australia where they operate as State government departments. Invariably, their corporate objectives contain the requirements for greater cost-effectiveness and long-term profitability on non-social services.

During the early 1970s, there was a growing concern by Australian governments with the level of subsidies paid to railways to maintain their services. Reasons for these subsidies included concessions to special groups, inflexible pricing techniques, unprofitable lines and overmanning (Holthuyzen 1987). Coupled with this concern about visible rail subsidies and despite the existence of five different government administrations and three different gauges, there was a growing recognition that Australia's major land transport modes should and could more efficiently and profitably co-operate, depending on customer and community requirements and the type of freight to be carried.

Early signs of this development were contained in the Bland Report (1972). The Inquiry's basic finding was to confirm the ongoing need, at least for some years, for a system of transport regulation. This regulation, however, was not proposed to operate on the same protectionist basis as in the 1930s and the 1950s; instead, it was designed to ensure that the railways continued to provide services where they were needed, leaving road transport to provide the more commercial substitute where it could.

At the same time, the States abandoned their co-ordination taxes and legislation, partly as a result of rising oil prices, partly because 'border hopping' made regulations difficult to enforce, and partly because of the beginning of the Whitlam Government's attempts to subsume individual State railway systems under a federal umbrella.

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The Commonwealth Government's intention was to create a national railway system, whose co-ordinated management, planning and investment would ensure that the national interest would prevail over parochial objectives. In the end, only South Australia and Tasmania, both Labor States, accepted the Commonwealth Government's offer, and final transfer of their non-suburban rail systems took place in 1978, under the Railways Agreement (South Australia) Act 1975, the Railways (Tasmania) Act 1975, and the Australian National Railways Amendment Act 1978.

Rail's future role and the means for fulfilling that role were addressed by the Australian Rail Research and Development Organisation (ARRDO) in its 1981 Report on Rail. The ARRDO Report (1981) and the observations made through the subsequent regional workshops and the National Rail Policy Seminar, together with the comments provided by the Transport Industries Advisory Council, were considered in the "Action Plan for National Railway Development", endorsed by the Australian Transport Advisory Council in July 1983.

The Rail Action Plan noted that, while there was a stock of commercially worthwhile investment projects, investment measures would not, by themselves, solve the operational and financial problems of the railways. Other measures, such as improved productivity, marketing, and PSO reimbursements as well as structural change within the industry, were necessary to achieve major improvements in rail's operational and financial performance.

To facilitate these developments, a Railway Industry Council was constituted. Membership consists of representatives of government, railway systems, national unions representing railway employees and an independent chairman. The council met for the first time in April 1987.

Ownership and performance

Among the countries examined, only North America operates genuinely privately-owned railways of any significance. These are exclusively freight railways, comprising Class I US railroads and CP. In the remaining countries, either only long term moves have been made towards privatisation (Japan), or government-owned railways marry more commercial business practices to public ownership. Levels of performance by the railways concerned have been compared to see if they reflect these different institutional conditions.

Figure 2 shows that, overall, passenger revenues have increased between 1981 and 1985, while freight revenues of both private and public systems have fallen. Given the fluctuating economic conditions world-wide during the early 1980s, and growing foreign trade competition, the fall in freight revenue may be explained in terms of changing demand, rather than the nature of railway ownership, especially in countries that rely heavily on manufactured goods for their railway traffic.

It is not clear why passenger revenue has increased in Australia, given the general fall in non-urban passenger traffic (Holthuyzen

1987). In contrast, the increases in France and the United Kingdom, could be attributed to the introduction of the countries' respective high-speed inter-city trains (P N Symons, pers. comm., 1987). Similarly, in Canada, passenger revenues have been rising with the reintroduction of services, once abandoned. In the US, however, passenger revenue growth appears to be due as much to fare increases as to traffic growth on Amtrak services.

Despite the growing corporatisation of government railways, and the associated trends to rationalise operations and reduce manpower, operating expenditure continued to increase between the years 1981 to 1985 in Australia, France and Japan (see Figure 2). This is especially unexpected in the case of France, where its contractual agreement with the Government had committed SNCF to stabilise its expenditure. In the event, this has not happened. In contrast, JNR's operating figures show a lower growth of costs than for SNCF, even before restructuring and de-bureaucratisation had even been attempted.

