
2 Railways in Australia

Australia's railways have become increasingly specialised in the transport of bulk commodities, such as coal and iron ore. Competition from road transport has eroded the previous dominance of railways over the transport of primary products and non-bulk freight. All Australian mainland state capital cities have urban rail passenger networks. Railways only undertake a small proportion of non-urban passenger movements.

Broad categories of railway networks are identified which can be distinguished by their economic characteristics and the nature of the market in which they operate.

The terms of reference ask the Commission to report on the current structure of the industry, to 'differentiate its analysis of Australian interstate rail operations from intrastate and urban operations', and to include discussion of freight and urban passenger services.

This chapter addresses these terms of reference by describing the role of rail in transporting freight and passengers in Australia (section 2.1). The different characteristics of Australia's rail networks are then identified (section 2.2).

There are currently limitations on the quantity and quality of transport data in Australia. In a number of instances the most recent statistics are four or five years old. Hence, as noted by the Commonwealth Department of Transport and Regional Services (DTRS) reforms that have been effected in the last three years may have altered the modal trends presented in this chapter (sub. DR125).

Participants to the inquiry were critical of the availability of quality transport data in Australia. The National Rail Corporation (NRC) argued:

A general point that could be made is that it will become increasingly difficult to formulate rational transport policy in this country as the data available to assess what's going on now and to assess the effects of possible changes becomes more and more scarce. (trans., p. 1008)

And Laird noted:

I'd suggest that these data limitations are very severe and they're probably costing the country heaps and heaps because it means that treasuries, both state and federal, are not having adequate data to justify budget outlays. (trans., pp. 711-712)

The Australasian Railway Association argued that the privatisation of railways was impeding the ability to obtain rail transport data:

It's something that we at the association are now having increasing difficulty as the privatisation process occurs when a lot more information now is very much commercially sensitive ... (trans., p. 1040)

There is a lack of up-to-date transport data in Australia, impeding public debate and sound policy formulation.

2.1 Rail transport in Australia

In Australia, rail transport represents around 0.5 per cent of gross domestic product and 8 per cent of total transport value added (ABS 1998a).¹ In 1998 there were at least 36 500 full-time workers employed by the railways.²

There is around 43 100 km of broad (1600 mm), standard (1435 mm), narrow (1067 mm) and dual gauge track in Australia (ARA 1998b). Most of Australia's railways are centred on capital cities or ports, extending to rural areas and mining regions. The standard gauge network links all the mainland state capital cities and Alice Springs in the Northern Territory (appendix B).

Rail service providers

In 1991, Australia's rail industry was characterised by integrated State-owned railways providing passenger and freight services in their respective jurisdictions with private operators (BHP, Hamersley Iron and Robe River Railroad) hauling iron ore in Western Australia (table 2.1). In addition, Australian National provided long distance non-urban passenger services on the Australian mainland, freight services across jurisdictions, and intrastate freight services in Tasmania and South Australia (chapter 3).

¹ Estimates of the contribution rail transport makes to Australia's gross domestic product differ depending on how the industry is defined. The Australian Bureau of Statistics (ABS) definition of the rail transport industry is based on the Australian and New Zealand Standard Industrial Classification (ANZSIC) (class 6200).

² Estimate based on full-time employment in the ANZSIC (class 6200).

Since 1991, the number of public and private sector rail service providers has grown considerably (table 2.2). This growth has occurred primarily through the dismantling of Commonwealth and State-owned railways into passenger, freight and 'below track' infrastructure providers.

In addition, a number of new private operators have entered the industry. These include interstate freight operators (Specialized Container Transport (SCT), Toll Rail and Patrick) and smaller private operators providing a range of services including crews, locomotives and short haul operations (Northern Rivers Railroad and Great Northern Rail Services).

Table 2.1 Rail service providers^a, 1991

<i>Provider</i>	<i>Urban passenger</i>	<i>Non-urban passenger</i>	<i>Freight</i>
Public providers			
Australian National (Cwlth)		✓	✓
State Rail Authority (NSW)	✓	✓	✓
Public Transport Corporation (Vic)	✓	✓	✓
Queensland Rail (Qld)	✓	✓	✓
Westrail (WA)	✓	✓	✓
State Transport Authority (SA)	✓		
Private providers			
BHP (NSW, WA, SA)			✓
Emu Bay Railway (Tas)			✓
Hamersley Iron (WA)			✓
Robe River Railroad (WA)			✓
Silverton Tramway (NSW)			✓
Skitube (NSW)		✓	

^a Excludes separate maintenance and construction providers and tourist train operators.

Table 2.2 Rail service providers^a, 1999

<i>Provider</i>	<i>Urban passenger</i>	<i>Non-urban passenger</i>	<i>Freight</i>	<i>Track^b</i>	<i>Principal area of operation</i>
Public providers					
National Rail Corporation			✓		Interstate freight
Australian Rail Track Corp.				✓	Interstate track
State Rail Authority	✓	✓			NSW
FreightCorp			✓		NSW
Rail Access Corporation				✓	NSW
Queensland Rail	✓	✓	✓	✓	Qld
Westrail	✓	✓	✓	✓	WA
TransAdelaide	✓			✓	Adelaide
Private providers					
Australia Southern Railroad			✓	✓	SA
Austrac			✓		NSW
Bayside Trains ^c	✓			✓	Melbourne
BHP			✓	✓	WA,SA,NSW
Freight Victoria ^d			✓	✓	Vic
Great Northern Rail Services			✓		Vic
Great Southern Railway		✓			Interstate passenger
Hamersley Iron			✓	✓	WA
Hillside Trains ^c	✓			✓	Melbourne
Northern Rivers Railroad			✓		NSW
Patrick			✓		Interstate freight
Robe River Railroad			✓	✓	WA
Silverton Tramway			✓		NSW
Skitube		✓		✓	NSW
Specialized Container Trans.			✓		Interstate freight
Tasrail			✓	✓	Tas
Toll Rail			✓		Interstate freight
V/Line Passenger ^c		✓			Vic
West Coast Railway		✓			Vic

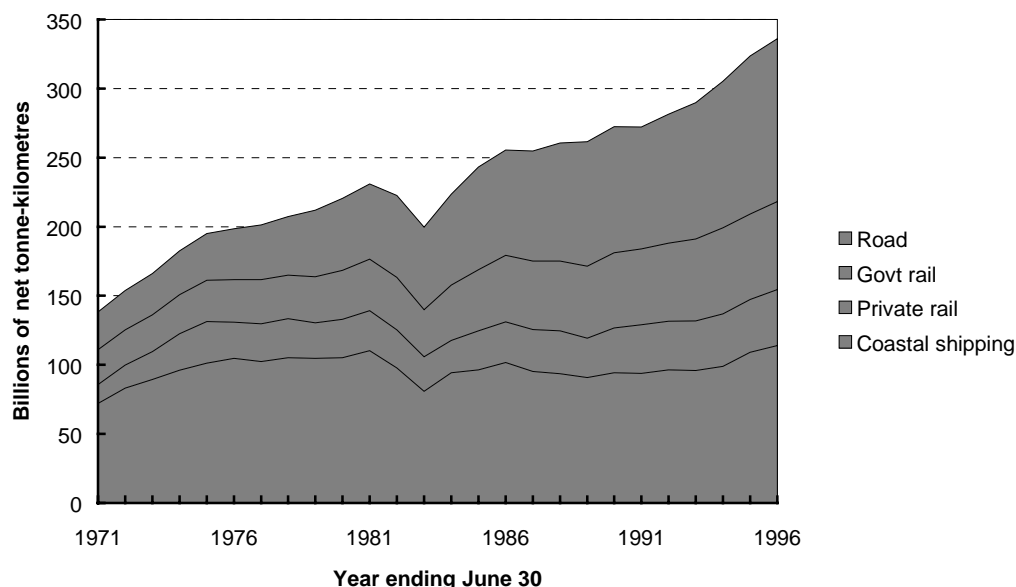
^a Excludes separate maintenance and construction providers and tourist train operators. ^b Refers to the owners of mainline tracks, and does not include ownership of sidings, terminals and other 'below track' infrastructure. ^c Private provider under franchise agreement with the Victorian Government.

