



## Rail Reform Models

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### Abstract

Railways have been investigated on a fairly continuous basis throughout the postwar period, with the last few years seeing some serious changes to ownership and operations. These changes are usually referred to as “reforms”, with the connotation of some improvement having occurred. The paper examines the policies underlying the reforms to railways which have been undertaken in the 1990s. The reforms which have taken place are classified into a number of models in terms of ownership, organisation structure and access arrangements. The National Competition Policy has driven many of the recent reforms but it is argued that aspects of it have been misinterpreted in the application to interstate rail freight. Railways have traditionally supplied freight and passenger services, but in this paper we concentrate almost exclusively on interstate freight services as they have been subject to most reform, have more potential to be provided on a commercial basis and are subject to competition from road transport services. By drawing on experience with different approaches to railway reform in other countries, an attempt is made to assess the reforms adopted in terms of reductions in the costs of service provision and consequently in the impact on economic welfare.

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## **Introduction**

Railway reform has been an on-going process since the first railways were mooted. This paper is concerned only with reform in the 1990s where the emphasis has been on changes to ownership, organisation structure and third party access. This is not to deny that lessons cannot be learned from earlier attempts at reform of railways, but that the policy focus now appears to be restricted to these three areas.

The bases of the models are discussed to highlight why they may be selected to reform railways and then draws on experience with them to assess the policy approach and experience in Australia. The assessment concludes that the access and separation policies applied to interstate freight railways are unlikely to improve economic welfare.

The emphasis is on policies applicable to interstate rail freight. This emphasis is for a number of reasons. The market is competitive with road transport, the infrastructure is owned by several rail authorities, and much of the reform has been directed at improving the performance of interstate rail freight and making it profitable.

The reform of railways has meant both reform of institutions and markets. Institutional reform is aimed at improving productive efficiency or reducing the costs of producing railway services. Market reform is aimed at improving allocative and dynamic efficiency or producing railway services which meet consumer demands and which adapt to changing technology and consumer budgets and preferences.

## **Reform Models**

Three aspects of the reform of railway operations are considered. Firstly, the owners may be public or private. The most common form of public ownership when a government is attempting to adopt a more commercial approach to its railway is a corporation established to mimic a private enterprise. In the case of the interstate freight railway, National Rail was incorporated under the Corporations Law, possibly because more than one government owner was involved. Both corporatisation and incorporation make privatisation easier; indeed, some would regard privatisation as a logical next step.

An in-between ownership arrangement is to lease (franchise, concession or contract) railway operations to a private company, but for the infrastructure assets to revert to government ownership at the end of the period of the lease. In other words, operations are the responsibility of a privately owned enterprise for some period of time but the ultimate ownership of the railway network remains public. The lease may apply to the whole network or only to the track and related infrastructure. Victorian rail freight operations have been privatised with a long term lease over the tracks.

The change from public to private ownership can be expected to be associated with a clear commercial focus but this can also occur with public ownership. The Competition Principles Agreement requires prices oversight for government business enterprises and structural reform of monopolies so that regulation and operations are separated, they operate in a commercial manner and are given no preference over competing privately

owned enterprises (competitive neutrality). There is no requirement to corporatise or privatise, although application of competitive neutrality may mean that one of the two is the preferred solution, ie requirements for equivalent financial and regulatory arrangements, commercial objectives.

There are arguments posed that public ownership inhibits commercial freedom, even when operations are completely at arms length. If this is the case, then there will be differences in the relative performance of publicly and privately owned railways.

Secondly, there is the structure of the organisations which provide railway services. They can range from the usual single railway enterprise with control of all aspects of railway operations to separate institutions controlling infrastructure and train operations. The latter is referred to as vertical separation and is generally aimed at separating the natural monopoly component of railways (infrastructure) from the potentially competitive component (train operations), thus promoting more intensive use of infrastructure and competition between operators. The separation may also be achieved while retaining a single organisation, by requiring accounting separation within the organisation so that the costs of track use are clearly identified in the event that access arrangements permit other train operators to use the tracks.