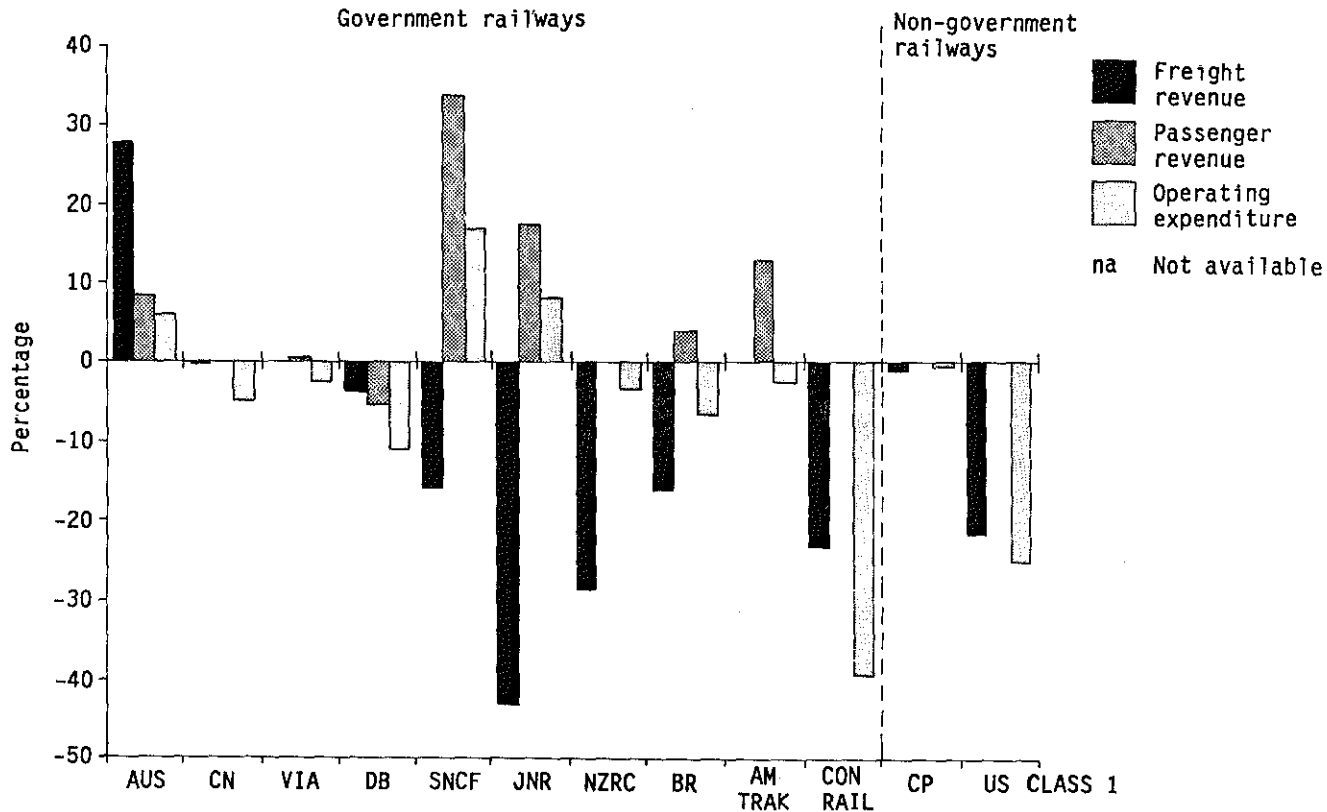
On the other hand, the reorganisation of British Rail's management structure from a system-wide to a business-sector based one, appears to have had at least some marginal effect. Similar results were achieved in the FRG and New Zealand. The 25 per cent reduction in the operating expenditure achieved by US Class 1 railroads can be attributed partly to the significant investment by the US Government in Conrail, which enabled the organisation to modernise its equipment and facilities, as well as to streamlining effected by the independent railroads and to new labour agreements. After the Staggers Act of 1980, the railroad industry also enjoyed the partial elimination of regulation, although industry sources claim that this process is hardly completed (Blanchette 1987).

In summary, Figure 2 does not unequivocally associate levels of performance with the nature of railway ownership, rather it points to the possible influence of other factors.

Figures 3 and 4 depict productivity measures for the years 1981 and 1985, expressed in terms of passenger and tonne-kilometres per employee.

