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Working Paper 173

Rail Policy and Performance in Australia

by

C.A. Nash

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1. Introduction

In 1981, the current author published a review of rail policy and performance in Western Europe (Nash, 1981). A 3-month visit to Australia in the Autumn of 1982 gave the opportunity to extend this comparison to the railways of Australia. Since transport is predominantly a state function in Australia, there are five major publicly-owned rail systems to consider (Table 1), each with its own distinct characteristics and each facing a different policy framework. Thus the exercise is much more like a repeat of the European study on a smaller scale than the addition of a single country to the sample.

2. Background

The railways covered by this review comprise the State-owned systems of the States of New South Wales (SRA), Queensland (QR), Victoria (VR) and Western Australia (WR), and Australian National Railways (ANR). The first four systems are long-standing organisations, but a word is necessary on the history of ANR. In the mid-1970's, an attempt was made to amalgamate the separate rail systems of Australia into a single national authority under the auspices of the Federal government. As a result, ANR was created out of the old Commonwealth Railways (which had previously operated the transcontinental Standard Gauge line from Port Pirie to Kalgoorlie), and in 1978 it took over the rail systems of Tasmania and South Australia (with the exception of the very limited suburban network of the city of Adelaide, which passed to the State Transit Authority). These were the only states to agree to transfer control to the Commonwealth government, and it is no surprise to discover that they are the states whose rail systems were in the greatest financial trouble. As a result, ANR consists of sections of three separate gauges on the mainland, and a totally separate narrow gauge system on Tasmania.

In 1981-2, these five railways carried slightly less than 120m tonnes of freight (ABS, 1983) - in other words, still less than the total carried by British Rail (BR). However, the longer lengths of haul led to a total tonne kilometrage of over 37,000m - twice that of BR and exceeded in Western Europe only by German and French Railways (Table 2). As a share of the Australian transport market, this probably came close to the tonne-kilometres transported by road; the dominant mode in Australian freight transport in tonne kilometres is coastal shipping and a further substantial share is held by the private mining railways mainly in the North West (ARRDO, 1981a). Moreover, Australian rail freight traffic had doubled in the past 15 years; unlike the experience even of France and West Germany, rail freight traffic grew to exceed previous peaks after the 1973 oil crisis and subsequent world recession, and only in the face of the much more severe recession of 1981-2 did its rate of growth slow down. Most of this growth was in the highly profitable bulk traffic sector - coal, minerals and grain travelling to the coast for export - and by 1981/2 nearly three-quarters of the tonnes and half the total tonne-kilometres transported were of these three commodities.

In the passenger market, Australian railways are generaly thought to be of little relevance. Thus it is a surprise to discover that in 1975/6 they were estimated still to possess some 4% of the market in passenger kilometres - not so very far below the 6-6.5% achieved in Britain, the Netherlands and West Germany. The explanation for this is the continued importance of rail in the two largest cities - Sydney and Melbourne - which between them account for 40% of the Australian population. Outside the cities, rail has been on a steady - and many thought terminal - decline, although recently New South Wales and Victoria have invested in new rolling stock for their more important country services.

Given that Australian railways are dominated by freight traffic, and that they have enjoyed very rapid growth in what are usually the most profitable commodities for rail operators, one might have expected that they would have escaped from the general financial difficulties experienced by Western European railways in the past decade. Table 3 shows how far this is from the truth. As recently as the late 1960's, Australian railways collectively covered working expenditure from revenue, although they were making inadequate provision for replacement of assets (AARDO, 1981b). By 1981/2, only 70% of working expenditure was covered by revenue. Subsequent sections of this paper seek to explain this surprisingly weak financial performance.

3. Objectives and Constraints

The obvious starting point for a consideration of the financial performance of a railway is to consider the objectives and constraints under which it operates. Few railways around the world are purely commercial operations, and those of Australia are no exception. But here the diversity of approach between the states is every bit as pronounced as that between the countries of Western Europe.

