

**THE ROLE OF GOVERNMENT IN
RAIL FREIGHT INVESTMENT
DISCUSSION PAPER**

October 2010



**Prepared by
National Transport Commission**

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The role of government in rail freight investment – Discussion paper

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Abstract: Productivity gains and investment in Australian rail freight have declined relative to road freight over recent decades. Governments can directly invest, or facilitate private investment through a range of policy instruments to reverse this trend. Before doing so however, clear objectives need to be established, together with an assessment framework to assess whether the investments achieve the stated objectives.

Purpose: To generate discussion about the issues relating to efficient investment in rail

Key words: Freight rail, economic efficiency, government objectives, community service obligation (CSO)

Comments by: 15 December 2010

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FOREWORD

The National Transport Commission (NTC) is an independent statutory body charged with improving the productivity, safety and environmental performance of Australia's road, rail and intermodal transport system. The NTC develops and submits reform recommendations to the Australian Transport Council (ATC), which comprises federal, state and territory ministers, on regulatory and operational transport reforms.

The NTC developed a national transport policy framework that was endorsed by ATC in February 2008 to establish a vision of a safe, secure, efficient, reliable and integrated national transport system. To accomplish this vision, the NTC is currently working on a number of key reforms, including:

- developing a National Ports Strategy in partnership with Infrastructure Australia – for Australian ports and long-term port planning to be better coordinated, consistent and more transparent, leading to improved productivity and efficiency
- working through the pricing work stream of the Council of Australian Governments (COAG) road reform plan – NTC is focused on developing more efficient pricing options for heavy vehicles that will unlock greater productivity from the road network
- establishing a National Rail Safety Regulator for delivering improved safety outcomes, reducing the regulatory burden on industry and increasing cost-effectiveness
- establishing a National Heavy Vehicle Regulator to administer a national system of laws for heavy vehicles over 4.5 tonnes
- improving rail productivity – the subject of this discussion paper

In August 2009 the NTC released the *Freight Rail Productivity Review, Final position paper*. After considering the review's recommendations ATC agreed that the NTC should undertake specific freight rail productivity reforms relating to *policy, planning and investment* and *economic regulation and market structure*.

The purpose of this discussion paper is to:

- initiate discussion about the range of issues that ATC has directed NTC to address in the development of a policy position paper on the productivity of rail freight in Australia
- provide a mechanism for stakeholders to formally participate in the development of the policy to be submitted to ATC

As this discussion paper is the first step in developing a policy paper, part of its purpose is to collect specific evidence and examples on the role of government in rail freight.

NTC invites stakeholders to respond to the questions raised throughout the discussion paper or raise any other issues they consider appropriate. The NTC will continue to engage with the rail industry, governments, freight customers and other stakeholders throughout the course of the project.

The NTC acknowledges the work of Marcus Coleman, Meena Naidu, Ian Hunter, Daniel Kelley, Emily Porter and AECOM in preparing this discussion paper.

A handwritten signature in black ink, appearing to read 'G. Martin', written in a cursive style.

Greg Martin
Chairman
National Transport Commission

SUMMARY

The implementation of microeconomic reform and innovations in technology delivered substantial productivity gains in the road freight sector throughout the 1990s. However, productivity gains were relatively slower in the rail sector, eroding the competitive position of rail freight. The 2009 NTC Rail Freight Productivity Review identified that government plays a significant role in influencing rail productivity in a range of areas. As a response to the Rail Freight Productivity Review, ATC requested that NTC prepare a policy paper that:

1. facilitates the development of a coordinated set of national and state-based objectives for rail
2. develops a consistent and transparent national framework for assessing existing road and rail pricing distortions (including funding for community service obligations) to facilitate rail investment
3. develops an improved evaluation and monitoring framework to assess whether rail investment under the above framework achieves the stated rail objectives

This discussion paper is the first step in developing a policy paper. Therefore, the purpose of this paper is to initiate a discussion about the role of government in the areas of rail freight objectives, investment facilitation, and monitoring and evaluation.

The paper provides a brief overview of the historic context in which rail freight objectives are set and discusses both economic and social objectives for government intervention in the rail freight market. It poses a number of questions regarding how rail freight objectives are currently applied.

The paper specifically explores the role of government in facilitating rail freight investment, providing a list of policy instruments and outlining the pros and cons of each. It also explores issues regarding the interaction between economic regulation and investment and the importance of a monitoring and evaluation framework that is specifically designed for rail freight. Questions around the current practices of monitoring and evaluation and data availability issues are asked.

The NTC encourages stakeholders to respond to the questions posed throughout the paper or raise any other relevant issues by the submission due date (15 December 2010).

Stakeholder feedback on this discussion paper will inform the development of a draft policy paper that will be released in the first quarter of 2011. The NTC will also provide further opportunities for consultation throughout the development of the draft policy paper.

A final policy paper will be released in the second quarter of 2011, providing a final opportunity for stakeholders to comment before the NTC submits its final recommendations to ATC in 2011.

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1. INTRODUCTION

This discussion paper explores the role of government in Australian rail freight investment in delivering productivity gains. The topic is complex in nature, due in large part to the inherent characteristics of rail networks and the historic role that rail has played in facilitating the development of regional Australia. This discussion paper seeks to unpick some of this complexity and establish an evidence base for formulating ATC policy on the role of government in facilitating investment to improve the productivity of freight rail in Australia.

The ultimate objective of the broader work programme of NTC is to provide ATC with a comprehensive policy response to the challenge of increasing the productivity of freight rail in Australia. NTC will undertake subsequent work that addresses matters related to the economic regulation of freight rail and the market structure of the freight rail sector.