The figures show an increase in productivity between 1981 and 1985 for most of the countries concerned, irrespective of private or public ownership of their railways. The biggest increases are in passenger kilometres for Japan and tonne-kilometres for the US. In both cases, the improvements can be attributed to labour shedding, especially in Japan under the 1982 Management Improvement Plan. However, despite labour shedding, JNR's freight productivity declined.

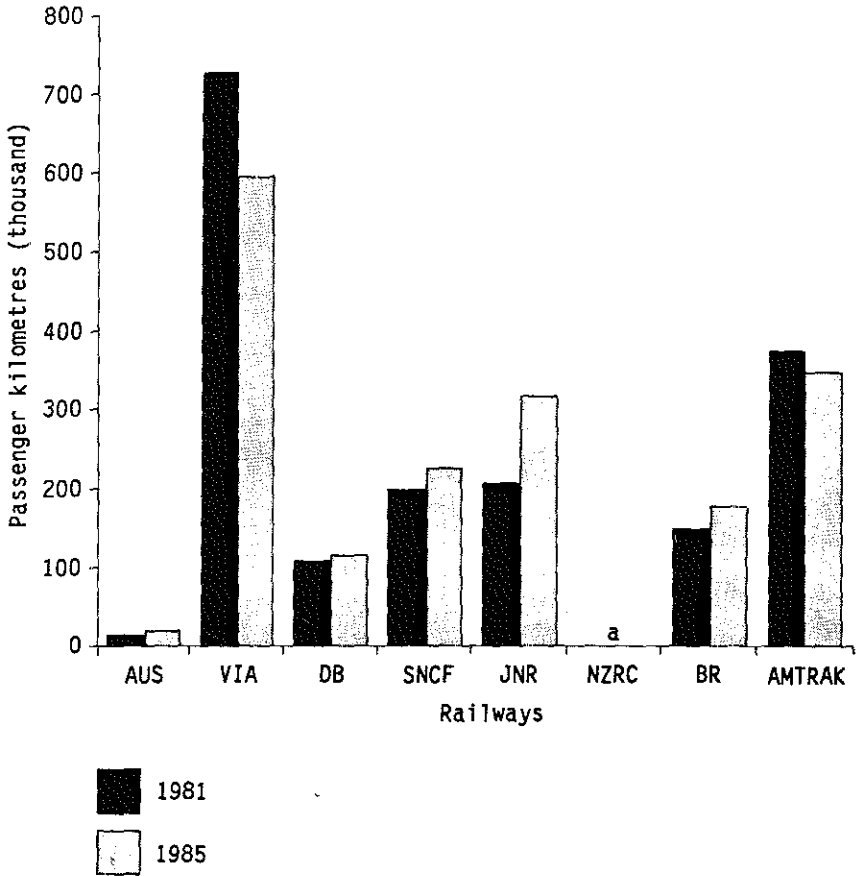
It should be noted that absolute passenger productivity figures for both Amtrak and VIA are somewhat misleading. This is because the contractual nature of their passenger services allows them to maintain a relatively small labour force.



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Sources AAR (1987). ANRC (1981, 1985). CN (1981, 1986). Conrail (1981, 1985). CP (1983, 1985). DB (1981, 1985). Department of Transport, Great Britain (1987). JNR (1987). NZRC (1982, 1986). OECD (1987). QR (1981, 1985). SNCF (1981, 1985). SRA (1981, 1985). STA (1985). United States Department of Commerce (1987). VIA (1985) VRB (1981). WAGRC (1981, 1985).

Figure 2 Percentage change in government and non-government railway freight and passenger revenue and operating expenditure (constant prices). 1981 and 1985