Australian railways have traditionally functioned very much as part of the state government. Their accounts have been part of the state accounting system, with receipts paid into the state treasury and costs defrayed from it. Proper provision for asset renewals has been rare. They have generally had common carrier obligations, political control over charges and services and have required government sanction to withdraw services or to replace them by road substitutes.

The degree to which this position has changed over the years varies enormously. Three railways - SRA, QR and VR - are still subject to all of these constraints, athough in both Victoria and

New South Wales recent enquiries have advocated a more commercial approach (Lonie, 1980; McDonnell, 1980) and measures have been taken to separate out the revenues and costs of the noncommercial elements of the rail business and to pay explicit subsidies, whilst permitting the rail operator to substitute road services on certain lighly used routes. In Queensland, the approach is explicitly one of seeking to balance revenues and costs by maximising the cross-subsidisation of unprofitable traffic by the large and growing profits from export coal; there is little doubt that this largely explains the higher cost coverage achieved by this railway.

At the other extreme are WR and ANR. Following the findings of the South West Australian Transportation Study (1977), WR has been encouraged to behave very much more as a commercial enterprise. It has largely divested itself of rail passenger operations, with the exception of a very limited suburban service in Perth, which is subsidised directly on a fully-allocated cost basis. More recently, in 1982 it formed a joint subsidiary with a major road haulier to take over responsibility for less-than-wagonload traffic on a purely commercial basis. It no longer has a common carrier obligation, and enjoys freedom to raise charges without requiring government approval, except in specific cases where there is little competition for the traffic.

As already suggested, ANR occupies a unique position. It was set the corporate objective of achieving breakeven by 1987/8 - i.e. within ten years of taking over the heavily-loss making South Australian and Tasmanian undertakings. Yet it is still subject to common carrier and rates obligations, and it has inherited a number of long-term contracts (particularly within Tasmania) which will involve it in shipping commodities such as timber at increasingly unprofitable rates for many years to come. (These contracts were entered into by the Tasmanian government to attract enterprises to the country on deliberately non-commercial terms, Joy, Hicks and Kershaw, 1977). Although ANR has made good

progress towards viability, particularly by reducing staff (by 14% in the period 1978-9 to 1981-2), there would seem to be no chance of its meeting its commercial remit whilst carrying such uncompensated obligations. Yet it has been unwilling to press for subsidies for such traffic, apparently for fear that this would weaken the pressure on staff to raise efficiency (House of Representatives Standing Committee on Expenditure, 1982).

The most obvious result of the combination of common carrier obligations and controls over maximum rates is the inability to shed traffic which is clearly unprofitable, in the sense that it fails to cover even avoidable working expenses, on al systems other than WR. This is the case with passenger traffic, livestock and less than wagonload traffic on all systems, and with other commodities in particular cases (ARRDO, 1981c, p. 39). It is significant that whilst for most commodities specially negotiated contract rates are the norm, for these commodities it is the published maximum rate that rules. But it is in the nature of rail systems that many of the costs - in particular infrastructure costs - are joint between groups of traffics. Thus, even where all commodities are covering avoidable costs, pricing constraints and the requirement to continue to serve lightly loaded routes shared between commodities may lead to a postion in which the railway falls short of recovering its working expenses from revenue.

4. The Freight Market

Australia seems to be a country ideally made for rail freight transport. It has large volumes of coal and minerals moving to the coast for export over distances which are far too long for conveyors but generally too short for the economic use of slurry pipelines. Its grain traffic usually travels sufficiently long distances to make transhipment to rail at a grain terminal worthwhile. And its major genera merchandise flows are between

cities the closest of which are around 700 kms apart. It is no wonder then that the rail freight business plays the important role outlined in the introduction. Yet the incursions of road transport into the market are surprising for a country of these dimension: in 1975/6, road was carrying three times as many tonnes of inter-state traffic as rail. Between Melbourne and Sydney, for instance - a distance of over 900 kms - road transport carried over three-quarters of the general merchandise (ARRDO, 1981a). Where its use is permitted (as in South Australia), road is even making incursions into part of the grain market. Moreover, road haulage rates have clearly constrained rail pricing decisions, causing real rates to fall for many commodities over the past decade.