1.1 Background

The productivity of freight rail has been an area of concern for governments and the rail sector for the past 30 years (Productivity Commission 1999). As microeconomic reform was progressively implemented throughout the 1980s and 1990s, most Australian public utilities received attention from policymakers, culminating in the development of *National Competition Policy* (NCP). The purpose of the NCP reform process was to increase the productivity and efficiency of government-owned networks, ranging from energy utilities to water and telecommunications networks. Although the rail sector was not explicitly included in the NCP framework, wholesale reform of the rail sector was a substantial outcome from NCP. In 1996 the Howard Government privatised Australian National (AN) freight and passenger operations and reformed the governance arrangements pertaining to the rail sector (Webb 2009).

An overarching aim of NCP was to explicitly recognise the often competing objectives that governments sought to meet in providing network utilities. On the one hand governments sought to allocate limited public resources in an efficient manner, providing services at least cost. On the other, network utilities in Australia had traditionally been an instrument through which governments delivered various social objectives, such as regional development and equitable provision of basic services. The conflict and ambiguity in the often unstated objectives of government-owned utilities had a tendency to result in economically inefficient service delivery and ad hoc planning for, and investment in, network infrastructure.

In an effort to rectify the problems faced by public utilities, a central aim of NCP was to reform institutional frameworks so that publicly owned utilities faced incentives to operate efficiently and earn reasonable rates of return on public assets. A number of utilities were corporatised, with independent governance boards established that would be held accountable for the performance of the corporation by government. Those utilities that had monopolistic characteristics were supervised by economic regulators independent from government, both to ensure that market power was not exploited, and to provide ongoing monitoring of economic performance.

In recognition of the role that utilities played in meeting various social objectives, NCP required that the costs of meeting those objectives be quantified and explicitly stated in the form of community service obligations (CSOs). The aim of this often onerous requirement was to force governments to consider the opportunity cost of meeting social objectives. In doing so, decision-makers and the broader community could make informed decisions regarding the ongoing delivery of social objectives. It was also hoped that a competitive

market for providing CSOs would be established, offering an incentive for those services to be provided at least cost.

While many commentators have noted the overall efficiency and productivity benefits from implementation of NCP,¹ effective outcomes in terms of social objectives have been less universal. This was highlighted in an inquiry by the Productivity Commission into the impact of NCP on rural and regional Australia. In the case of the rail sector, pressure to close branch lines that are not commercially viable is an illustration of the difficulties governments face in delivering social outcomes in the context of microeconomic reform designed to improve productivity and efficiency outcomes.

While the implementation of microeconomic reform and innovations in technology delivered substantial productivity gains in the road freight sector throughout the 1990s, stakeholders from the rail sector expressed concerns that productivity gains were relatively slower in the rail sector, and that this was eroding the competitive position of rail freight. These concerns ultimately led to the NTC conducting and releasing a review of the barriers to improved freight rail productivity called the *Freight Rail Productivity Review, Final position paper* (NTC 2009).

The NTC review found that both governments and industry support the economic, social and environmental benefits that rail freight provides, but identified a number of challenges impacting on the efficiency and productivity of the sector.

Specifically, freight customers said reliability, service and transit times were key concerns hindering their use of rail. Rail providers cited the following as possible challenges to be met to help overcome these productivity concerns, including a need to:

- develop more consistent and efficient planning and policy direction from governments
- overcome infrastructure deficiencies, bottlenecks and out-dated technology
- develop and have better access to intermodal terminals and ports
- improve passenger and freight interactions in urban areas
- manage regulatory differences across state borders
- achieve greater certainty around future track investments
- address varying technical infrastructure standards leading to higher costs
- overcome reduced interoperability

Governments, which are the policymakers, regulators, planners and shareholders of rail, cited a broad range of challenges to productivity:

- a need to overcome inefficiencies in multi-modal and passenger planning, frameworks, interactions and access models
- the use of rail to achieve sustainability, social, economic and transport policy objectives
- the viability of regional rail lines
- the provision of government funding
- the appropriateness of a national freight pricing
- a lack of robust rail information systems and data

¹ For example, the Productivity Commission (2005) found that NCP and related reforms are widely acknowledged to have been key (though not the only) drivers of productivity improvements in a range of sectors including rail freight.

The Freight Rail Productivity Review identified five key areas that could impact on rail freight productivity:

- policy, planning and investment
- economic regulation and market structure
- environmental, safety and technical regulation and standards
- human capital
- productivity measurement

The review made a number of recommendations to address each area and ATC is coordinating a comprehensive response to the review.

Looking to the future we can see there will be increasing pressure on transport networks as Australia's freight task continues to grow in and between our capital cities. The interstate freight task is forecast to more than double from 70.4 billion tonne-kilometres in 2008 to 159.1 billion tonne-kilometres in 2030 (BITRE 2010). In addition, the aggregate cost of congestion (from both light and heavy vehicles) in Australian cities is projected to reach \$20.4 billion by 2020 (doubling from 2005) (BTRE 2007). The impacts of climate change and peak oil add additional pressure to Australia's freight network.

In this context, rail is an important transport mode, given increasing community expectations regarding the provision of freight transport that balances economic objectives with issues of sustainability, safety and the environment.

With this in mind the ATC has given the NTC, in cooperation with the Productivity & Efficiency Standing Sub-Committee (PESSC), the responsibility for formulating a policy paper to address those aspects of the *policy, planning and investment frameworks* governing the freight rail sector that impede productivity.

Following the development of this policy the NTC and PESSC will pursue reforms relating to *economic regulation and market structure*.