^d Freight Victoria has a 15 year lease with VicTrack over the intrastate non-urban track.

Domestic freight

Australia's domestic freight (excluding pipelines) was around 340 billion net tonne-kilometres (ntkm) in 1995-96,³ with rail and road transport and coastal shipping each undertaking around one third (figure 2.1).⁴ Since 1970-71, road transport has continued to increase its share of domestic freight activity. The contribution from coastal shipping has remained relatively static, thereby reducing its share. Throughout the period shown, rail transport (government and private) has continued to account for around one third of domestic freight.

Figure 2.1 **Australian domestic freight (excluding pipelines), 1970-71 to 1995-96^{a,b}**



^a Figures for 1995-96 are provisional estimates. ^b Most recent data available.

Data sources: Bureau of Transport Economics estimates based on BTCE 1995; Apelbaum 1997 (*The Australian Transport Task, Energy Consumed and Greenhouse Gas Emissions*); ABS (Survey of Motor Vehicle Use, Cat. no. 9202.0).

³ Australia's transport activities can be measured in various ways — different measures are appropriate for different purposes. Tonnes and number of passengers measure the amount of freight and people using transport services in a given period. Tonne-kilometres and passenger-kilometres take into account the distance travelled but provide no indication of loading and unloading activity or the intensity at which the transport system is being used at particular times.

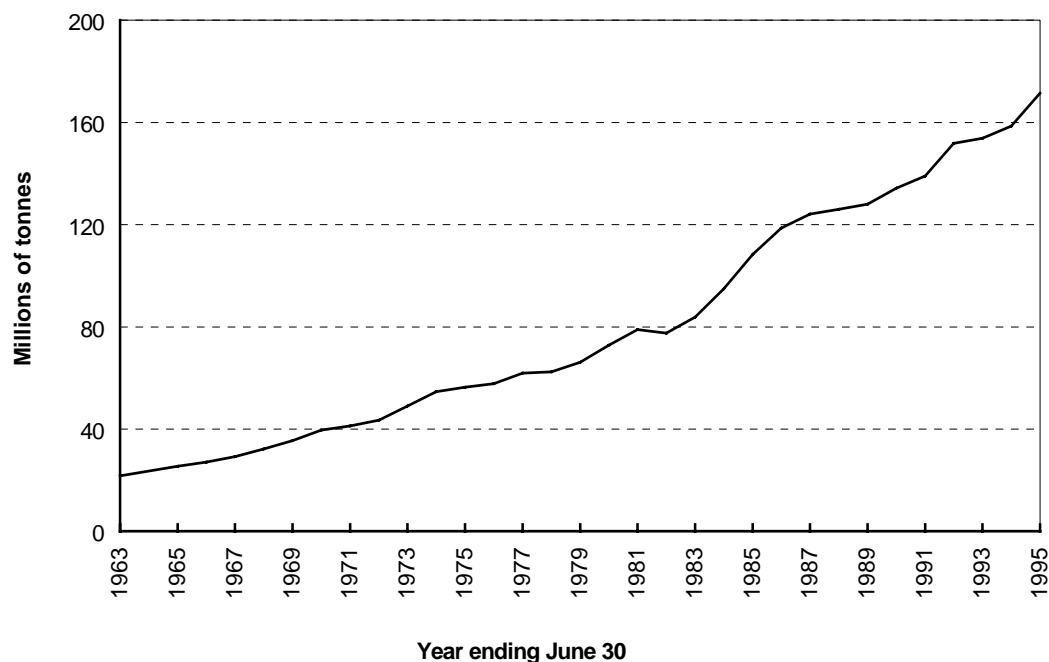
⁴ There are difficulties in obtaining accurate estimates of freight output from the road transport industry as often the information sought from vehicle owners is not readily available (ABS 1998d).

Coal and minerals

Railways have maintained their share of domestic freight largely through the growth in Australia's minerals sector (appendix C). In particular, the tonnage of coal and minerals transported by rail (primarily from mines to ports) has increased almost eight fold from 1962-63 to 1994-95 (figure 2.2).

The growth in the transport of coal and minerals by the railways has allowed rail to maintain a significant share in the transport of bulk freight commodities, including coal, minerals, grains and sugar. In 1994-95, government and private railways accounted for just over one third of the 210 billion ntkm of bulk freight transported in Australia (figure 2.3).

Figure 2.2 Coal and minerals transported by rail, 1962-63 to 1994-95



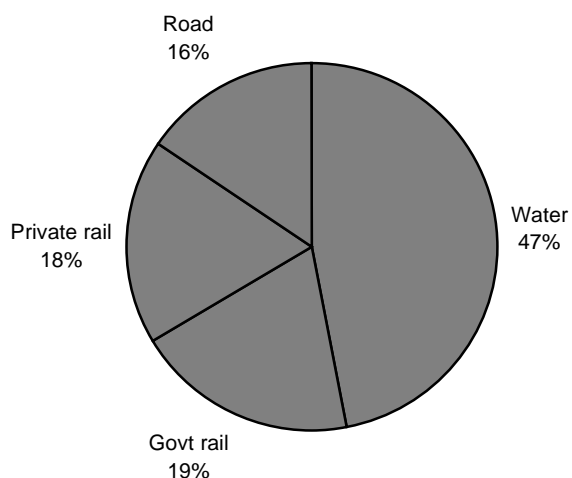
Data source: BTE 1998.

Primary products

In 1962-63, over 80 per cent of Australia's agricultural produce (a combination of bulk and non-bulk freight including grains, sugar and fruit and vegetables) and about two thirds of livestock output was transported by rail. However, since then there has been a steady decline in the proportion of agricultural produce and livestock output transported by rail (figure 2.4). This is primarily due to the growth in competition from road transport. By 1994-95, the proportion of agricultural