Finally, there is third party access to tracks (infrastructure) which is advocated on similar grounds to the separation of track and train operations. It may occur as open access where any operator can use the tracks under a defined regime or as a more limited arrangement where one or more train operators may use certain sections of track serving specific facilities or where operators of limited service types may use part or all of the network. The latter is most commonly the case where a freight operator controls the track but must permit passenger train operators to use it.

The three aspects of the reform models adopted are discussed somewhat separately below but there are inter-relationships between the three aspects. For example, if no third party access is part of the reform process, it is less likely or even unnecessary to separate track control and train operations.

### **Interstate Rail Freight**

Much of the recent reform of railways has been driven by the National Competition Policy but it is important to recognise that the establishment of National Rail pre-dates the National Competition Policy and had a different focus. While the road transport industry grew strongly from the 1950s, railways were state owned and necessarily had a state focus. The Federal government provided funds for standardisation and all state capitals, except Melbourne-Adelaide, had standard gauge connections by 1982. Despite this, the performance of interstate rail freight operations continued to be relatively poor because of different operating standards and practices, and fragmented management. The moves for single management of interstate freight commenced in the 1980s with the relative success of Australian National (AN) and its desire to see improvements given that interstate freight was its main business. Several proposals were assessed to improve operations further (eg merger of AN and Westrail) but not implemented.

The National Freight Initiative Committee commenced in October 1989 to evaluate options for an interstate freight railway. It comprised representatives of railways, the ACTU, BHP and the three largest freight forwarders; the membership of the latter two showing the desire of private users of interstate rail services to see improvements in rail performance. The Committee (Report of the Committee 1990) recommended a single organisation be responsible for interstate freight services and a package of supporting measures to ensure the success of the organisation. Its recommendations were based on detailed financial analysis (undertaken by consultants Travers Morgan Pty Ltd and Booz.Allen & Hamilton) which showed that interstate freight could be profitable if significant operating cost savings were made and investment occurred to upgrade infrastructure, especially on the east coast.

Of interest to this paper, the Committee also came to the following two conclusions:

1. Private train operation was not a feasible option in the 'medium term', except perhaps for specific bulk commodities, because the efficient cost levels could only be achieved with the economies of scale associated with larger trains (p11). This was on the basis that although the share of interstate freight carried by rail in Australia is high compared to Europe and the USA, the volumes are very low at one fifteenth or less than comparable corridors in the USA (p3).
2. The national rail freight operator should control the track if the cost reductions, transit times and reliability necessary for profitability were to be achieved (p13). It was noted that this would probably not be practical in metropolitan areas.

In September 1990, the council of Ministers of Transport established a Task Force to develop a proposal for a National Rail Freight Corporation (NRFC). The Task Force (1991) endorsed the National Freight Initiative report, noting that the estimated 1989-90 deficit of \$377 million could be turned to a profit over a 5 year period but the business was always likely to be marginal (p27).

An Inter-governmental Agreement (including a shareholders' agreement) followed, with National Rail being incorporated in September 1991 and commencing commercial operations in early 1993. The shareholders' agreement gave National Rail the task of nominating assets for transfer from the shareholder rail systems; if shareholders did not transfer requested assets, then the charge for their use was not to exceed the avoidable cost of their maintenance. National Rail indicated that it wished to take control of the interstate track, but the Competition Principles Agreement, signed in April 1995, intervened. In June of that year, shareholder governments indicated they would retain control of the track. This was a fundamental shift from the policy agreed in 1991; the effect on National Rail's financial position was compounded because access charges were not restricted to the avoidable cost of maintenance of the assets not transferred.

A study of the costs and benefits of vertical separation was undertaken and recommended a separate national track authority (Symonds Travers Morgan *et al* 1995). The Australian Rail Track Corporation (ARTC), formed in 1997, owns the former AN part of the national network and manages the Victorian tracks for a five year period. Negotiations between ARTC and the NSW, Queensland and Western Australian systems are aimed at providing a one-stop shop for track access.