1.2 Interpretation of the ATC decision

ATC has agreed for the policy paper to deliver the following specific outcomes:

- facilitate the development of a coordinated set of national and state-based objectives for rail
- develop a consistent and transparent national framework for assessing existing road and rail pricing distortions (including funding for CSOs) to facilitate rail investment
- develop an improved evaluation and monitoring framework to assess whether rail investment under the above framework achieves the stated rail objectives

The three outcomes are related components of an integrated policy response to improve the productivity of the Australian freight rail sector, taking into consideration efficiency, productivity, market failure and social outcomes. As best practice policy development begins with setting objectives followed by identifying and evaluating policy choices, then concluding with program delivery and review, the NTC will develop an overarching policy development framework as part of this project.

Although there are significant interactions between passenger and freight rail operations and networks, this paper is explicitly focused on rail freight in accordance with the ATC direction. The NTC also acknowledges that the interactions between road and rail freight are relevant; however, ongoing work by COAG in delivering the *Road Reform Plan* is expected to complement the work of NTC.

1.3 Purpose of this discussion paper

The purpose of the discussion paper is to:

- initiate a discussion concerning the range of issues that ATC has directed NTC to address in the development of a policy position paper with respect to the productivity of rail freight in Australia
- provide a mechanism for stakeholders to formally participate in the development of the policy to be submitted to ATC

As this discussion paper is the first step in developing a policy paper, part of its purpose is to collect specific evidence and examples on the role of government in rail freight. While there is some anecdotal evidence, it is important that the policy paper is informed by more specific evidence that includes quantification of the magnitude of the problem.

1.4 Document structure

The discussion paper is structured as follows:

- **Section 2** discusses the importance and issues with setting government objectives.
- **Section 3** identifies the policy instruments to facilitate investment in rail.
- **Section 4** discusses a rail-freight-specific monitoring and evaluation framework.
- **Section 5** identifies next steps.

Readers are invited to respond to the questions that are proposed for discussion throughout the paper, together with other pertinent comments and facts that may inform the policy paper.

2. FREIGHT RAIL OBJECTIVES

The public ownership of rail assets in Australia has its genesis in financial crisis rather than long-term planning by government. The private sector was responsible for building and operating Australia's first railway lines in the mid-1800s, and ownership of the railways only passed to the public sector following the various financial crises of the late 1800s. Nevertheless, since taking ownership governments have seen railways as much more than a means of providing efficient transport. As noted by the Productivity Commission (1999:125):

Historically, governments used their railways to pursue objectives other than commercial viability. Goals such as income redistribution, regional development and employment creation have underpinned the provision of some train services and associated infrastructure. However, the pursuit of social or political objectives has often been at the expense of efficiency.

The first step in making the case for reform of the freight rail sector in Australia is to determine what objectives governments should have for the freight rail sector. While one important objective for freight rail should be the efficient use of resources, it is not the only objective. Ensuring reasonable access to freight rail as a transport mode, particularly in regional Australia, is often cited as a key objective for freight rail. In order to facilitate efficient rail investment, it is important that all government objectives for rail transport be stated, clearly articulated and based on sound rationale.

Question 1: What examples exist where the pursuit of social or political objectives still results in inefficiency in the rail freight sector?

2.1 The changing role of freight rail in Australia

Australia's first railways were built independently more than 150 years ago. Some were publicly provided, however, most were built by private organisations with government underwriting. In developing the early railways, little consideration was given to how the various railways could operate together as a national network. Railways were developed as disjointed networks that focused on linking the hinterland and areas of significant agricultural production with capital cities and major ports (Webb 2009).

During the latter part of the 19th century, the various colonial governments took over the ownership and operation of the nation's remaining privately owned railways. Government ownership enabled railways to be built to promote development, even if they were not viable in strictly financial terms. Furthermore, the viability of rail was sustained because government railways were exposed to little competition from other transport modes or from other railways. Road and air transport were still not serious threats to the dominance of the railways, though steamships offered some competition. Government control over the railways meant there was no potential competition from privately owned and operated railway companies (Productivity Commission 1999).

During the period immediately following World War I, however, road transport began to emerge as a viable alternative to rail transport. The loss of rail freight to the road sector continued following the Second World War, during which many railways were run down through the lack of maintenance, resulting in the need for substantial renewal (Webb 2009). According to the Productivity Commission (1999), in 1960–61 railways carried most agricultural produce, two-thirds of coal and mineral production and about half of the production of fertilisers, cement and timber. By 1994–95, in the case of coal and minerals,

railways maintained their market share in the context of a rapidly expanding industry, but for most other commodities² (agriculture, livestock, cement, fertiliser and timber) railways have been unable to maintain even the freight volumes. The movement away from rail was further exacerbated by limited alignment between the rail sector and national transport markets, resulting in poor links between rail systems at state borders and limited investment in rolling stock and infrastructure. There was pressure on governments to contribute budget funding to provide operating subsidies to meet the deficits and investment costs of rail operations (OECD 2005).

Although railways were managed to meet the specific economic and social objectives of individual state governments for a majority of the 20th century, the objective of successive national governments was to meet the developing needs of Australia as a single national community rather than individual state-based economies. Therefore, the Australian Government undertook a series of actions designed to put in place a national freight and passenger rail service owned and operated by the national government. This was intended to service interstate transport needs between major cities and across long distances (OECD 2005). Overall, these actions would serve the purpose of improving efficiency and productivity of rail freight nationwide.

In the 1990s governments commenced a process of rail commercialisation, consolidation and private sector involvement that continues to this day. In 1993 the National Rail Corporation, jointly owned by the Australian, New South Wales and Victorian governments, took over operation of interstate freight operations. This action, backed by substantial investment in locomotives, sought to improve rail's efficiency in cross-border traffic (OECD 2005).