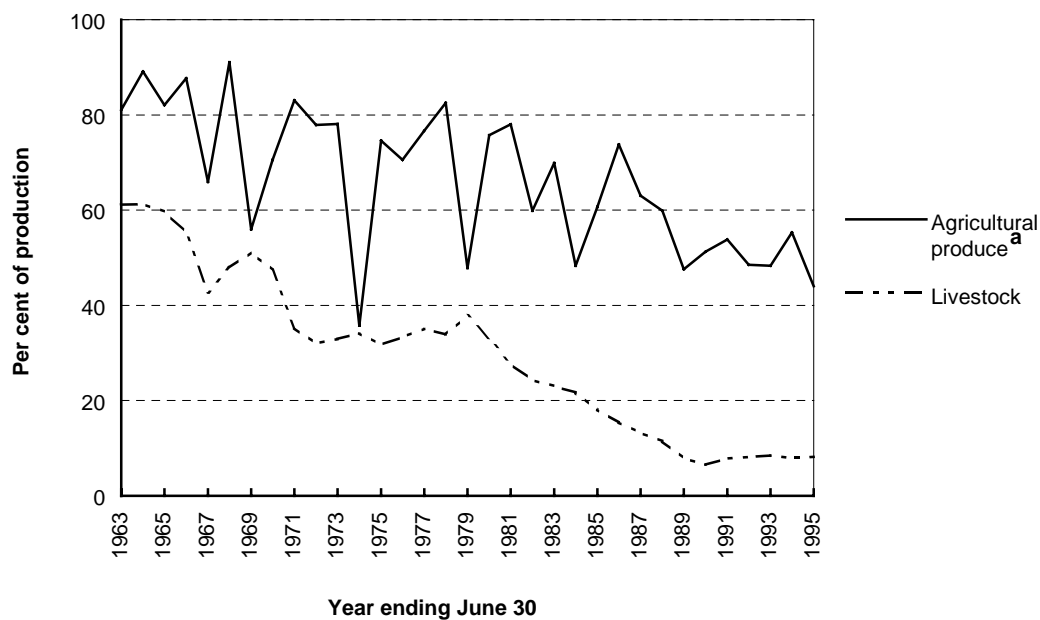
produce transported by rail had fallen by about half and less than 10 per cent of livestock output was transported by rail.

Figure 2.3 Bulk freight transport, percentage shares of net tonne-kilometres, by mode, 1994-95



Data source: Unpublished BTE estimates.

Figure 2.4 Proportion of agricultural produce and livestock output (tonnes) transported by rail, 1962-63 to 1994-95



^a Includes grains, sugar and fruit and vegetables.

Data source: BTE 1998.

Non-bulk freight

Non-bulk (or general) freight comprises a diverse range of commodities including steel products, meat and fish, wool, plastic resins, paints, livestock and some agricultural produce.⁵ In 1994-95, approximately 110 billion ntkm of non-bulk freight was transported in Australia. Road transport accounted for three quarters of the non-bulk freight while rail transport and coastal shipping accounted for less than one fifth and one tenth respectively.

Available evidence relating to interstate freight indicates that rail has lost considerable market share to road in the transport of non-bulk freight.

Interstate freight

In 1994-95, Australia's interstate freight was some 118 billion ntkm or around 35 per cent of domestic freight (table 2.3).

The interstate transport of bulk commodities is dominated by coastal shipping, accounting for around 95 per cent of the market in 1994-95. Rail and road each transported less than 3 per cent of interstate bulk freight.

Table 2.3 Long distance freight, 1994-95

<i>Mode^a</i>	<i>Interstate</i>			<i>Intercapital</i>
	<i>Bulk</i>	<i>Non-bulk</i>	<i>Total</i>	
	billion ntkm	billion ntkm	billion ntkm	billion ntkm
Road	2.0	26.0	28.0	16.9
Rail	1.9	14.6	16.5	6.7
Coastal shipping	68.3	5.4	73.7	8.3
Total	72.2	46.0	118.2	31.9

^a A small proportion of interstate and intercapital freight is undertaken by air transport.

Sources: Bureau of Transport Economics estimates based on BTE 1998 (*Coastal Freight In Australia, 1995-96, Information Paper 42*); ABS (*Survey of Motor Vehicle Use*, Cat. no. 9202.0 and *Experimental Estimates of Freight Movements*, Cat. no. 9217.0); DoTR (*Aviation Statistics Database*).

In contrast, road dominates the interstate transport of non-bulk commodities, accounting for over half the ntkm in 1994-95. Rail accounted for just under one third and coastal shipping just over one tenth of non-bulk ntkm.

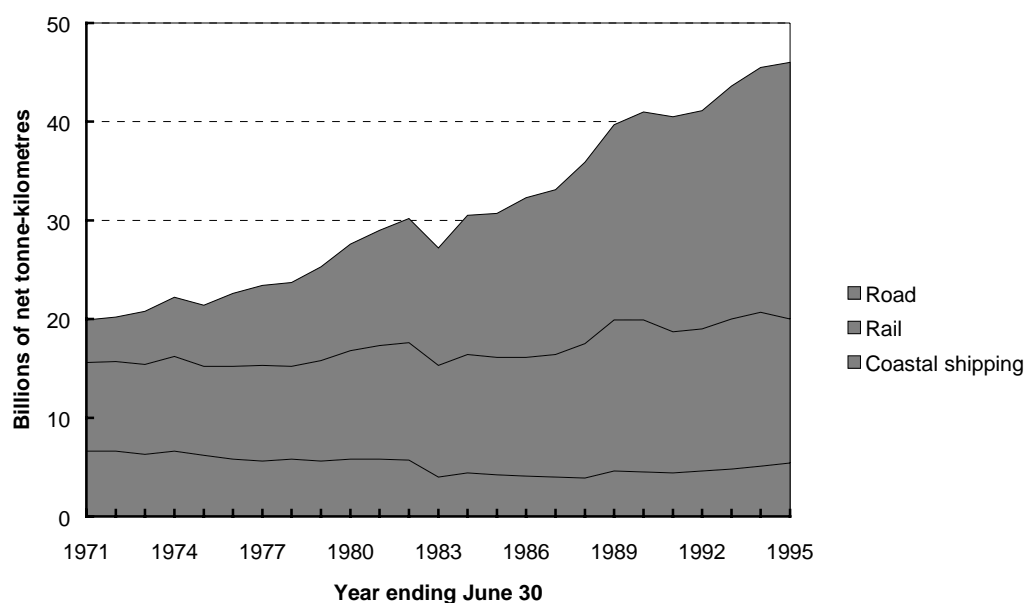
⁵ There are problems in creating clear definitions for bulk and non-bulk commodities. For example, commodities such as timber, cement and fertilisers can, in some instances, be classified as either bulk or non-bulk freight.

Available evidence indicates that since the early 1970s, rail has lost considerable market share to road in the interstate transport of non-bulk commodities (figure 2.5). In 1970-71, railways accounted for around 45 per cent of non-bulk interstate freight compared to around one third for coastal shipping and one fifth for road. Since 1970-71, road transport has accounted for most of the growth in the interstate transport of non-bulk commodities, resulting in it having the largest share by 1994-95. However, NRC claimed that these trends are currently changing:

There has been a significant change in the competitive position of interstate rail freight since 1997, when the quality of assets and cost structure of rail began to improve ... The effect has been especially marked on the East Coast. (sub. DR117, p. 5)

Data on the market shares for road, rail and coastal shipping for interstate freight transport are not yet available to substantiate this claim.

Figure 2.5 Non-bulk interstate freight, 1970-71 to 1994-95



Data source: Perry and Gargett 1998.

A component of interstate freight is freight transported between capital cities. In 1994-95, intercapital freight transport represented around one quarter of total interstate freight.

Rail's market share of freight transported (measured in tonnes) by land between capital cities generally increases with the length of haul. In 1994-95, on the North-South corridor, defined as freight flows between Brisbane, Sydney and Melbourne, rail accounted for 28 per cent of the tonnes of freight transported.

However, Norley (1999) suggested that on the Sydney to Melbourne link, rail's market share may now be less than 10 per cent. It was also suggested that some rail operators (and rail based freight forwarders) had conceded the transport of freight on this corridor to road. On the other hand, DTRS argued that the total interstate non-bulk freight market is growing rapidly and that 'rail has the potential to increase its market share and profitability considerably' (sub. DR125, p. 1).

In contrast to the North-South corridor, on the East-West corridor (that is, west of Sydney and Melbourne) rail accounted for almost one half of the freight transported, and close to 80 per cent on the Perth to Adelaide link (MM Starrs Pty Ltd and Ian Wright & Associates 1999).