Private train operations commenced in 1995 in the east-west corridor, but there have been no large scale interstate operations on the east coast to date. There is no publicly available information on the freight carried by corridor and totals only available for National Rail, making it difficult to assess the impact of these changes. Anecdotal information is that there has been little traffic growth in the east-west corridor and private operators carry about 50 per cent of the freight, while there has been significant growth in long distance traffic on the east coast.

### **National Competition Policy**

The impetus for many of the changes to railway operations since 1995 came from the Report by the Independent Committee of Inquiry into National Competition Policy (Hilmer *et al* 1993) and the Competition Principles Agreement signed by all governments in 1995. Of the recommendations in the Hilmer report, those relating to the structural reform of monopolies and access to essential facilities have had a significant effect on the operation of interstate railways.

### **Structural Reform of Monopolies**

The Hilmer report recommended the separation of natural monopoly elements and potentially competitive elements of existing public sector monopolies; with respect to railways the implications being that the infrastructure (track) should be owned by a different organisation to train operations. This recommendation arose from concerns expressed about the opportunities for cross-subsidy between track and train operations of current integrated businesses (vertical integration), cross-subsidy between different types of train operations of current integrated business (horizontal integration), and lack of access for potentially competitive train operators to the track (p219).

To support its recommendation the report noted the following (p220):

1. Prior to separation an assessment of the costs and benefits would be required, taking into account transition and transaction costs on the one hand and the more efficient and dynamic industry structure resulting from separation and the avoidance of regulatory costs on the other hand. (It was noted that regulatory control of the track would still be required.)
2. Incentives for the potential abuse of monopoly power could not be removed by accounting separation, only by organisational separation. In support of its view on separation, the Industry Commission (1991) report on rail was quoted although that report recommended access and accounting separation, not organisational separation.

The strong presumption of the Hilmer report that separation was required in the restructuring of public monopolies is not evident in the Competition Principles Agreement. Clause 4(3) of the Agreement says that review of the 'merits' of separation will be undertaken prior to introducing competition into markets traditionally supplied by public monopolies. Other factors to be considered in any review should include financial arrangements and competitive neutrality

## Access to Essential Facilities

The underlying justification for the Hilmer report recommendations in this area were to ensure that effective competition took place; the more use of the tracks as a result of competition, the lower the unit costs of their use. Access to essential facilities was recommended as follows:

*An "essential facility" is, by definition, a monopoly, permitting the owner to reduce output and/or service and charge monopoly prices, to the detriment of users and the economy as a whole. In addition, where the owner of the facility is also competing in markets that are dependent on access to the facility, the owner can restrict access to the facility to eliminate or reduce competition in the dependent markets (p239)*

Several factors were suggested to assist in identifying essential facilities: whether they can be duplicated economically or they occupy a strategic position or they can restrict competition in dependent markets (p240).

The Competition Principles Agreement required access to 'significant infrastructure facilities' rather than to natural monopolies but required them to be identified in generally the same manner. Clauses 6(1) and 6(3) relate to Commonwealth and State/Territory infrastructure respectively which would not be economically feasible to duplicate, is necessary to permit competition in dependent markets, and which can be used safely by other operators. In the Commonwealth case, the national significance of the facility is also to be considered. Further indication that the Hilmer report's strong presumption for separation was not endorsed by Heads of Government is indicated in Clause 6(4)(n) which requires accounting separation for parts of businesses covered by an access regime.

## Commercial Objectives

The tradition in Australia has been for publicly owned railways operated as government departments. Some were established as statutory authorities but governments/ministers exercised control over network size, prices and service levels to a greater or lesser extent. Interstate (or intersystem) freight services required the cooperation of five individual railways on rates and service levels through the Railways of Australia.

Public ownership of what are essentially business enterprises has been targeted as part of the micro-economic reform process, and railways have been no exception. Queensland Rail and FreightCorp (NSW) have been corporatised while freight operations in South Australia, Tasmania and Victoria and (former AN) interstate passenger services have been privatised. Current government policies are that Westrail and National Rail will be privatised. It is too early to say what the impact of the different models has been, ie whether some have been more successful in improving efficiency than others.