Road transport regulations, like rail policy, is a state function, with the exception of inter-state movements where the constitution forbids any limitation as a restraint on trade. As with rail, there is a general shift towards the reduction of regulation; indeed, one would expect the two to proceed together, since road deregulation without giving commercial freedom to rail constrains the ability of rail to compete for profitable traffic and tends to leave it with the unprofitable, whilst rail commercial freedom without road deregulation might place excessive monopoly power in the hands of the railways. It is therefore a surprise to find that the states in which road deregulation has proceeded furthest are South Australia and New South Wales. Western Australia and Victoria are moving cautiously in the same direction, but still retain protection for certain bulk commodities on rail for the time being. It is Queensland and Tasmania who retain the most rigid protective licensing system, including in the latter case tonne-kilometre taxes in the cases where licenses are granted and which are higher the more suitable the traffic appears to be for rail. Yet the constraints on rail pricing referred to earlier mean that much of this traffic is actually unprofitable to rail. In general, the maximum gross vehicle weight for goods vehicles is

38 tonnes, although South Australia permits 42 tonnes and some states permit heavier road trains on specific rural main roads.

The net result of the regulatory system and the constraints on rail commercial freedom is that rail still handles a fair amount of intrastate general merchandise traffic in small consignments that would more efficiently be handled by road. At the same time, in the area of free competition over long inter state distances, rail has performed relatively poorly, in the face of growing competition from larger vehicles on better roads.

Research into the degree of satisfaction of interstate freight forwarders with road and rail operators presents a rather familiar story (Young, Richardson and Kinnear, 1982). Customers are not significantly more disatisfied with rail charges than they are with road. It is the dimensions of quality of service - in particular, journey time, reliability and freedom from damage - on which rail falls short of requirements. Yet with moderately heavy flows over long distances with little need for intermediate remarshalling, there would seem to be no reason why such a situation should be inevitable. A combination of lack of investment in terminals, inadequate information systems and insufficient integration of the operations of the individual railways would seem to be responsible. The railways themselves are now making determined but belated efforts to overcome these problems.

At the same time, the railways have another familiar complaint. A number of studies have been made of the road track costs of heavy goods vehicles in Australia, and although the exact methods and results differ, there seems to be broad agreement that heavy lorries fail to pay their track costs, perhaps by as much as 50% (ARRDO, 1981c, p. 85), even before environmental considerations are introduced. Moreover, this ituation is most acute on long-distance inter-state movements, where a court ruling of 1954 actually prohibits states from recovering more than out-of-pocket

maintenance costs from raod hauliers (Filmer, Scott and Short, 1982). States continued to recover these by means of tonne-kilometre taxes on inter-state hauls, but these were widely evaded and administratively costly, and were generally abandoned following the blockade of main roads by truck drivers in 1979. The fuel taxes which largely replaced them bore much less heavily on heavy trucks relative to light vehicles.

5. Passenger Services

The same geographical characteristics which make Australia a good country for rail freight operations are totally unsuitable for rail passenger traffic, with the exception of suburban rail services in the main cities. The cities are too far apart for rail to offer journey times which compete with air. In a country of high car ownership and low population density, the intrastate public transport flows are just too weak to support a good quality rail service. Moreover, there is a vicious circle whereby the lack of a reasonable volume of passenger traffic means that infrastructure is only maintained to the level required by relatively low-speed freight operations. As a result, rail journey times are poor - often slower than road-coach for intrastate journeys. In the unregulated inter-state market, rail is heavily undercut by road coaches, and retains a clientele composed of tourists and other leisure travellers who wish to travel by land but are prepared to pay a premium for the comfort of rail (Michell, 1982), and railwaymen and their families travelling at concessionary rates. Within states, rail generally enjoys protection from direct road competition: it would be interesting to know how many existing rail passengers would be content to divert to coach if competition were permitted. Nevertheless, rail passenger closures remain a hotly contentious issue, although some progress with replacing branch line services with integrated coach services has been made in recent years.