Importance of rail to selected commodities

Table 2.4 presents the amount and proportion of rail costs to the value of selected commodities. In 1993-94, the commodity category of coal, oil and gas used the greatest amount of rail services (public and private) in absolute terms — at around \$1.4 billion. Iron ore had the highest proportion of rail costs to value at 11 per cent.

However, the importance of rail transport to the coal industry is understated in table 2.4. This is due to its aggregation with oil and gas in the commodity classification. In particular, the NSW Minerals Council has indicated that rail freight charges comprise 15 to 30 per cent of the free on board cost of New South Wales coal exports (PC 1998a).

Table 2.4 Rail costs as a proportion of value, selected commodities, 1993-94

<i>Commodity^a</i>	<i>Value of commodity</i>	<i>Rail costs</i>	<i>Rail costs as a proportion of commodity value</i>
	\$m	\$m	per cent
Sheep	3 841	72	1.9
Grains	6 197	352	5.7
Coal, oil and gas	20 659	1 383	6.7
Iron ores	3 772	416	11.0
Non-ferrous metal ores	9 334	128	1.4
Petroleum and coal products	25 113	51	0.2
Iron and steel	11 320	73	0.6
Basic non-ferrous metals	11 771	97	0.8

^a A commodity has been included if rail costs exceed \$50 million or 5 per cent of commodity value.

Data source: ABS (*Australian National Accounts: Input-Output Tables*, Cat. no. 5209.0).

Passengers

Passenger transport involves the movement of people within and between Australia's towns and cities. It is undertaken by a variety of modes including cars, motor cycles, bicycles, trams, ferries, aircraft and railways. The use of private cars and other light vehicles dominates passenger transport in Australia, in both urban and non-urban areas.

Urban passenger transport

In Australia, urban transport systems consist of road networks, together with the private car and other vehicles that use them, public transport modes and paths for cycling and walking. There are currently urban rail networks in all mainland state capital cities. The largest network, in Sydney, extends across the greater metropolitan area from north of Newcastle to south of Wollongong.

Urban rail systems in Australia are usually radial to the central business district of the city and a high proportion of urban rail travel is undertaken for work or education during peak times. The State Rail Authority of New South Wales (SRA) commented on the importance of rail transport to Sydney:

The suburban rail network represents the life blood of Sydney. CityRail provides approximately 2,300 train services, carrying about 900,000 per week day ... At its busiest time, the morning peak between about 6.30 a.m. and 9.30 a.m., CityRail carries about 300,000 passengers. (sub. 67, p. 2)

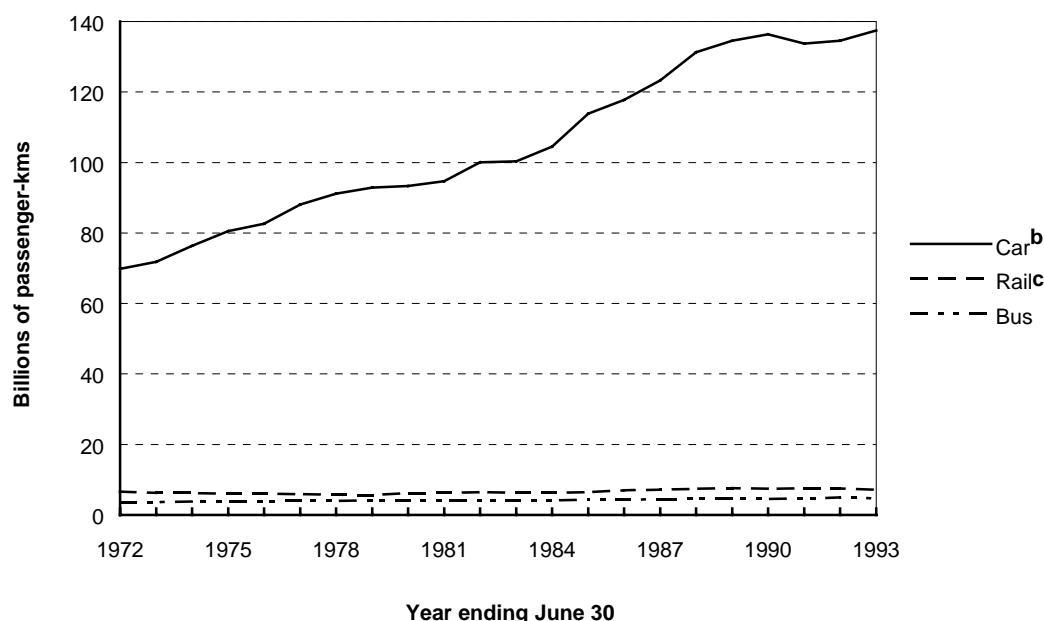
A major trend in passenger transport in Australia has been the growth in the use of the private car and the relatively static contribution from public transport modes (figure 2.6). A primary explanation for this situation is that public transport modes, including rail, continued to provide transport services to and from the central business district, while employment, retail and other activities decentralised into Australia's expanding residential areas. As noted by the Bureau of Transport and Communications Economics:

This type of development, which frequently involves large distances between residential and work locations, has resulted in considerable dependence being placed on private cars for urban commuting, and correspondingly limited reliance on public transit systems. (BTCE 1995, p. 151)

A similar explanation for the static contribution by public transport to the transport of passengers is given by Hearsch:

Australia's urban population mostly lives in relatively low density housing with the only exceptions being medium density residential areas in some inner suburbs in both Sydney and Melbourne. Low density lifestyles generally militate against the effective use of public transport and help to entrench car ownership. (Hearsch 1998, p. 9)

Figure 2.6 Urban (motorised) passenger transport, 1970-71 to 1992-93^a



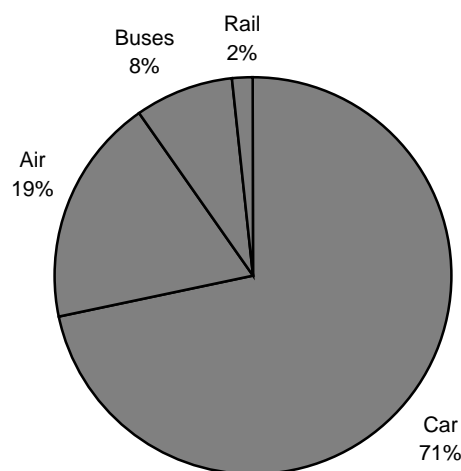
^a Represents the latest published estimates available on urban passenger movements across all transport modes in Australia. ^b Includes taxis. In 1990-91, taxis comprised around 1.7 per cent of urban car pkm. ^c Includes trams. Between 1970-71 and 1992-93 tram pkm were 8 per cent of urban rail pkm.

Data source: BTCE 1995.

Non-urban passenger transport

In 1970-71, rail provided about 6 billion non-urban passenger-kilometres (pkm) or approximately 10 per cent of total non-urban passenger transport. However, there has been a dramatic decline in the number of non-urban pkm undertaken by rail despite growth in this market. By 1994-95, the non-urban pkm of railways had declined to approximately 2.2 billion pkm (less than 2 per cent of total non-urban pkm), while the car dominated (figure 2.7).

Figure 2.7 **Non-urban passenger transport, percentage share of passenger-kilometres, by mode, 1994-95**



Data source: Estimates provided by the BTE.

Hersch (1998) categorised non-urban passenger transport as follows:

- long distance, ranging from 1000 km to 4000 km in length (mainly interstate);
- medium distance, typically covering routes between cities and major regional centres between 200 km and 700 km apart; and
- short distance, intercity services covering routes beyond the defined suburban area.