There is no doubt that the productive efficiency of rail has improved over the last decade; that is not attributable to changes in ownership but rather to clear commercial objectives set by governments for their railways. For example, BIE (1995) reported that

the freight railways improved their performance by 42 per cent between 1991-92 and 1993-94 (with V/Line, Westrail and AN improving by over 65 per cent) without any of the changes in organisation or market structures embodied in the Competition Principles Agreement. Despite these improvements, the BIE suggested that cost levels remained 12 to 27 per cent above world best practice when compared to similar railways in North America and New Zealand. (The BIE report may be dated due to changes in the structure of organisations but it remains the latest comprehensive and relevant comparison of performance.)

The performance of National Rail has been within the projections made at the time of its establishment, after taking into account the changes in policy which were at odds with meeting the projections: competition from other train operators, no control of infrastructure and no reduction in the cost of using infrastructure. The projected profitability in 5 years was not achieved but the loss was reduced from an estimated \$337 million to \$9 million (after tax) in 1997-98; freight carried increased by about 7 per cent and freight rates reduced by about 7 per cent to 1996-97 (National Rail Annual Reports, Steering Committee 1998).

### **Are Railways Monopolies?**

Adopting policies for vertical separation and open access in interstate rail freight depends critically on whether railways are natural monopolies. They occur where unit costs of production decrease with output, and consequently one supplier can produce at a lower cost than two or more suppliers. The concern about monopoly supply arises because the monopolist can restrict output and increase prices to maximise profits. It is not clear that interstate freight railways are natural monopolies.

### **Cost and Market Size**

There is evidence of decreasing unit costs, but they are dependent on market size. The capacity of rail track is not infinite so at some level of market demand it is likely that a second line will be required and one supplier may no longer be the lowest cost solution. (Incremental increases in capacity such as more passing loops, improved signalling, etc will be practical prior to duplication or as a steps to duplication.) This is most likely to occur where the density of traffic is high. As noted above, the density of interstate freight by corridor is low in Australia indicating that the requirements for a natural monopoly are probably met at the current time. It is also low for the system as a whole at 1.9 million tonne-km per route km compared to:

- 3.3 to 6.6 million tonne-km per route km for USA Class I railroads; and
- 3.3 to 4.5 million tonne-km per route km for Canadian railways (Steering Committee 1998, BIE 1995)

## Market Definition

Despite cost and market size arguing for the existence of natural monopoly railways, they are not in a position to act as monopolists because there are close substitutes for the services they provide. King and Maddock (1996:168) note this argument in relation to urban rail services but it can apply equally to interstate freight:

*Railway lines do not provide a 'necessary' input, as defined by standard trade practices principles, for competition in any market. There is no market for urban rail travel in any major Australian city; there is a market for urban public transport. Rail competes, often unsuccessfully, in this market with other forms of public transport and with private automobiles.*

The definition of the market is the first consideration in the assessment of trade practices and competition issues, providing the framework for analysis of the competitive process and sources of market power. A market exists where there is actual or potential substitution by consumers or producers as a result of changes in relative prices (Brunt 1990). In other words, price and production possibilities are constrained by other market participants.

In the interstate freight market, road and rail transport compete for the traffic offering with varying degrees of success. The BTCE (1994) estimated that intercapital rail market shares ranged from 21 per cent in the Melbourne-Brisbane corridor to 80 per cent in the Adelaide-Perth corridor. Rail is generally a price taker because the level of service in terms of transit times and door-to-door service is lower than that which can be achieved by road transport (BTCE 1996). Until very recently large losses were made on interstate freight operation. None of these factors support the arguments that there is a market for interstate rail freight or that interstate rail services are a natural monopoly.

A possible market where rail may have the potential to act as a monopolist is in the carriage of coal in NSW and Queensland. The density of freight is relatively high so it is more difficult for road transport to compete with rail transport. Regulatory controls on the delivery of coal to loaders by road transport limit and/or preclude competition even it could develop. Perversely, the Competition Principles Agreement allowed the transport of coal by rail to be excluded from access regimes for 5 years (BIE 1995).