In the cities, rail still has a more important role to play, carrying up to one-third of CBD bound trips in Sydney and Melbourne. Although the number of rail trips has been declining as employment decentralises from the city centres, there has been some compensation in a gradual lengthening of trips. Moreover, most Australian cities have invested heavily in their rail systems in recent years. Sydney has opened the Eastern Suburbs Railway, Melbourne a city-centre underground loop and Brisbane has electrified its principal services. Even in Perth, there has been some degree of change in policy following election of a Labour government; reopening of the line to Fremantle has been announced and studies for electrification and more widespread upgrading are underway. Only Adelaide has resisted the trend towards suburban rail investment beyond new diesel multiple-units; rail passenger services in Tasmania were completely withdrawn ten years ago.

Along with this rather remarkable resurgence of interest in suburban rail systems have gone institutional changes designed to provide integrated fares and service planning between modes of the sort now familiar in Europe. In each of the major cities, a Metropolitan Transit Authority has been set up which runs buses and trams and either owns the suburban rail network (as in Adelaide) or contracts with the rail operator to provide the service. This development, together with the more explicit funding of country passenger services, should at least ensure that rail passenger services cease to be the drain on the finances of Australian railways that they were in the 1970's.

6. Labour Productivity

Given the continued growth in traffic they have experienced, Australian railways ought to have found it rather easier to achieve high labour productivity than have European. Table 4 reveals that this is not so. Using the measure of weighted train

km per man which was advocated in Nash (1981) reveals an average labour productivity of 1,000 train km per man in 1981/2. In 1981, all Western European railways except Belgium and Italy achieved a higher figure for this ratio. Sweden, which has a traffic pattern somewhat similar to that of Australia, has twice the level of labour productivity. Moreover, the Australian figure had only grown by a total of 3% in the past 4 years.

It may reasonably be objected that use of a productivity measure suited to European conditions in a country as different as Australia is of doubtful relevance. Moreover, it is certainly true that Australian freight trains, at around 500 tonnes, carry an average payload far in excess of all Western European systems. Perhaps a comparison with North America is more relevant. Despite the fact that mean trainloads in North America exceed 2,000 tonnes, US Class 1 railroads achieved a weighted train km per man figure of 1,600; Canadian Pacific also exceed the Australian mean by more than 25%.

There are probably three main reasons for this low productivity. The first is the retention of large volumes of labour intensive traffics of types which some other railways - and, in particular, British Rail - have long since shed. In this, however, Australian Railways do not differ from many Western European systems, such as the West German railways. The second is the lack of investment in modern terminals, workshops and signalling systems that is evident from even a fairly superficial study of the subject. But it must also be said that little progress has been made on negotiating revised working practices - for instance, Australian freight and country passenger trains invariably carry a crew of three, whereas one-man operation is now fairly common in Western Europe. A recent report on ANR concluded that its deficit was attributable in roughly equal shares to obligations to provide unprofitable services and to factors within the control of management, including inppropriate

price and service level decisions and poor labour and asset utilisation (House of Representatives Standing Committee on Expenditure, 1982).

7. Investment

Reference has already been made to the apparent severe backlog of investment requirements. Certainly, through European eyes, the Australian rail system appears technically outmoded. Most of the system is single track with semaphore signalling; on only a quarter of the system is a speed in excess of 100 km per hour permitted; wooden bridges and viaducts with severe speed and weight restrictions abound. Nor, with some exceptions, does the rolling appear particularly modern. In 1980, 17% of the locomotives were more than 25 years old; 12% of the wagon fleet and 40% of the passenger rolling stock was more than 40 years old (ARRDO, 1981a).