Since 1995 the policy reform task in the rail sector has been pursued by Australian governments through the application of the general provisions of the NCP agreements and a series of intergovernmental agreements designed to address institutional and regulatory barriers to competition. Outside of the NCP reforms, governments have undertaken greater efforts to harmonise regulations and standards across jurisdictions. In 1995 a standard gauge link between capital cities was finally achieved. In 1997 an entity was created through an intergovernmental agreement to be largely responsible for train operators seeking access to the interstate rail network. The Australian Rail Track Corporation (ARTC), owned by the Australian Government, was established as a 'one stop shop' to manage track and access to the interstate network, which included a lease of the interstate track in Victoria. In 2002 the national regulator, the Australian Competition and Consumer Commission (ACCC), approved the ARTC access regime for the interstate freight track, and more recently, an intergovernmental agreement was made in 2003 to expand the responsibilities of the NTC (then NRTC) to encompass nationally consistent safety regulations for the rail industry (OECD 2005).

² Grain is an agricultural commodity that still has maintained a heavy reliance on rail.

The Productivity Commission (1999) concluded that these state reforms, and reforms involving the Commonwealth, resulted in greater competition among service operators, more private sector participation in some corridors, and significant productivity increases. However, the Productivity Commission has also likened the multiplicity of, and inconsistency in, access regimes to the break in the rail gauge at state borders in their effects in inhibiting the efficient operation of trains across Australia (Webb 2009).

The objectives of rail freight have changed during the course of history. Although social objectives and development were primary in the early history of rail, the focus on productivity and efficiency appears to have overtaken social objectives, particularly as other transport modes have become increasingly competitive.

Question 2: What are today's objectives for rail freight?

Question 3: Are there examples where productivity and efficiency objectives appear to have overtaken social objectives?

2.2 Rationale for government intervention in freight rail

Governments generally intervene in freight rail markets to meet the following two broad objectives:

- 1. To address market failures:** In general, the rationale used for government intervention in markets is when there is sufficient evidence of a market failure of some sort that is preventing economically efficient outcomes. In the case of rail freight, market failures include the presence of externalities³ (both positive and negative), lack of competition, natural monopolies⁴ and incomplete markets. It is important to note that assessment of economic efficiency includes consideration of social and environmental costs and benefits, where they can be quantified. Intervention by government to address market failures may still lead to a reasonable return on investment.
- 2. To deliver social objectives:** Intervention in freight rail markets by government can also be motivated by the desire to meet social policy objectives including the re-distribution of income and regional development.

Each objective is discussed in further detail in the next section.

Question 4: What other objectives explain government intervention in rail freight investment?

³ Externalities are actions by either a producer or a consumer that affect other producers or consumers but are not accounted for in the market price (Pindyck & Rubinfeld 2005)

⁴ A natural monopoly occurs where scale economies make it possible for one firm to supply the entire market more cheaply than a number of firms (Productivity Commission 1999).

2.4 Addressing market failures

There are some externality benefits in the current regulatory environment, such as greenhouse gas emissions, that cannot be captured by private operators. Prices do not reflect the full social costs of consumption, leading to allocative inefficiency. In theory, internalisation of externalities is the optimal way to address this problem. For example, a price on carbon will reduce consumption of goods or services that require substantial use of fossil fuel. Government facilitation of investment in rail in response to the presence of externalities may therefore provide the benefit of encouraging the use of transport modes that are relatively more fuel-efficient. The need for government intervention arises from the difficulty faced by the private sector in capturing the positive externalities associated with emission reductions.

In rail markets with low levels of competition, the benefit of using policy instruments to facilitate market entry may result in increasing levels of competition.

As there are large economies of scale in rail track provision, it is considered to be a natural monopoly. Given the presence of high fixed or capital costs, prices are regulated such that they recover marginal (rather than average) costs of production. This results in firms not recovering the full cost of production. In these cases, the benefit of government-facilitated intervention is to ensure that the firm can recover full production costs where efficient prices are imposed through economic regulation.

Parts of the rail industry may be characterised as an incomplete market (one where demand and supply curves do not intersect). In this case no production takes place unless government investment can shift the supply curve so that rail network access can be provided at a price that generates non-zero demand.

The market failure paradigm has been employed countless times since the 1950s to justify government intervention in markets. However, it does not necessarily follow that intervention by government will correct the market failure as a matter of course. Indeed, it is possible that government action in markets can result in worse outcomes in terms of economic welfare relative to the market distortion that gave rise to the need for intervention in the first instance. This concept has come to be known as ‘government failure’. The empirical evidence (see, for instance, Dollery & Wallis 1997) suggests that governments should explicitly consider the risk of government failure before intervening to correct a market failure.

Question 5: Where has government intervention in the rail freight sector corrected market failures?

Question 6: What other forms of market failure should prompt government intervention in rail freight?

Question 7: When has government interventions failed to correct market failures in the rail freight market?

2.5 Social objectives

As outlined earlier, governments have made use of the rail sector to achieve various social objectives. These include re-distribution of income, local employment in regional centres and support of regional development. NTC acknowledges that determining the relative worth of meeting social objectives is a matter of public policy, and a topic rightly addressed by elected governments. However, since governments have limited resources, it is important for those social objectives to be clearly stated, communicated transparently and the resource cost required to meet those objectives quantified. Doing so places decision-makers in a position to judge the cost-effectiveness of meeting social objectives via the freight rail sector, relative to alternate delivery mechanisms such as the tax and welfare system, or direct assistance to rail freight users via grants. It is also relevant in this context to acknowledge that rail is not the only form of transport that is used by governments to deliver social outcomes; for example, the provision of road infrastructure in regional Australia is partly motivated by the need to provide equitable access to transport.