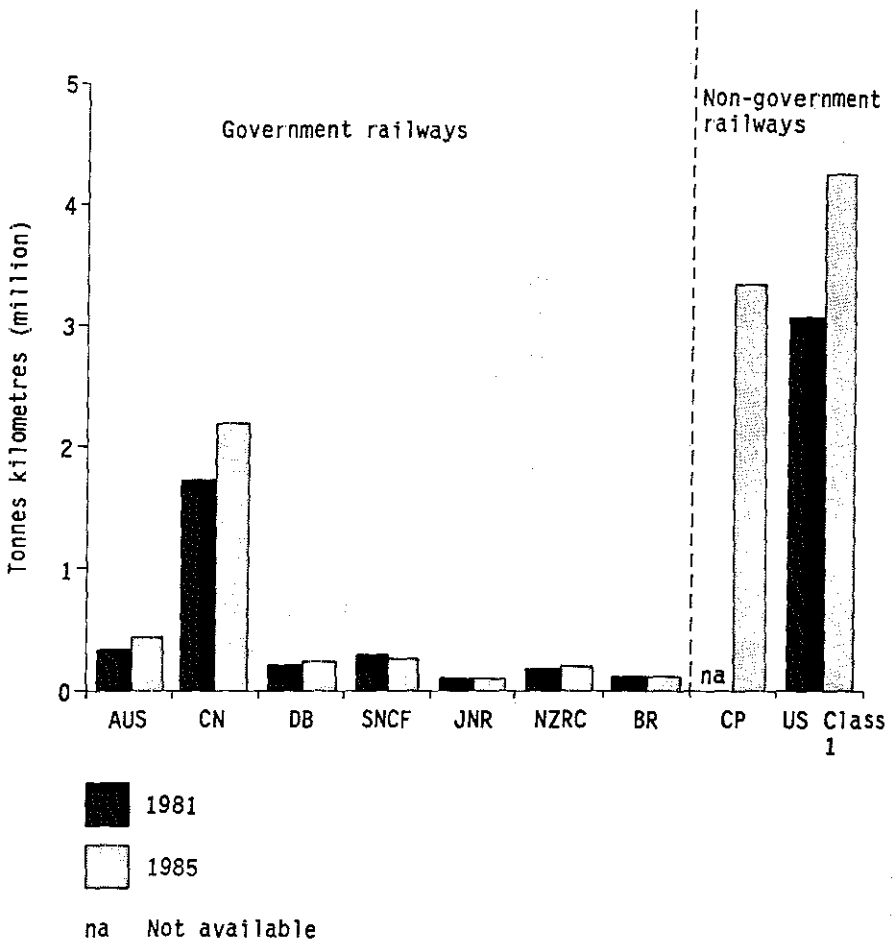


a. NZRC: 1981 - 8.6 passenger kilometres per employee,
1985 - 12.5 passenger kilometres per employee.

Sources AAR (1987). BTE (1987a). BTCE estimates. DB (1981, 1985). Department of Transport, Great Britain (1987). JNR (1987). New Zealand Department of Statistics (1986). NZRC (1982, 1986). SNCF (1981, 1985). VIA (1985), United States Department of Commerce (1987).

Figure 3 Non-urban government railway passenger kilometres per employee, 1981 and 1985

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Sources AAR (1987), ABS (1986a). ANRC (1981, 1985). BTE (1987a). CN (1981, 1986). DB (1981, 1985). Department of Transport, Great Britain (1987). JNR (1987), NZRC (1982, 1986). QR (1981, 1985). SNCF (1981, 1985). SRA (1981, 1985). STA (1985). Statistics Canada (1986). VRB (1981). WAGRC (1981, 1985).

Figure 4 Railway tonne kilometres per employee, 1981 and 1985

Comparing the percentage change in operating revenue and expenditure per employee as a whole (the only figures available), it is apparent that publicly-owned railways, in some cases, have done relatively better than their private US and Canadian counterparts (see Figure 5). In addition, both revenue and expenditure per employee has been increasing in most countries, with revenue growing at a faster rate. The relatively poor performance by NZRC and SNCF is off-set by public corporations like DB, VIA and Amtrak. In addition, JNR's operating revenue growth has been keeping ahead of expenditure during the 1981 to 1985 period.

DISCUSSION

There have been a number of organisational changes to railway management structures and their political and commercial environments, in recent years. Most of these changes have been triggered by poor financial performances, which necessitated an appraisal of the appropriateness of existing structures and rules.

For government railways, this invariably meant a requirement to become increasingly less reliant on public subsidies and achieve certain commercial targets. In return, they were given more freedom to manage, less bureaucratic structures and the opportunities to diversify their business. In some cases, for the first time, more transparent accounting procedures made it possible for public service obligations to be reimbursed.

Given these liberating commercial and organisational conditions, it could be expected that performance would correspondingly improve. However, the evidence is equivocal for the years analysed and the railways reported here.