Long distance passenger services are dominated by car and air transport. Rail's role is generally limited to tourist trains such as the Ghan and Indian-Pacific (Hersch 1998).

Medium and short distance trips are also dominated by the private car. However, rail (and coach) services are offered in most jurisdictions through providers such as Traveltrain (Queensland Rail) and Countrylink (SRA).

In 1994-95, there were around 47.5 million interstate passenger journeys. Railways provided transport services to less than 2 per cent of interstate passengers (table 2.5).

Table 2.5 Interstate (including intercapital) passenger transport, 1994-95

<i>Mode</i>	<i>Interstate</i>	<i>Intercapital (component of interstate)</i>
	'000 of passengers	'000 of passengers
Car	33 650	3 092
Bus	1 770	496
Rail	610	278
Air	11 422	6 632
Total	47 452	10 498

Source: BTE estimates based on Bureau of Tourism Research 1996 (*Domestic Tourism Monitor*).

Interstate rail passenger operations are only a small element of the total rail passenger market. There were 610 000 interstate rail passenger journeys in 1994-95 compared to around 270 million provided each year by CityRail in New South Wales.

A component of interstate passenger journeys is passenger trips between capital cities. There were around 10.5 million intercapital passenger journeys in 1994-95, representing just under one quarter of the total interstate passenger journeys. The movement of passengers between capital cities is dominated by air transport which carried almost two thirds of the total intercapital passengers.

Investment

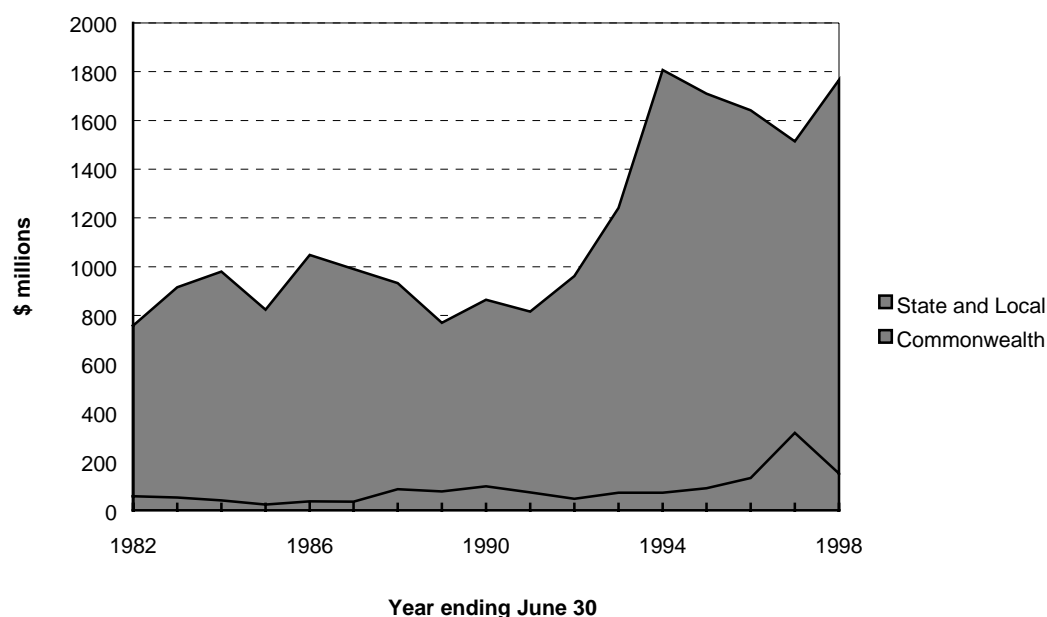
Most public sector investment in railways is undertaken by State Governments. In 1997-98, investment by state and local governments (the local government component is small) was \$1.6 billion compared to \$151 million by the Commonwealth Government (figure 2.8).

From 1981-82 to 1991-92, public sector investment in railways averaged around \$840 million per year. Since 1991-92, however, the level of investment in railways has increased sharply, largely due to increased investment by the NSW, Queensland and WA Governments and the Commonwealth Government's *One Nation Program* (HORSCCTMR 1998b).

State government-owned railways provide a range of rail services in both passenger and freight markets. Accordingly, investment in track and rollingstock by these railways is equally diverse, funded from borrowings, internal equity and capital grants from government. Examples of investment by State Governments through the 1990s include the ongoing acquisition of new coal wagons and bogies in New South Wales (costing \$125 million) and the Queensland Mainline Upgrade Project (costing \$526 million) (box 2.1).

As part of the *One Nation* program, the Commonwealth Government allocated \$443 million for track upgrades between June 1992 and June 1995. The *One Nation* program culminated in the completion of the standard gauge link between Melbourne and Adelaide (HORSCCTMR 1998a). Appendix C provides some further detail on major gauge standardisation initiatives since the 1950s.

Figure 2.8 Government investment in new fixed rail assets, 1981-82 to 1997-98^a



^a Estimates for 1996-97 are preliminary estimates as at November 1997. Figures for 1997-98 are based on forward estimates.

Data source: HORSCCTMR 1998a.

Box 2.1 The Queensland Mainline Upgrade Project

The Queensland Mainline Upgrade Project allocated \$526 million over five years to upgrade track, bridges and rollingstock. The project commenced in 1992 and was completed in 1997. Investment projects undertaken included:

- the purchase of 40 new generation diesel-electric locomotives;
- the purchase of 250 new container wagons;
- the replacement of 673 timber bridges; and
- the construction of 118 km of new alignment on the main North Coast Line from Brisbane to Cairns and selected routes in south-west Queensland.

Source: QR 1996.

The extent of private sector investment in railways since 1991 is unclear. In terms of track and other fixed infrastructure, there is little evidence of significant private sector investment, especially compared to public sector investment. However, some limited evidence of investment by the private sector is available. SCT commented:

SCT is presently investing tens of millions of dollars into rail terminals and rollingstock ... (sub. 80, p. 2)

And, Patrick noted:

Patrick has invested several million dollars in the rail terminals and connections to the main line in order to provide a modern 'on dock' rail terminal with dual gauge access. (sub. 63, p. 5)

It appears that, in most circumstances, private train operators are leasing locomotives and rollingstock and are not purchasing new equipment. Private providers of locomotives (such as Great Northern Rail Services) have indicated that they are not purchasing new locomotives but rather refurbishing existing assets.

Employment

There have been large reductions in employment in railways (chapter 11 and appendix J). Evidence from the ABS *Labour Force Survey* indicates that between 1986 and 1998 full-time employment in railways declined from 88 500 to 36 500 (figure 2.9).⁶

Up until the mid-1990s most railway workers were employed in government-owned railways.⁷ For these railways, from 1972-73 to 1996-97 employment decreased substantially by around 70 500 employees, or 60 per cent of the workforce (figure 2.10). The rate of decrease in employment increased after 1985-86 — mainly attributable to reductions in employment by the former SRA.