The competition between road and rail for freight traffic has been a significant consideration in the discussion of the application of competitive neutrality, also part of the National Competition Policy (see for example ATC 1995, House of Representatives 1998, Productivity Commission 1999). It is inconsistent that it should be recognised in this context but not in the context of assessing whether access is an appropriate policy.

## Will Competition Reduce Costs?

The basis of the arguments for access is that competition will develop between train operators and reduce costs and encourage innovation in service delivery (dynamic competition). As noted above, there has been some limited new entry in interstate freight operation but it is not clear that the resulting competition has reduced the costs of providing interstate rail services.

The argument for competition implicitly assumes that there are no economies of scale in train operations, else larger operators would have lower costs. This is in contrast to data from National Rail which indicates that the unit cost of operating interstate freight trains reduces by 15 per cent as train length increases from 700 to 1500 metres (National Rail 1999), and the information and argument in the consultants' analysis for the National Freight Initiative (Report of Committee 1990):

*.....achievement of world standard efficient costs requires that rail realise all of the economies of scale available through the use of larger trains where practicable in marketing and operating terms. These economies of scale will result in operation of fewer trains than at present, and therefore will not be achieved if the small volumes of freight available are divided between several independent operators (p12).*

Studies of railway costs in the USA and Canada (Bruzelius *et al* 1995) and the British privatisation (see below) also support the existence of economies of scale in train operations. Depending on the size of the economies of scale, competition may still result in lower costs if the decreased costs associated with competition outweigh the diseconomies of scale. The answer is not unambiguous and will depend on the level of competition which develops. The North American experience can be used to argue that the economies of scale are large in view of the continuing mergers which have created railways which are up to 30 times the size of National Rail, are vertically integrated and are not subject to access from third parties (except as private commercial arrangements).

Available information is that freight rates are lower in the east-west corridor since competition has occurred, although there has been no change in the average revenue per tonne-km earned by National Rail over that time (Steering Committee 1998). The establishment of National Rail was premised on a national network comprising a relatively good component in the east-west corridor and a relatively poor component on the east coast (which generates twice as much rail freight and five times as much freight as the east-west corridor). The access policy will make that more difficult to achieve and may mean that costs/rates are higher overall even though they may be lower in the corridors where competition occurs. This is supported to some extent by the report on vertical separation of National Rail which estimated that competition on the east-west corridor would mean that funding of \$30 million of operating costs was required for the national network to be maintained (Symonds Travers Morgan *et al* 1995).

## Will Separation Promote Competition and Reduce Costs?

The traditional (and still most common) railway is vertically integrated. Recent reform models have suggested that the control of track and train operations should be separated either at an accounting or organisation level to promote competition. Access may occur while retaining a vertically integrated railway, but the argument is that there will be **more competition** or **more effective competition** if vertical separation occurs.

Against the potential benefits of increased competition must be weighed the costs of separation which may include (Kessides and Willig 1995):

1. less efficient freight rates because track authorities are likely to find it difficult to reflect differences in shippers' demands in access charges (although this probably has little relevance to containerised freight which is a significant part of National Rail's traffic);
2. the coordination required between track owner and operators (eg on investment priorities) and between operators (eg on paths, track standards);
3. loss of economies of scope (interaction between track and train operations); and
4. transaction costs.

King and Maddock (1996) also show that the Australian model of separation with negotiated access will not improve economic welfare (p88-92) and that it will be a disincentive to investment in infrastructure (p129-31). The infrastructure provider is responsible for investment but is further from the market than the operator; given long asset lives this can only increase uncertainty as shown by Bruzelius *et al* (1995) in their analysis of the Swedish separation model.

The study of the costs and benefits of vertical separation of the interstate freight railway estimated a net benefit of \$12 million per annum or 2.3 per cent of total costs (Symonds Travers Morgan *et al* 1995). The result was sensitive to the assumptions underlying the analysis, in particular that:

- there would be intense competition, ie National Rail would carry only 50 per cent of the freight, and rail traffic levels would expand by 10 per cent; and
- the track authority would own and control all the infrastructure.