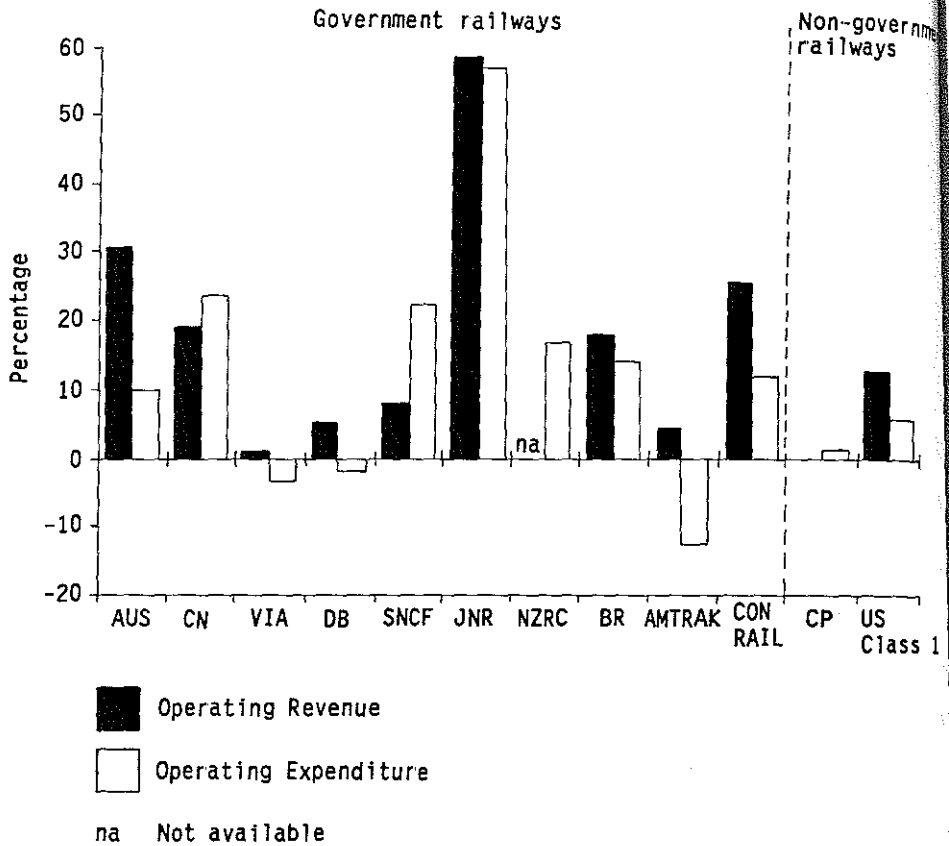
The inconclusiveness of the results may be due to the relatively recent timing of the organisational and institutional changes described. Changing attitudes and structures of large enterprises is itself a long process; seeing the results may take even longer.

Alternatively, it could be argued that rather than the private or public nature of the enterprise, it is the relative freedom given to its management to manage and the environment in which to compete realistically, which determines efficiency. The experience in the US is noteworthy, where the railroad industry was in apparently inevitable decline, not because of its public ownership, but because of the regulatory net that was thrown over it.

CONCLUSION

The paper sought to examine the effect of type of rail ownership on performance, in a number of selected countries. To do this, revenue and expenditure figures were compared, as well as productivity levels per employee. The years chosen for comparison were 1981 and 1985, during which interval institutional changes had occurred.

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Note United States railways changed to a standard depreciation accounting system in 1983. This had the effect of decreasing annual costs.

Source AAR (1987). Amtrak (1981). ANRC (1981, 1985). CN (1981, 1986). Conrail (1981, 1985). CP (1983, 1985). DB (1981, 1985). Department of Transport, Great Britain (1987). JNR (1987). NZRC (1982, 1986). OECD (1987). QR (1981, 1985). SNCF (1981, 1985). SRA (1981, 1985). STA (1985). VIA (1985). VRB (1981). WAGRC (1981, 1985).

Figure 5 Percentage change in railway operating revenue and expenditure (constant prices) per employee, 1981 and 1985

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On the basis of available data, no direct link between rail ownership and performance could be established. In some cases changes may be too recent for significant effects to be evidenced. However, in other cases, factors arising directly from the institutional arrangements or impinging on railway management in other ways, may be more important.

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ABS: See Australian Bureau of Statistics.

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