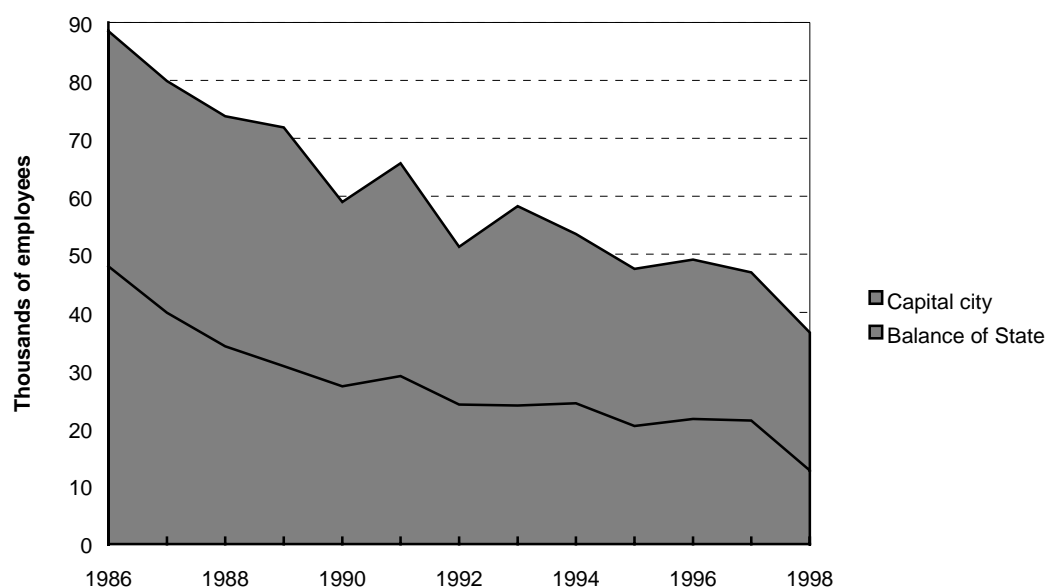
Reduced demand for labour by railways has occurred despite increasing output from the industry. Freight output, as measured by ntkm, increased by around 158 per cent over the period shown (figure 2.10).⁸

⁶ Employment estimates from the ABS *Labour Force Survey* are not comparable with data on employment in government-owned railways (appendix J).

⁷ Reliable information on private sector employment in railways is not available.

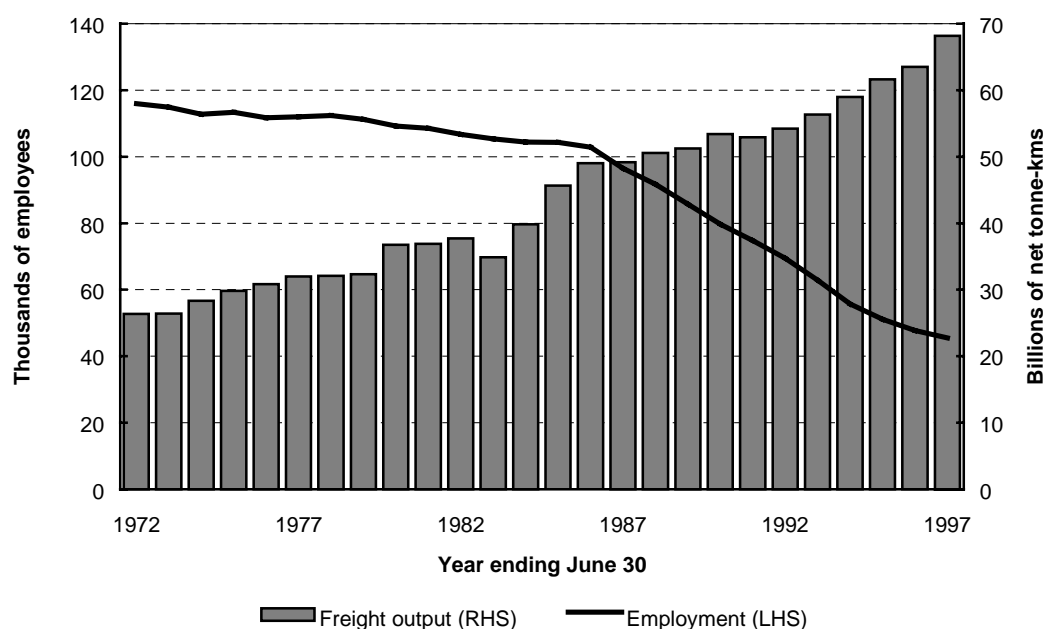
⁸ However, there has been a decline in non-urban rail passenger-kilometres (which is only a small element of total industry output).

Figure 2.9 Full-time employment in the rail industry, capital city and balance of State, 1986 to 1998



Data source: ABS (*Labour Force, Australia*, Cat. no. 6203.0, unpublished, various years).

Figure 2.10 Employment and freight output in government-owned railways, 1971-72 to 1996-97



Data sources: Hensher, Daniels and DeMellow 1992; SCNPMGTE 1998; Rail Access Corporation, unpublished data; Rail Services Australia, unpublished data; BTE, unpublished data.

However, figure 2.10 overstates the decrease in demand for labour by government railways, especially in the 10 year period to 1996-97. This is due to the contracting out of many activities by railways and the transfer of functions (such as regulatory functions) to other bodies.

Railways have traditionally been an important source of employment in regional Australia. However, evidence indicates that railway employment outside Australia's capital cities has fallen more rapidly than within capital cities. In 1986 over half of the full-time railway employment (48 000 employees) occurred outside Australia's capital cities (figure 2.9). However, by 1998 regional employment had fallen by three quarters to around 13 000 — one third of total railway employment. The largest reductions in regional employment occurred in New South Wales and Queensland, though reductions have occurred in all jurisdictions (appendix J).

2.2 Railway characteristics

The terms of reference recognise that railway networks in Australia are not all the same. They have different economic characteristics and markets, face different issues, and require different policy approaches.

The Draft Report identified four types of rail networks in Australia. They were:

- urban passenger networks;
- high volume regional networks;
- low volume regional networks; and
- the interstate network.

The inquiry received many submissions commenting on the appropriateness of the framework adopted by the Commission in the Draft Report and the accuracy of the characteristics for each network. In addition, some participants (McKillop, NSW Minerals Council and NRC) provided details on the sections of rail track which could be regarded as one of the networks identified by the Commission.

With regards to the Commission's framework, McKillop argued:

One of the most useful contributions of the Draft Report is the framework for analysing railways by their characteristics. (sub. DR90, p. 2)

However, the Rail Access Corporation (RAC) was critical of the Commission's approach:

The fundamental shortcoming of the categorisation approach used in the Report is that important detail is lost in attempting to generalise across market types. ...

... RAC believes that the categorisation approach and errors of fact have contributed to the Commission drawing inappropriate conclusions from its analysis of market structures in Chapter 5 of the Report. (sub. DR102, pp.1, 2)

In response to comments made by participants, the Commission has refined the categorisation and incorporated information from participants, published sources and discussions with railways.

The discussion of each network below is not intended to be a rigid taxonomy of rail operations in Australia. It highlights the *predominant features* of rail networks in Australia, while recognising that differences and exceptions do exist within and between networks across states.

Australia's rail networks

To facilitate discussion and identification of the issues associated with different railways in Australia, the Commission has redefined rail networks into three broad categories. They are:

- urban passenger networks;
- the interstate network; and
- regional networks (including the main coal lines in New South Wales and Queensland).

These networks can be differentiated according to a number of economic characteristics relating to:

- interface issues, which occur when there are competing demands for train schedules by trains from different networks, for example, freight trains traversing urban passenger networks.
- rail competition:
 - 'for' the market — competition between bidders tendering to provide a given service; or
 - 'in' the market — competition between train operators for the same customers. Chapter 5 discusses further, different forms of competition that can occur within railways.
- intermodal competition, particularly from road and shipping.

- level of viability:
 - loss making — requiring continual government funding to either the track or train operations; or
 - earning a reasonable rate of return that can support future investment and maintenance; or
 - achieving sustainable monopoly profits.