As these assumptions have not eventuated, it is most unlikely that a vertically separated railway remains the preferred option. The limited competition which has developed means that National Rail is carrying about 70 per cent of all interstate rail freight; there has been little or no increase in traffic where new operators have entered the market, and the ownership and management of the national network has yet to be unified.

The study estimated that unit operating costs would be 6 per cent lower with the assumed level of increased competition. Recognising that it is difficult to model impacts in competitive markets, the cost reduction appears generous. For example:

- diseconomies of scale were estimated to increase costs by 4 per cent in a situation where National Rail carried 50 per cent of the traffic, while halving train length can increase costs by 15 per cent as noted above;
- the assumptions of cost reductions of 5 and 6 per cent for productivity and innovation respectively appear high when we are considering **only** the impact of the extra competition between rail operators associated with vertical separation. This 11 per cent decrease in costs can be compared to the 12 to 27 per cent gap to world best practice identified by the BIE (1995) in 1993-94 (The lowest percentage applied to AN which is the closest of the then existing railways to National Rail.);
- infrastructure costs were estimated to be 10 per cent higher. No account was taken of increased operating costs because of the loss of control of infrastructure (eg investment) or the inability to substitute resources between infrastructure and train operations (economies of scope); and
- no transaction costs or costs of inefficiency in pricing were included.

Certainly, the conclusion was in direct contrast to that in the National Rail establishment phase when the Task Force (1991) argued:

*.....if the NRFC is to be able to achieve the efficiencies it has identified, undertake significant capital expenditure and provide the type and quality of service that users require it should move to control the interstate rail freight permanent way. This control could be effected by the NRFC owning the permanent way or by the NRFC leasing the permanent way from the rail systems, with the rail systems negotiating running rights from the NRFC (p46).*

Separation may encourage competition between operators thereby exerting downward pressure on operating costs, but there is no reason to expect it will reduce infrastructure costs. The infrastructure provider is not subject to any competition while in an integrated railway all costs would be as they are under single control and subject to competition from road transport. The only National Rail cost item which has not reduced since its establishment is track access charges (Steering Committee 1998). Government funding for the provision of infrastructure continues, eg the Rail Access Corporation in NSW receives a payment of \$177 million as access charges are lower than costs (RAC Annual Report), the Commonwealth government is providing funds for investment in interstate network infrastructure. This is in contrast to the 1991 plan for an integrated interstate freight railway for which it was estimated that profitability could be achieved within 5 years.

The assessment of whether there are benefits in vertical separation appears to have changed the further we have moved from the signing of the Competition Principles Agreement. The sales of South Australian, Tasmanian and Victorian freight railways were as integrated organisations and integration is currently the announced policy for the sale of Westrail.

## Experience with Rail Reform in Other Countries

The reform models adopted in other countries have shown some differences to that adopted for interstate freight railways in Australia. The experience with those models provides some insights for assessing future policy directions although the operating and regulatory environments are often very different.

### Ownership

The longest history of change in railway ownership is in Argentina where the national railway was broken up into six regional railways and franchised to private operators commencing in 1991. In 1997 there was still one railway in government ownership as no offers were received (Pipan 1997). The franchises were for 30 years and effectively created regional monopolies with some running rights for specific freight destinations and for passenger trains.

The regional railways ranged in size from 690 to 2,916 million tonne-km which are similar in size to the South Australian, Tasmanian and Victorian networks. The franchised operations are now profitable and have generally increased the freight carried, with the increases ranging from 40 to 160 per cent over 5 years (Carbajo and Estache 1996). As part of the tendering process, bidders were required to specify investment plans which then became a condition of the awarding of the franchise. As freight increases were lower than forecast in the bids, investment did not occur to the level required and penalties were imposed by the regulator, and eventually led to renegotiation of contracts.