One should not jump too hastily to the conclusion that this situation reflects a serious deficiency of capital investment. On a predominantly freight railway with relatively low mean traffic densities and on which passenger traffic is chronically unprofitable, these conditions may in part reflect sensible commercial decisions. But there is little doubt that in some cases the financial performance of the system is being severely hampered by lack of investment. For instance, the one railway on which grain traffic is of doubtful profitability is in Victoria, where use of side-loading four-wheel wagons in short rakes from a host of small country terminals still abounds. Often, high horsepower locomotives and large-capacity wagons cannot be used even on relatively important routes due to weight restrictions. Lack of passing loops of adequate length and Centralised Traffic Control mean that some main routes suffer from severe capacity problems which will worsen as traffic continues growing. Obviously, one solution would be to shed unprofitable traffic -

especially passengers - to free capacity for better use, but if this is not acceptable then investment to increase capacity will undoubtedly be needed. A recent study suggested that a five-year programme of investment costing $A2,700m would yield very high economic returns (Norley and Kinnear, 1983). This is an increase of some 20% above the previous 5 years, although the effects of the world recession on the demand for Australian coal and minerals may have deferred the urgency of some of this programme.

Political considerations mean that what investment has been available has not always been wisely used. Around a third of the investment has been devoted to suburban passenger systems. Much of this may be justified on grounds of social benefits, although it is hard to believe that a city the size of Melbourne really requires a quadruple-track city centre underground loop. There is a strong element of inter-state rivalry in rail projects. This manifests itself particularly in the desire to link all major cities to the standard gauge system; thus extensions of the standard gauge to Alice Springs and Adelaide have been recently completed, despite in the latter case a Federal government report (Joy, 1977) concluding that improved bogie-swapping facilities would provide a more cost-effective investment. Until recently, it appeared likely that the government would embark on construction of a new standard-gauge line northwards from Alice Springs to Darwin, even though the traffic potential is estimated at three trains per week.

8. The Future for Australian Railways

The picture which emerges from this survey is a paradoxical one. In some respects, Australian railways appear to be amongst the most favourably placed in the world. The Australian economic geography appears to be unusually suitable for rail freight operations and the rate of traffic growth is remarkable. In 1981, it was forecast that traffic would grow by a further two-

thirds in the next 10 years, and few doubt that the current difficulties of the Australian coal and mineral industries are only a temporary setback (ARRDO, 1981c). The same report suggests that the growth in profitable bulk traffic could render the Autralian railway network profitable again by the 1990's, with only modest changes to pricing, service and cost levels. Undoubtedly, though, such a breakeven position would conceal enormous cross-subsidy from the coal operations to the rest of the network, and those systems (especially VR) which did not share in the boom would remain in deficit.

Yet Australian Railways simultaneously show many of the problems faced much earlier by the less well-endowed railways of Western Europe. They are only beginning to emerge from the position of regulated, protected services provided by government departments to that of competitive commercial enterprises, and in some cases they have yet to face the full force of road competition. Fragmentation of the system has proved a problem in competing for inter-state traffic, particularly since neighbouring railways face very different competitive and political environments. Much has been achieved in the fields of identifying and compensating for social obligations, but the achievement of changes in traditional railway working practices supported by the necessary investment lags behind progress in many Western European countries.

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expressed and any inaccuracies in this review are however solely my own.

References

Australian Bureau of Statistics (1983) Rail Transport, Australia, 1981-2.

AARDO (1981a) Transport Task and Resources, Supplementary paper No. 1, 1981 Report on Rail.

ARRDO (1981b) Rail Finances, Supplementary paper No. 2, 1981 Report on Rail.

ARRDO (1981c) 1981 Report on Rail.

J.S. Dodgson (1978) Economics of Australian Railway Deficits (Economic Research Bulletin No. 7, Department of Economics, University of Wollongong).

R.J. Filmer, A.R. Scott and D.S. Short (1982) Heavy Freight Vehicles (in D.N.M. Starkie, M.R. Grenning, M. Starrs, Eds., Pricing and Cost Recovery in Long Distance Transport, Martinus Nijhoff).