The characteristics of the different networks are summarised in table 2.6 and discussed briefly below.

Table 2.6 Characteristics of Australian rail networks

<i>Network</i>		<i>Rail competition</i>			
		<i>Interface issues</i>	<i>For the market</i>	<i>Between train operators</i>	<i>Intermodal competition</i>
Urban	Yes, especially Sydney	Some	No	Yes	No
Interstate	Yes	Limited	Yes	Yes	Uncertain
Regional	Yes	Limited	Limited	Most freight	Uncertain
– Main coal lines	Yes	No	No	No	Yes

Urban passenger networks

Urban passenger networks exist in Sydney, Melbourne, Brisbane, Perth and Adelaide. The providers of urban passenger transport services include SRA, Bayside Trains, Hillside Trains, Queensland Rail, Westrail and TransAdelaide.

Interface issues

The potential for interface issues to arise varies considerably across states. Interface issues are of particular concern in Sydney where there is congestion on the urban passenger network restricting the passage of freight trains. This is due to the complexity of the network and the intensity of use by passenger trains at peak periods. Each day around 100 freight trains are scheduled in conjunction with 2300 passenger trains. As noted by SRA:

The level of train services generated in the CityMet area is quite dense and operates over a somewhat complicated commuter passenger network. Other operators mainly of freight services have to traverse the CityMet network to get into their terminals. (sub. 67, p. 2)

A number of participants commented on the complexity of the urban passenger network in Sydney and the problems it creates in introducing structural reforms and improving the productivity of rail freight. Chapters 6 and 10 discuss further reform options in the context of the interface issues relating to the Sydney urban network.

Perth and Adelaide on the other hand, have urban passenger networks that are largely independent of other networks, so that interface issues are less important.

In Perth, only around three freight trains per week traverse the urban passenger network (Westrail, Perth, pers. comm., 9 June 1999). As noted by the WA Government:

The metropolitan network is largely confined to suburban rail passenger services with few points of interaction between passenger and freight services. (sub. 60, p. 3)

In Adelaide, few broad gauge intrastate freight trains traverse TransAdelaide's urban network. Following the Melbourne to Adelaide standardisation in 1994-95, there is also little interface between standard gauge interstate trains and the broad gauge urban network.

Melbourne and Brisbane lie between these extremes. In Melbourne, there is some potential for interface issues to arise due to the increasing number of freight trains that now traverse the urban passenger network. On lines carrying both passengers and freight, the proportion of intrastate freight trains generally averages between 5 and 10 per cent of total train numbers. In Brisbane, around 15 per cent of total train kilometres over the urban passenger network are accounted for by freight trains (Queensland Rail, Brisbane, pers. comm., 3 June 1999).

Due to the differences in gauges, there is only limited interaction between interstate trains and the urban passenger networks in Melbourne and Brisbane.

Rail competition

With the exception of Melbourne, there is no rail competition on urban passenger networks.

In Melbourne, there is competition for the market in providing urban passenger services. National Express and Melbourne Transport Enterprise have secured the franchises to operate Melbourne's Bayside and Hillside Trains respectively. However, the successful franchisees do not compete over the same tracks for passengers. Instead, the franchises are based on geographic service groups (sub. 82).

Intermodal competition

Urban passenger networks are subject to strong intermodal competition from the private car and other transport modes. The private car has been cited as the greatest threat to public transport, undertaking around 95 per cent of all urban trips (Cox 1997).

Other public transport modes also provide strong intermodal competition. The majority of bus, tram and ferry services move people from the suburbs to the central business district, sometimes providing commuters with more than one public transport option. As noted by the Industry Commission:

Aggregate figures [on private car and public transport mode shares for urban transport] do, however, conceal the importance of public transport for some types of journeys. For example, 52 per cent of commuter trips to Melbourne's central area are by public transport and 80 per cent of workers in Sydney's central city use public transport to get to work. (IC 1994b, p. 62)

Level of viability

Urban passenger networks in Australia are loss making, requiring continual government funding. In New South Wales, the Government allocated around \$1 billion in recurrent and capital funding for SRA in 1997-98. In Queensland, the average government payment (subsidy) per urban rail passenger journey is over five times the average fare paid by passengers (chapter 11).

The interstate network

There has never been a declared interstate network (sometimes referred to as the 'national track'). The interstate network can be (and has been) defined in various ways based on features such as track gauge, past investments by the Commonwealth Government (especially investments made under the *One Nation* program) and those lines used by interstate trains.

For the purposes of this inquiry, the Commission has defined the interstate network as that presented by NRC (sub. DR117): the standard gauge track linking all mainland State capital cities; the lines linking Sydney, Broken Hill and Crystal Brook; and the branches to Whyalla, Western Port, Port Kembla and Alice Springs (appendix B).

Interface issues

As described earlier, with the exception of Sydney, interstate trains (freight and passenger) generally have limited interface with urban passenger networks. This situation is primarily due to the differences in track gauges. However, as described later in this chapter, there are interfaces between the interstate and regional networks.

Rail competition

There is competition between train operators on the interstate network. In June 1995, SCT commenced interstate rail freight operations in competition with NRC. TNT (now Toll Rail) followed one year later (sub. DR100).

There is only limited evidence of competition for the market on the interstate network. RAC noted that competition for the market has occurred on the interstate network in regard to the BHP billet/slab traffic (sub. DR102).

Intermodal competition

There is vigorous intermodal competition on the interstate network, especially from road transport. As argued by NRC:

Road transport is the most powerful competitor for rail general freight services. B-Doubles are a continuing threat to the viability of rail transport. (sub. 53, p. 10)

Apart from competition from road transport, coastal shipping also dominates the interstate transport of bulk commodities (table 2.3).

Level of viability

The Commission received no evidence of railways extracting monopoly profits from customers on the interstate network. Indeed, there is no conclusive evidence of the ability for railways to achieve viability, at least at this stage. In terms of train operations, NRC continues to run at a loss. The Australian Rail Track Corporation illustrated the challenges facing rail by reference to NRC:

... NR's financial profitability was stated at \$4.8m (loss) in 1996-97. The most recent annual report, released late last year, shows that NR's operating loss has deteriorated to \$9m (after-tax) ... This deterioration continues a trend starting in 1995-96 (with the introduction of private rail competitors) and starkly illustrates the challenge NR faces in a competitive interstate environment. (sub. DR97, p. 3)

However, NRC argued:

As a corporation under the Corporations Law, National Rail can trade only while it remains solvent. Since it ceased to receive any financial support from its shareholders some 15 months ago, its Directors must have an expectation of commercial returns, backed by shareholder-approved strategic plans. (sub. DR117, p. 5)

As noted earlier, there are now private sector operators on the interstate network. As private firms, SCT and Toll Rail would be expected to only remain in the market if they earn, or expect to earn, commercial returns (at least on train operations).

Evidence on the viability of the interstate track is limited due to the multiple owners of the network. However, in New South Wales the Government provides subsidy payments to RAC towards track upkeep and maintenance.

Regional networks

The Draft Report identified two types of regional networks — high and low volume. This categorisation tended to create some confusion over what tracks could be considered high or low volume. This was especially evident in New South Wales where some tracks were used by trains carrying freight with different economic characteristics (coal, grain and containers), as well as non-urban passenger trains.

Nevertheless, most of the tracks within regional networks⁹ share similar economic characteristics. The freight transported is often subject to strong intermodal competition and there is no evidence of railways extracting monopoly profits.