Closer to home the New Zealand railways, also similar in size to smaller Australian railways at about 3,500 million tonne-km, were privatised in 1993. The process of organisational change was long, commencing in 1982, and most of the gains were made prior to 1993 (Cavana *et al* 1997). Prior to privatisation, the government contributed over \$NZ1.4 billion (as debt relief and equity) which was a significant factor in the achievement of profitability in 1990. The regulatory and operating environments appear to be significant factors in the railways' improvement; as an example, Tranz Rail's average freight rate was 11.6 NZcents/tonne-km in 1996-97 which was over double that of the average of all Australian railways and three and a half times that of National Rail (Tranz Rail Annual Report 1997, Steering Committee 1998).

### Access

There is no open access in any of the rail reform models to date, although there are plans for it in some places. Limited access or running rights were included in reform of railways in South America and in Sweden but mainly for passenger trains to use the same tracks as freight trains. The European Union issued a directive (91-440/EEC) in 1991 which required access for groups of national railways over all members' tracks, operation of private trains between countries and accounting separation (at least) to enable access charges to be calculated. There has been slow progress and in July 1998, the EU Commissioner of Transport reported that new directives were being developed on the allocation of infrastructure capacity (including access charges), separation of accounts and the licensing of railway authorities (Anon 1998).

The most far reaching reform has been in Britain where open access was permitted from the first for freight (not passenger) operations. The intention was to sell 6 freight businesses (with a total of 13,000 million tonne-km) to promote competition despite advice that economies of scale would be lost and sale prices would be lower. In the event, the number of businesses sold effectively reduced from 6 to 2 as one bidder (EWS) purchased 5 and was then permitted to put them back together. Since privatisation, two new operators have entered the market, one of whom has been purchased by EWS. Little competition has eventuated but Welsby and Nichols (1999:65) do not view this as a major concern:

*Given the ferocity of competition between road and rail for freight, this outcome does not necessarily present problems, but the efforts to create on-rail competition in defiance of the business economics were to a large extent wasted.*

Conditions in Europe are like Australia in that the access policy is to encourage competition across several networks, but unlike in that traffic density is high and freight is a marginal business to passenger services. The current EU proposal is that access charges be based on short run marginal cost for all services; in certain limited cases charges may include allowance for capital recovery but not in the case of freight railways (Holder 1999). The proposal is based on large and continuing government contributions to infrastructure providers which is certainly not the policy in Australia, although it is occurring to some extent in practice as noted above.

### Vertical Separation

The first case of vertical separation occurred in Sweden in 1988, where it had little or no link to promoting competition, although some regional passenger services could be provided by new operators. It was to achieve a like-with-like treatment of road freight transport with freight trains by charging respective marginal social costs for the use of infrastructure, ie including the external costs of both modes when calculating the access charges. This seems to have little relevance to Australia since there has been no suggestion that the separation has the aim of achieving like treatment in charging for infrastructure. It is also doubtful whether that aim was achieved in Sweden:

- between 1988 and 1994 rail freight grew 4.5 per cent ( or less than 1 per cent per annum) (Rail Business Report 1996): and
- from January 1999, all rail track charges were abolished to further the government's objective of more freight being carried by rail (Bennett 1998).

The Swedish rail operator continues to argue that the separation impedes its ability to direct investment to where it is most needed, while Bruzelius *et al* (1995) argue that the Swedish model is flawed because of differences in road and rail operation. Use of rail tracks requires pre-planning/timetabling and operators need to be in control to ensure that service levels are met and that they have the ability to change the mix of factors in the production process to minimise costs (economies of scope).

The other major example of separation is the breakup of British Rail in 1994 (see Kain 1998 for a description). The structure, size and type of operations are so unlike railways in Australia that it would be difficult to transfer results. The railways are dominated by passengers (702 million), with only 6 per cent of the freight task carried by rail in the Britain (DETR 1997). The track was separated and privatised, with charges to be based on full recovery of financial costs and a return on assets. Government contributions for freight train operations are available as Freight Facility Grants in the following circumstances:

- where it can be shown that freight will be transferred from road to rail; or
- to pay access charges for some freight services.

The grants pre-date privatisation but have doubled since then and it is planned that the grants will be increased over time as part of the government's policy to encourage rail to be used for the carriage of freight (UK Government 1998:44). The grants have a clear focus on allocative efficiency between rail and road, as with the policy adopted in Sweden. This has not been a stated policy objective of any rail reform models adopted in Australia.