House of Representatives Standing Committee on Expenditure (1982) ANR Commission (Australian Government Printing Office).

S. Joy (1977) Adelaide - Crystal Brook Railway Gauge Standardisation (Autralian Government Printing Office).

S. Joy, S.K. Hicks and K.W. Kershaw (1977) Tasmanian Railways (Australian Government Printing Office).

W.M. Lonie (1980) Victorian Transport Study.

G. McDonell (1980) Commission of Enquiry into the New South Wales Road Freight Industry.

M. Michell (1982) Rail Services (in D.N.M. Starkie et al., op. cit).

C.A. Nash (1981) Government Policy and Rail Transport in Western Europe (Transport Reviews, Vol. 1, No. 3, 225-250).

K.T. Norley and R.K. Kinnear (1983) Assembling the Evidence for a National Rail Investment Case (Institution of Engineering, Australia Railway Engineering Symposium, Melbourne).

South West Australian Transport Study (1977) Final Report.

Union International des Chemins de Fer (1981) International Railway Statistics.

W. Young, A.J. Richardson and R.K. Kinnear (1982) Modelling Inter-Urban Freight Mode Choice (Journal of Advanced Transportation, Vol. 16, No. 3, 303-322).

Table 1

Characteristics of Australian Railway Systems (1981-2)

	ANR	QR	SRA	VR	WR
Route Length (km)	7638	9970	9773	5812	5609
Gauge (mm)	1600 1435 and 1067	1067 and 1435	1435	1600 and 1435	1067 and 1435
Freight train (km) (000)	7901	24198	25595	10266	8064
Freight net tonne km (m)	5731	13079	10705	3427	4390
Mean freight trainload (tonnes net)	725	540	418	334	544
Mean length of haul (kms)	482	300	265	295	222
Passenger train km	4188	8498	34364	20869	2617

Source ABS (1983).

In each case the main gauge is the first given, but certain principal interstate routes have been standardised.

Key

ANR = Australian National Railways
QR = Queensland Railways
SRA = State Rail Authority of New South Wales
VR = Victoria Railways
WR = Western Australian Government Railways

Table 2

Australian and European Rail Systems Compared 1981)

	Australia (1981/2)	Belgium	France	Great Britain	Italy	Netherlands	West Germany
Route Length (km)	38943	4260	34596	17431	16503	1956	28375
Freight train km (000)	76025	22341	204884	80556	53867	14311	199252
Freight net tonne km (m)	37332	7561	63730	17505	17115	3319	61037
Mean freight train load (tonnes net)	491	338	311	217	266	232	306
Mean length of haul (kms)	293	108	325	114	336	158	201
Passenger train km	74457	74523	292181	337592	226846	98401	399004

Source Australia : ABS (1983)
Western Europe : UIC (1981)

Table 3

Ratios of Revenue to Working Expenses (1981/2)

ANR	72.9
NSW	62.3
QR	88.5
VR	52.4
WR	97.0
Total Australian	69.1

Source ABS (1983)

Note The definition of working expense is not entirely consistent between systems: in particular, the figure for Western Australia includes provision for depreciation. See Dodgson (1978).

Table 4

Weighted Train km per staff member
(000's)

	1981/2
ANR	0.97
NSW	0.99
QR	1.11
VR	0.93
WR	1.01
Australian Mean	0.99
Belgium	0.96
France	1.58
Great Britain	1.36
Italy	0.68
Netherlands	2.29
West Germany	1.26
Sweden	2.18
Canadian Pacific Railway	1.28
Class 1 US Railroads	1.60

Source Australia : ABS (1983)
Europe and North America : UIC (1981)

European figures are for calendar year 1981.
Staff employed in main workshops are excluded.

Note

The weights are 1 for freight and parcels train km. and 0.45 for passenger train km. These are based on European experience of direct labour inputs.

RPWP/CAN