Only certain lines, namely the main coal lines in New South Wales and Queensland, display distinctly different characteristics to the rest of the regional network.¹⁰ The NSW Minerals Council defined the Hunter Valley coal network as:

... that part of the NSW network bounded by Ulan, Gunnedah, Stratford (Craven) and Eraring. (sub. DR104, p. 1)

Tonnages of coal carried over the Hunter Valley coal lines exceed 50 million tonnes (Mt) per year (PC 1998a).

In Queensland, the two main coal lines are those centred on the Oaky Creek and North Goonyella regions (around 49 Mt per year) and Gregory and South Blackwater regions (around 24 Mt per year) (PC 1998a).

⁹ Regional networks are defined as those lines extending out from capital cities and regional ports to inland areas, excluding the defined interstate network and private railways in the Pilbara.

¹⁰ A detailed discussion of Australia's coal industry, including the transport of coal by rail, is presented in PC 1998a.

The transport of coal and minerals in Australia (excluding the Pilbara) is not restricted to those lines identified above. However, the main coal lines are distinguished from the remainder of the regional network by the tonnages of freight that are transported over the lines and, as discussed later in this section, the ability of railways to extract monopoly rents from mining companies.

Trains transporting grains, general freight and non-urban passengers also travel on the main coal lines. Despite this overlap, the main coal lines have different economic characteristics and specific issues not associated with the remainder of the regional networks in New South Wales and Queensland. Policies required to improve the outcomes for users (primarily mining companies) on the main coal lines are therefore identified separately.

Interface issues

Trains commencing on a regional network carrying minerals, grain or general freight often traverse both the interstate and urban networks. There are also interfaces between the main coal lines and the remainder of the regional network. As noted by the NSW Minerals Council:

In hauling coal from Gunnedah or Ulan to Newcastle, the coal is first hauled on a low volume regional network, then on a high volume regional network, then on track that is used by and influenced by interstate freight and urban passenger traffic. (sub. DR104, p. 1)

Rail competition

With the exception of New South Wales, there is limited evidence of rail competition either for the market or between train operators on regional networks. An example of competition for the market in New South Wales is the contract won by NRC to carry coal to Macquarie Generation's Bayswater and Liddell power stations. Another example of competition for the market (outside New South Wales) was the competitively tendered contract to haul coal from Leigh Creek to Port Augusta won by FreightCorp in November 1998.

A number of participants argued that rail competition between operators was beginning to emerge under the vertical separation model adopted in New South Wales. RAC argued:

... approximately two-thirds of freight in New South Wales on a gross tonne-kilometre basis has been subject to competition between operators ... (trans., p. 642)

A similar view was shared by NRC:

It is not correct that “There is little or no competition either for the market or between train operators on low volume regional railways”. Instances of competition on low-volume lines are very few as the possibility of competition on regional lines is very recent; the NSW Rail Access Corporation has provided successfully for genuine competition, and in NSW there are several examples where real competition has occurred. (sub. DR117, p. 4)

However, any competition between train operators in New South Wales will largely occur on subsidised track. The merits of competition between train operators on subsidised track are discussed in chapter 11.

Intermodal competition

In Victoria, Western Australia (excluding the Pilbara region), South Australia and Tasmania, the majority of freight carried by rail on most regional networks is subject to strong intermodal competition. In terms of grain transport in Victoria, Vicgrain noted that it has:

... the option of increasing the road component of its grain movement operations. Vicgrain envisages that this would occur should freight rates increase or should there not be a suitable level of cooperation between the storage and rail sectors. (sub. 24, p. 5)

Westrail argued that the majority of the commodities it transported by rail was subject to competition from road transport, with the exception of bauxite, where road transport was a less feasible alternative (trans., p. 752). Both FreightCorp and Queensland Rail have indicated that they face significant competition from heavy road vehicles in the general freight market (QR 1998; FreightCorp 1998).

However, RAC argued that the transport of a number of commodities by rail on the regional network in New South Wales was not subject to intermodal competition:

There are some traffics on low volume regional lines, particularly minerals and to a lesser extent grain, that are not subject to significant intermodal competition. (sub. DR102, p. 1)

Similarly, the main coal lines in New South Wales and Queensland face little or no intermodal competition in the transport of coal.

Level of viability

Excluding the main coal lines, the Commission received no evidence of railways extracting monopoly profits from customers on regional networks.

In New South Wales and Queensland, the regional networks can be considered loss making, requiring subsidy payments in excess of \$150 million per year (chapter 11). Despite the lack of intermodal competition highlighted by RAC, there is no evidence of railways extracting monopoly profits from customers in New South Wales. An important fact underpinning this position is the high level of competition in the final markets of these commodities. Commodities such as export grain face strong competition from alternative suppliers on international markets. Thus there are no monopoly profits to be earned by grain farmers in final markets to be extracted by the providers of inputs, including transport.

This conclusion is reinforced by the fact that the rail transport of commodities such as grain in New South Wales receives government subsidies. If grain farmers require government subsidies to cover transport costs, it is unlikely that monopoly profits are simultaneously being extracted by the railways.

In Victoria, Western Australia, South Australia and Tasmania there is some evidence to suggest the regional networks can earn a reasonable rate of return. With the exception of Western Australia, new (vertically integrated) private sector railways have begun operation (Freight Victoria, Australia Southern Railroad and Tasrail). These private sector companies operate without government subsidies and would only enter and remain in the market if they earn, or expect to earn, a commercial return.¹¹ With regards to the viability of rail freight operations in Tasmania, the Australian Transport Network (owners of Tasrail) stated:

... since acquiring Tasrail, its revenue has increased by approximately 50 per cent and the company has been returned to profitability. (sub. 25, p. 1)

In Western Australia, Westrail receives no subsidies for freight operations. However, Westrail does require subsidy payments for non-urban rail passenger services (some \$13.7 million 1997-98) (Westrail 1998).

The main coal lines in New South Wales and Queensland are the most profitable components of each State's network. The extraction of monopoly rents from the transport of coal by the government-owned railways provides indirect evidence of the profitability of these lines.

¹¹ In Victoria the State Government provides some limited subsidy payments for the 'Fast Track' service (less than container load freight) (sub. 82).

Overall appraisal of Australia's rail networks

Australia's railways provide transport services to a diverse range of passenger and freight markets. However, the discussion above has highlighted some distinct characteristics that exist between States with regard to urban and regional networks.

No urban passenger service in Australia is viable. Participants highlighted the problem of congestion between freight and passenger trains on the urban passenger network in Sydney due to its complexity and the intensity of use by passenger trains at peak periods. On the other hand, in Western Australia and South Australia, the urban passenger networks have limited interface with other networks.

Notwithstanding some possible exceptions, regional networks (excluding main coal lines) are characterised by strong intermodal competition, especially from road transport. Where intermodal competition is absent, there is usually competitive pressure in downstream markets limiting the ability of railways to extract monopoly profits.

The regional networks in New South Wales and Queensland are distinguished from the other States by the considerable government subsidies required to ensure their continued viability. While some competition between train operators is emerging in New South Wales, these operators do not cover the full cost of providing track infrastructure.

Yet the New South Wales and Queensland regional networks also contain the identified main coal lines that are distinguished by their profitability. Issues surrounding the extraction of monopoly profits by State Governments from the transport of coal over these lines are discussed in chapters 3, 6 and 12.

The following chapter describes past and present problems facing the industry. The reforms initiated by government are also outlined. The characteristics of rail networks, combined with the current problems facing the industry, provide a basis for examining the various issues concerning the industry including structure, governance and access arrangements, and competitive neutrality.