The Productivity Commission (1999:268) expressed similar sentiments in its 1999 review of progress in rail reform:

Determining the most appropriate way of achieving social objectives from the range of options available, requires clearly specified goals and knowledge of the cost effectiveness of each option in achieving these goals. In addition, it is important that the option(s) chosen are provided in the most efficient manner. This approach ensures that the community receives value for money and maximises the ability of governments to promote social objectives within resource constraints.

Numerous authors (see, for example, Productivity Commission 1999) have noted the non-commercial viability of existing branch lines in regional rail freight networks, which gives rise to government support in various forms for those lines to remain open. Where governments choose to provide such support on the grounds of meeting social objectives, the relevant question in the context of this discussion paper becomes one of determining the least cost of providing that support, in a means that detracts least from the economic efficiency of freight rail provision.

Question 8: Do governments explicitly state social objectives to be met through providing rail freight? If so, where are those objectives stated?

Question 9: What examples exist of cost effective delivery of social objectives via freight rail investment? If so, what were the objectives?

ATC recognises the importance of a coordinated approach to developing objectives. The previous sections have dealt with economic and social objectives. Setting objectives in the rail freight market is a complex process because objectives need to be coordinated across different levels of the transport system as well as different levels of government.

Question 10: What are the options for coordinating objectives?

4. RAIL INVESTMENT

This section discusses the role of government in freight rail investment – one of the key mechanisms of government market intervention. It also explores the issues around efficiency and effectiveness of rail freight investments.

4.1 Policy instruments to facilitate investment in rail

Investment in rail can be considered along a continuum, with private investment on one end of the scale and public investment on the other. A range of policy instruments that require some public investment to enable private sector investment sit throughout this continuum.

Two groups of policy instruments to facilitate investment in rail can be distinguished: direct instruments that involve some form of financial contributions by government and indirect instruments such as regulation.

Direct policy instruments to facilitate investment in rail include:

- loan guarantee
- direct loan at ‘Treasury’ rate (lower interest than commercial rates)
- loan at Treasury interest rate plus additional concession
- interest-free direct loan
- capital grant
- operating subsidy
- purchasing of freight services from private operators such as contracting or franchising
- Public Private Partnerships

Indirect policy instruments to facilitate investment in rail include:

- policies such as tax exemptions and rebates
- preferential market access e.g. restrictions on heavy vehicle access and mass
- limited liabilities
- accelerated depreciation allowances
- selective exemptions from government standards

The key features of these instruments are summarised in Table 1. The application of these policy instruments varies between governments and rail markets.

Question 11: What are other relevant instruments?

Table 1: Policy instruments to facilitate rail investment

Instrument	Context	Pros	Cons
Indirect policy instruments to facilitate rail investment			
Loan guarantee	Revenue is sufficient to generate a small profit, but the indicated return on investment is insufficient to meet principal and interest under a commercial loan	A loan guaranteed by government can reduce the cost of capital	Government is exposed to a high degree of risk
Direct loan at 'Treasury' rate (lower interest than commercial rates)	Revenue provides an operating profit and substantially covers the cost of capital but is insufficient at commercial rates to generate an acceptable net profit	Relatively lower interest expense could make the project viable	Could require borrowing by Treasury in the bond market, risking 'crowding out' of the private sector in capital markets
Loan at Treasury interest rate plus additional concession	Conceptually similar to a direct loan at 'Treasury' rate but at a relatively lower rate	Negligible interest expense could make project viable	Would require allocation of funds from government consolidated funds to pay concession
Interest-free direct loan	Forecast operating profit is inadequate to cover any interest expense but is sufficient to repay principal based on an agreed schedule	Negligible interest expense could make project viable	Requires an allocation of funding from consolidated revenue to meet entire interest expense
Capital grant	Forecast revenue is inadequate to provide any repayment of capital, even without interest	Government provides the capital with no obligation to repay; therefore, projects that are justifiable on non-financial grounds e.g. social objectives can proceed	May require substantial allocation of consolidated revenue to fund; value of subsidy can be capitalised in value of project, and value of assets owned by beneficiaries of project

Operating subsidy	Revenue is inadequate to provide even an operating profit; the government therefore needs to provide both the capital and subsidise the operation itself	Direct government funding of both capital and operating expenses can enable projects to be implemented that meet non-economic objectives	An operating subsidy is simply an injection of funds under conditions that are open-ended and less controllable than capital support Limited incentive for operation to be efficient
Purchasing of freight services from private operators such as contracting or franchising	Services are not financially viable Government agrees to fund provision via a competitive tender process	Certainty with respect to above rail services Potential for more efficient operation	Depending on the contract, government may still be bearing the main risk of revenue uncertainty
Public Private Partnerships	Services may or may not be viable but are likely to be delivered relatively more efficiently by the private sector	Significant private sector investment More efficient delivery Reallocation of risk	Government has limited control
Indirect policy instruments to facilitate rail investment			
Instrument	Context	Pros	Cons
Tax exemptions and rebates	Revenues are inadequate to achieve operating profits such that tax exemptions and rebates on business services can aid in covering operating costs	Stimulate business investment or simply enable cost recovery	Can create long-term dependability on exemptions and rebates so that effort to achieve operating efficiency is minimised
Preferential market access e.g. restrictions on heavy vehicle access and mass	In the case of substantial market share loss due to increased threat from alternative transport mode, such that operating profits cannot be achieved	Maintain or increase the demand for one service by restricting the availability of its substitute	Can create service inefficiencies that would otherwise not exist
Limited liabilities	Intervention in rail can give rise to such liabilities	Reduces exposure to risk and liability	Public sector takes on the liability
Accelerated	Revenues are	Makes capital	Tax benefits based on

depreciation allowances	inadequate to achieve an operating profit such that accelerated depreciation in the early years of capital expenditure produces larger deductions for tax purposes	expenditure more desirable due to tax benefits	accelerated depreciation are not sustained past the early stage of capital investment
Selective exemptions from government standards	Adherence to government standards can act as a barrier to entry Government can temporarily exempt organisations from meeting these standards to promote investment	Reduces need for capital investment	Can create inefficiencies by lowering operating standards

Partly based on Affleck, Taplin and Ryan (2004), commissioned by the WA Department of Planning and Infrastructure.