Progress in other parts of Europe following the 1991 Directive has been slow and different approaches to separation adopted. In Germany, the separation has been achieved with the operator retaining control of the track and the government providing funds for infrastructure on the recommendations of an infrastructure funding authority (DJA Maunsell 1994). The French railway has been separated with funding available to the train operator for track maintenance and to the track authority for infrastructure investment (Bennett 1997). Separation occurred in the Netherlands in 1994 with no access charges, government funding of infrastructure and no competition between rail operators to date (Schaafsma 1997).

## Discussion

Experience of competition between rail freight operators is difficult to find. The role of competitive road transport seems to have been a factor in not pursuing or encouraging open access. Even in Britain where the promotion of competition was a prime aim of rail reform, the economies of scale of rail operation were regarded as more important than competition between rail operators if rail was to successfully compete against road transport. It is notable that an open access policy is not being pursued in the USA (Jahanshahi 1998) and that railways in that country are very efficient and are used to benchmark productivity of Australian railways (see for example BIE 1995, Productivity Commission 1999).

Separation has been associated with railways where passengers are the dominant traffic, where policy is aimed at promoting the use of rail freight or where policy is aimed at treating road and rail investment and/or pricing in similar manners. Only in Britain is the infrastructure provider expected to operate on a commercial basis, although grants to rail operators are available to cover some access charges. The EU proposal for access charges to be based on marginal costs will continue the need for government funding of infrastructure. These proposed charges will improve allocative efficiency to a greater extent than charges calculated on a commercial basis (Holder 1999).

Little of this evidence seems to have informed rail policy with respect to interstate rail freight in Australia. The freight is low density, it is the dominant traffic on the network, and it is subject to competition from road transport. Separation and access policies have been pursued without recognition of the likely increased rail costs over the network because of loss of economies of scale and scope. These increased costs will make it more difficult to finance infrastructure improvements (necessary to reduce operating costs) from freight revenues; competition between road and rail and between rail operators will be adversely affected. The importance of differences in the treatment of investment decisions in road and rail transport was recognised by the National Transport Planning Taskforce (1995) but its recommendations have yet to be implemented.

### **Conclusions**

A commercial focus is clearly important in improving the productive efficiency of railways. To date there is not much difference between the performance of a railway that is privatised and one that is corporatised and clearly operates at arms length from its government owner. Privatisation may be necessary to achieve the separation from government involvement in the day-to-day operations of railways

Although it can be argued that railways are natural monopolies where there is low density traffic they certainly cannot act like them when road transport is a close substitute; the relevant market is the market for freight. In these circumstances, the access provisions of the Competition Principles Agreement need not apply, and on the evidence available it is highly probable that they are increasing the costs of the provision of interstate rail freight services overall.

The main aim of vertical separation is to promote competition, but the extant models do not enable a conclusion to be drawn that competition will occur. There has been limited competition for interstate rail freight and any benefits associated with that competition are unlikely to outweigh the costs in terms of loss of economies of scale and scope, and coordination between the infrastructure owner and operators. These costs have been evident with respect to the priorities for investment in infrastructure and provision of services to meet customer needs in existing separated railways. Government funding of infrastructure providers continues and arguably is required to ensure the profitability of interstate rail freight operators.

The combination of open access and vertical separation in interstate rail freight will therefore certainly lead to higher costs overall, which is inconsistent with an improvement in economic welfare. A single operator with control of infrastructure would be able to exploit the economies of scale in train operations and the economies in scope between infrastructure and operations.

Finally, separation and access policies in other countries have all been accompanied by some level of government funding to freight operations, and in some cases that is specifically aimed at increasing rail freight traffic. The funding, depending on how it is assessed and allocated, can be interpreted as improving allocative efficiency. The view continues in Australia that private operation/involvement will reduce costs and the need

for government funding. This seems to be some time away in view of the experience to date, the condition of the infrastructure, the level of access charges and the limited competition which has occurred.

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