Operating subsidies can be provided in different ways. The Productivity Commission (2006) identified three main ways in which rail transport could be effectively subsidised, namely:

- direct government subsidies (this includes any funding, including grants, provided to rail that is not expected to earn government as a shareholder a return)
- tolerance of low rates of return
- CSOs (payments to achieve social or other non-economic outcomes)

The Productivity Commission also identified the tolerance of low rates of return as an instrument particularly prevalent in the rail sector. Governments currently provide significant funding to the rail industry at both a state and federal level. For example, in its report on performance monitoring of government trading enterprises (GTEs) in 2004–05 to 2006–07, the Productivity Commission found that:

Of the six monitored GTEs, five earned less than the risk-free rate of return. Three rail GTEs received community service obligation (CSO) funding totalling \$2.6 billion. CSO payments amounted to 30.5 per cent of sector income.

(Productivity Commission 2008⁵)

Question 12: What are the most prevalent ways of government facilitating investment in rail?

Question 13: Why are some instruments used more than others?

⁵ Note that the six monitored GTEs also include passenger rail operations (Rail Infrastructure Corporation NSW, Rail Corporation NSW, V/Line Passenger Corporation Victoria, VicTrack Victoria, Queensland Rail and the Australian Rail Track Corporation).

4.2 Potential negative outcomes from government-facilitated rail freight investment

As outlined in section 2, whenever governments intervene in markets there is a risk that the intervention will result in a relatively worse outcome (called government failure). The assumption that governments can effectively intervene to correct market failure rests on three key assumptions:

- government is able to clearly identify the specific market failure
- government is able to measure the degree of market failure
- government has both the instruments and capacity to correct the market failure

If these assumptions are not fulfilled there is a risk of government failure. For investments undertaken on the basis of market failures, government failure arises if government intervention lowers efficiency because the policy instrument produces unintended consequences. In those cases, the efficiency improvements that result from the government intervention are smaller than the efficiency reduction that results from unintended consequences.

The impact on efficiency from investment facilitation depends on a number of factors. Facilitation of rail investment by government has direct and indirect costs. The direct cost is the funding required to support the investment. The indirect costs are potential losses in economic efficiency that result from either a distortion in the relative prices between road and rail freight and/or the price of rail or road freight being set above marginal cost. Table 2 details how efficiency within the broader transport market can be impacted as a result of government investment in the rail sector.

While most private or public investments in rail freight are expected to increase efficiency and therefore productivity, government failure explains why not all investments will have a positive impact on productivity. The impact of investment on productivity growth depends on the outcomes from the investment.

In addition to the classic theory on market failure and government failure, rail investment facilitated on the basis of achieving social objectives has the risk of being ineffective. In this case, the outcome from government investment may be less equitable than the starting point due to unintended consequences. Even though it is inherently difficult to measure social outcomes, it is important to assess whether investments have achieved the objective they were based on.

Table 2: Impact on economic efficiency from government investment in the rail sector

Impact on efficiency	Impact on transport market (Input: rolling stock, heavy vehicles, road access, rail track access, land, labour, etc; Output: freight transport services)
Allocative efficiency – price exceeds marginal cost, distorting relative prices of road and rail freight	<p>Rail transport may become relatively more or less expensive compared with road transport so that consumers of freight transport do not choose the socially optimal mix of road and rail freight services.</p> <p>Providing (above and below) rail services involves high fixed costs. If a pricing distortion makes the relative price of rail higher than road, demand for rail will be reduced. Given the economies of scale involved in providing rail services, this may further increase the relative price difference, impact service provision and/or investment in rail track and signalling infrastructure and rolling stock.</p>
Productive efficiency – government intervention dampens incentive to minimise costs	<p>Provision of non-economic investment funding or the application of non-economic objectives to government rail businesses may reduce the businesses' incentive to maximise profit by producing services at the lowest possible cost.</p> <p>Rail businesses may also seek government funding rather than risk their own capital, especially in low-volume markets where competition or a variable freight task exists (i.e. changes in seasonal demand). Rail operators may also overstate costs or threaten to exit a market to receive higher government funding. Where rail businesses are required to provide services or track to meet social needs this may reduce their incentives to maximise profit where funding is not provided appropriately.</p>
Dynamic efficiency – government investment may reduce incentives to innovate	<p>Government rail funding that is contingent on delivering a particular technology or business model may reduce incentives to innovate</p> <p>Funding may be tied to businesses delivering particular services or making specific asset purchases, which can reduce incentives to develop new service models i.e. running shorter trains, offering different services or seeking out new technologies.</p>

Note: Appendix B provides technical details on the meaning and relevance of allocative, productive and dynamic efficiency.

4.3 The interaction between economic regulation and rail freight investment

The interaction between economic regulation and rail freight investment is an issue that has been raised by rail industry stakeholders in the past. Below rail infrastructure is subject to economic regulation. The impact of economic regulation on rail freight investment differs by rail market (e.g. minerals and coal, intermodal or intrastate). There are some examples where regulation may act as a barrier to investment.

An example of an impact of regulation on investment in the rail sector may be a reduction in the incentive for network operators to invest. In the rail sector, government regulation of network access and pricing is based on the existence of natural monopolies. Regulating access prices implies that economic regulators only allow rail network operators to earn a specific weighted average cost of capital (WACC) as a return on the regulated asset base. One of the unintended consequences may be a reduction of investments in projects with relatively higher risk because rail network operators cannot generate a relatively higher return for these projects. This may apply to both private and public sector investment. Often investment in innovation carries a significant amount of risk, but this is necessary to ensure dynamic efficiency. As a result, government intervention in the rail sector in the form of economic regulation may limit or even act as an impediment to dynamic efficiency.

Additionally, investment in below rail infrastructure is generally determined by network operators. Network operators have to consult with above rail operators to identify which network investments would have the largest benefits. As above rail operators are closer to the freight customers, it could be argued that infrastructure investment should be driven (and partly funded) by above rail operators as much as by below rail operators. While the impact on efficiency may differ by the specific rail market, the recent approach by the Queensland Competition Authority for Queensland Rail Network to develop a standard user funding agreement appears to be addressing this issue.

In some cases, economic regulation can also be seen as an enabler of government rail freight investment. The use of direct policy instruments for rail investment creates the need for economic regulators of rail networks to consider how to treat government grants. Rail network operators generally submit forward estimates of capital and operating expenditure to enable the economic regulator to include these in the regulated asset base. Economic regulators generally consider whether capital expenditure (i.e. investment) is efficient and prudent. However, this assessment is not applied for investment funded by government grants because they are not included in the regulatory asset base. The rationale for not including these assets is that the grant is intended to provide benefits to infrastructure users and this objective cannot be achieved if the investment is recovered through price increases. While there is an ongoing debate in all infrastructure sectors on the treatment of government grants that fund capital investment, economic regulators appear to be silent on whether investments funded by grants are efficient.

Question 14: When does economic regulation affect incentives to invest and act as a barrier to rail freight investment?

4.5 Assessing efficiency and effectiveness of government-facilitated rail investment

It is acknowledged that it is inherently difficult to measure market failures and the achievement of social outcomes. However, in order to minimise the risk of inefficient and ineffective investment, government needs to be aware of the need to identify and measure market failures or social outcomes, and subsequently select the appropriate policy response.

In most rail freight markets, a range of market failures and social issues will likely form a combined justification for government intervention. While it is theoretically optimal to design policy instruments to address each market failure or social concern separately, in some cases a balance will need to be struck between achieving social objectives and economic efficiency.

Question 15: What are the current frameworks for balancing economic efficiency and social objectives?

Question 16: What gaps exist in the current frameworks for balancing economic efficiency and social objectives? How can these gaps be addressed?

If there are gaps, there could be benefit in developing more specific guidance on how to assess the trade-off between efficiency and social objectives. This could be similar to the methodologies used for public benefit tests (PBTs).

Public benefit test – example

The *National Competition Policy* (NCP) review process was devised with a key objective of developing a more open and integrated Australian market that limits anti-competitive conduct. However, it is recognised that although increasing marketplace competition is generally likely to result in better resource use and substantial benefits to the community, this may not always be the case. The PBT is used to determine if restricting competition is likely to produce more socially desirable outcomes.

Using the PBT to ensure thorough analysis of the benefits and costs of alternative options is undertaken means that the NCP reform is only implemented where it can be proven that it is in the public's long-term interest. That is, that legislation should not restrict competition unless it can be demonstrated that the benefits to the community as a whole outweigh the costs, and that the objectives of the legislation can only be achieved by restricting competition.

A PBT may determine that restrictions to competition are likely to result in more efficient and socially desirable outcomes. However, this is not to say that all parties will be better off. The changes, although providing a net gain to the community, will often affect consumers and producers disproportionately. The implications of this are that more efficient outcomes may also be less equitable.

There are two questions that governments are faced with when selecting the appropriate policy response:

- What is the most appropriate policy instrument?
- To what extent should it be used?

In order to choose the optimal policy instrument governments need to be well informed about:

- the nature of the market failure(s) or social objective(s)
- how to determine the most appropriate instrument (e.g. accepting low rates of return, grants, funding for specific projects, funding of CSOs, etc)
- the risks of each instrument
- how to determine who should receive government support (e.g. rail track owner, rail operator, freight customer)
- if investment is required, the appropriate level of investment
- the timeframes and conditions attached to the support

Question 17: What guidance exists on how to choose the optimal policy instrument?

Question 18: What other things do governments need to be well informed about when selecting the optimal policy instrument?

Question 19: What are the difficulties or gaps in identifying the optimal level of rail investment? How could the gaps be addressed?

4. Evaluation and monitoring

The terms of reference for this paper have asked for the development of an improved evaluation and monitoring framework to assess whether rail investment achieves its objective. Section 2 has dealt with the issues around setting objectives for rail freight, whereas section 3 discusses the role of government in facilitating rail freight investment. This section deals with evaluation and monitoring of rail freight investment, which forms an important step in the policy cycle informing future decision making and therefore closes the loop between current and future policies and investment. Monitoring and evaluation of rail freight investment can also provide valuable information on unintended consequences of past policies and investments.

The main purpose of evaluating and monitoring policy outcomes is to improve future decision making. The optimal policy instrument to facilitate investment in rail may change over time. By learning lessons on the effectiveness of past decisions, better outcomes can be achieved in the future. As a result, a monitoring and evaluation framework can provide important feedback on:

- whether objectives have been achieved
- whether investment has improved economic efficiency
- the impact investment has on overall transport market efficiency
- whether policy instruments used are still optimal and required

There are a number of guidelines that describe how to design and implement a monitoring and evaluation framework. The current ATC guidelines include a step on ‘performance review’ that includes (Commonwealth 2006):

- post-completion evaluation – assessing actual versus desired outcomes and the effectiveness of investment
- review of transport system performance – assessment of the transport system against its objectives

However, the NTC is not aware of any guidelines targeted at the rail sector specifically. A monitoring and evaluation framework that reflects the unique characteristics of the rail sector may therefore improve the feedback loop between outcomes and objectives.

Question 20: To what extent is the current guidance on evaluation and monitoring applied to rail freight investment? To what extent is rail freight investment monitored and evaluated?

Question 21: What existing guidance on evaluation and monitoring is appropriate? Where are the gaps? Where does it need to be more specific?

Question 22: What are the issues around data availability? How can these issues be resolved?

5. NEXT STEPS

This discussion paper is intended to obtain feedback from government and industry to assist in the development of a draft policy paper. Submissions are due by 15 December 2010. NTC will provide opportunities for consultation throughout the development of the framework, and asks that interested parties please notify the NTC so they can be included in consultative forums.

A draft policy paper will be released for comment in the first quarter of 2011. A final policy paper will be released in the second quarter of 2011, providing a final opportunity for stakeholders to comment before the NTC submits a final recommended framework to ATC.

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GLOSSARY

above rail operators	Companies that operate locomotives and rollingstock. They provide freight transport services to freight customers.
below rail infrastructure	Physically fixed infrastructure such as track, sleepers, signals, terminals and yards (Productivity Commission 1999).
community service obligation	Arises when a government requires a public enterprise to carry out activities (relating to outputs and inputs), which it would not elect to do so on a commercial basis or which it would only do commercially at higher prices (Productivity Commission 1994).
externalities	Action by either a producer or a consumer that affects other producers or consumers but is not accounted for in the market price (Pindyck & Rubinfeld 2005)
interoperability	The capability to operate on any stretch of the rail network without any difference (EU 2004).
public utilities	An organisation that provides a basic service to the public, such as water, energy, transportation, or telecommunications.
natural monopoly	Where economies make it possible for one firm to supply the entire market more cheaply than a number of firms (Productivity Commission 1999).
microeconomic reform	Broadly speaking, microeconomic reform can be defined as government policies or initiatives aimed at improving the performance and/or the efficiency of industries or sectors in the economy (Forsyth 1992).

APPENDIX A GOVERNMENT INSTITUTION ACRONYMS AND INITIALISMS

ACCC	Australian Competition and Consumer Commission
NTC	National Transport Commission
PESSC	Productivity and Efficiency Standing Sub-Committee
COAG	Council of Australian Governments
ATC	Australian Transport Council

APPENDIX B THE RELATIONSHIP BETWEEN EFFICIENCY AND PRODUCTIVITY

Efficiency and productivity

The terms productivity and efficiency are often used interchangeably. However, over time economists have developed relatively precise definitions of each term, essentially to facilitate statistical analysis of productivity and efficiency in various sectors of the economy, and the economy as a whole.

In this discussion paper, broad definitions of productivity and efficiency are adopted, since the purpose is to promote discussion on how the existing frameworks might impede productivity and efficiency in the rail sector, as opposed to precise measurement of productivity and efficiency.

In this discussion paper the focus is on impediments to efficiency improvements and productivity gains. As a result, efficiency and productivity in the ‘production’ of rail freight is of primary concern, and in particular the role of investment in achieving improved productivity and efficiency in rail freight. As such, the following definitions of efficiency and productivity apply in the following discussion of production of rail freight services.

Economic efficiency consists of the following four elements.

Productive efficiency (sometimes called technical efficiency): Productive efficiency exists when goods or services are produced at the lowest cost possible and resources used in the production process are not wasted. Productive efficiency is achieved when, given a set of inputs, the maximum possible output has been produced. Put differently, once productive efficiency is achieved, it would be impossible to produce a greater output without consuming greater inputs. Thus, productive efficiency is based on the physical or engineering relationships between inputs and outputs (Coelli et al. 2005).

In the rail sector productive efficiency is a concept that can be applied to the below and above rail market. For example, productive efficiency in the below rail market could be achieved when the maximum amount of track infrastructure (measured by train paths availability at certain axle loads and speeds) is achieved for a given quantity of inputs. In the above rail market, productive efficiency could be achieved when the highest net tonne kilometres are produced, given the inputs such as labour or rolling stock.

Allocative efficiency: Allocative efficiency is achieved when the value consumers place on a good or service (reflected in the price they are willing to pay) equals the cost of the resources used in production. This occurs when prices are set at the marginal cost, which is the cost of producing one additional unit. Such prices ensure that scarce resources are channelled to their most highly valued use. Scarce resources are wasted when prices that are too low encourage overuse or prices that are too high lead to underuse. Allocative efficiency in transport markets is achieved when freight customers are able to choose between modes based on the marginal cost of each mode. If one mode is underpriced, perhaps because it is subsidised, then an inefficiently small amount of freight will be transported on the other mode, raising costs for the system as a whole.

Dynamic efficiency: Defined as increasing efficiency over time due to the development and adoption of new technology or processes. Dynamic efficiency implies that productive efficiency in rail freight increases over time. For example, in the above and below rail market, dynamic efficiency implies that the relative amount of inputs is adjusted when prices change.

Dynamic efficiency can also be shown through rail businesses adopting or developing innovative technologies or changing the mix of services offered.

Productivity: In this discussion paper productivity is defined in terms of improvements in economic efficiency over time.

There are a number of issues that can act as impediments to efficiency and productivity in general. For example, ill-informed decision making on investments, rationing of capital and a risk averse, short-term-focused culture that impedes investments in technology can all have negative impacts on productive efficiency and productivity.