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A Problem Looking for a Solution or a Solution Looking for a Problem? Economic Regulation of Railways in Logistics Chains

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INTRODUCTION

Railways, like most infrastructure industries in Australia, are subject to economic regulation to prevent abuses of monopoly power. Railways are part of logistics chains and, as such, their ability to abuse their market power depends upon the characteristics of those logistics chains. This paper examines the logistics chains which rail serves in Australia, and the availability of rents in each. It also examines the different types of rents and the effects each type might have on firm behaviour. Through an examination of these markets and rents, the paper assesses the appropriateness of economic regulation in the Australian rail industry.

Section Two examines the role of economic regulation and what it is designed to prevent. Section Three examines some of the theory surrounding rents and the likely consequences of regulation in the presence of various types of rents. Section Four examines the markets of rail's major freight tasks to ascertain the extent of economically damaging rents in each of these logistics chains and the likely behaviour of railways in response to these rents. Section Five concludes with comments on the appropriateness of regulation in these export chains.

THE ROLE OF ECONOMIC REGULATION

The role and purpose of economic regulation can be explained by reference to a simple diagram, shown in Figure One.

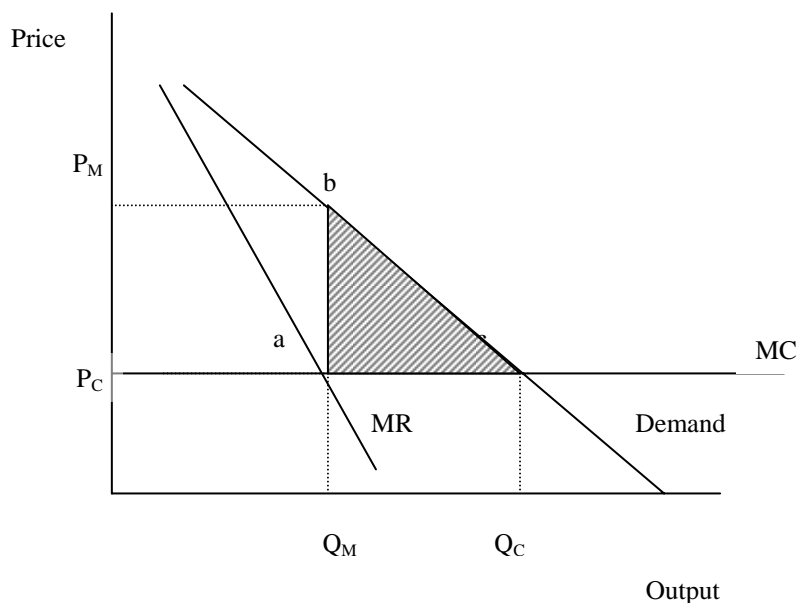


Figure One: Monopoly and Competitive Outcomes

Both the monopolist and the perfectly competitive firm produce such that marginal revenue (MR) equals marginal cost (MC), but the competitive firm also prices at MC, and hence

produces Q_C , whilst the monopolist prices where its output (Q_M) meets the demand curve. What is immediately clear from the diagram is that the monopolist produces less and at a higher price than a competitive firm. This has two effects. The first of these is a distributional effect; the monopolist earns more profits than the competitive firm. The second is an efficiency effect; less gets produced in an industry characterised by monopoly. Whilst the distribution of resources is important for policy-makers and politicians, it is economic efficiency which is the cornerstone of economic regulation. This is because the 'appropriate' resource distribution is usually a normative decision, made in a democracy by its elected representatives, not by its unelected regulators. Economic regulation thus concerns itself with the triangle *abc* in Figure One above. This is known as the deadweight loss, or Harberger Triangle. The issue for regulation is not that the producer simply receives more under monopoly, but rather that something does not get produced and resources are lost to all members of society.

Economic Regulation of Australian Railroads

Economic regulation of railways in Australia is undertaken by the Australian Competition and Consumer Commission (ACCC) and state-based regulators in each of the states except Tasmania. The prices of rail services are not regulated. Regulation is aimed at the below-rail infrastructure. The owners of the track infrastructure are obliged to provide access to third parties to the track on fair and reasonable conditions. The terms and conditions, as well as the price, of such access, are regulated. Access occurs either under Part IIIA of the *Trade Practices Act* or under State legislation. Most of the regimes are similar in character, but the requirement of interstate rail operators to obtain access to infrastructure under a number of different regimes can in itself be a time-consuming and bothersome restriction.

ECONOMIC RENTS AND LOGISTICS CHAINS

The characteristics of logistics chains are an important part of considerations of market power and its potential abuses. This section presents some theory on the nature of economic rents and the effects of different types of rents on logistics chains. This establishes a framework for considering, in the specific case of each major logistics chain served by Australian railways, whether economic regulation is the best way of ensuring efficient outcomes in the industry.

Types of Economic Rents

In broad terms, there are three types of economic rent. The key distinction between these three types of economic rent is the type of behaviour they induce, both in those who possess them, and in the economy more generally. Economic regulation is concerned with ensuring that economic behaviour is efficient and hence, where a particular rent is unlikely to change economic behaviour, regulation to prevent the abuse of market power seems misplaced.

Marshallian or Market Power Rents

Marshallian or market-power rents accrue to firms due to the structure of the market in which they operate. They are returns above those necessary to cover marginal costs which accrue because there are barriers to entry to a market which preclude competition from developing. Firms which are able to secure market power rents change their behaviour to that of a monopolist, reducing supply and increasing price, causing the efficiency losses or Harberger Triangles alluded to in Figure One and the accompanying discussion.

Schumpeterian or Innovation Rents

Schumpeterian rents are rents to innovation. In a static sense, they appear the same as a market power rent because a firm possessing Schumpeterian rents will increase price and reduce output just as a monopolist would. However, dynamically, their effects are very different. Innovation is only a short-term barrier to entry and firms which observe a rival earning Schumpeterian rents will endeavour to replicate that rival's innovations. This reduces the rents to that innovation.

Schumpeterian rents play a second crucial role; they are the price the economy pays for innovation and the improvements in dynamic efficiency which it brings. Since innovation is a fixed cost, it will not occur unless it can be compensated through super-normal profits.¹ Without innovation, an economy faces stasis, and this is seldom preferable to economic growth, regardless of the level of allocative efficiencies obtained.

Ricardian or Resource Rents

Ricardian, or resource rents are rents which accrue to a firm due to the nature of some of the physical assets which that firm possess and the scarcity of these assets. Resource rents very often pertain to minerals deposits, which are held by certain countries quite literally as a 'gift from nature'. Not all minerals deposits cost the same amount to work. For example, Australia has some of the lowest cost coal, iron ore and bauxite deposits in the world. These deposits are large, but not sufficiently large to supply the global market. Thus, in order to secure supply, global consumers of these resources must also secure some of them from higher-cost producers and these become the price-setters. In this situation, the owners of the lower cost Australian resources can earn a rent. Note that the Australian producer does not create the market price. The rents are earned because costs of production are heterogeneous for the homogenous good and demand is greater than the lowest-cost producer can supply. The important distinction between resource rents and market-power rents is the nature of the demand curve facing the firm in each case, and hence the response of the firm to that demand. Figure One shows the shape of the demand curve in the case of a firm with market power. Figure Two shows the case where a firm is earning Ricardian rents.

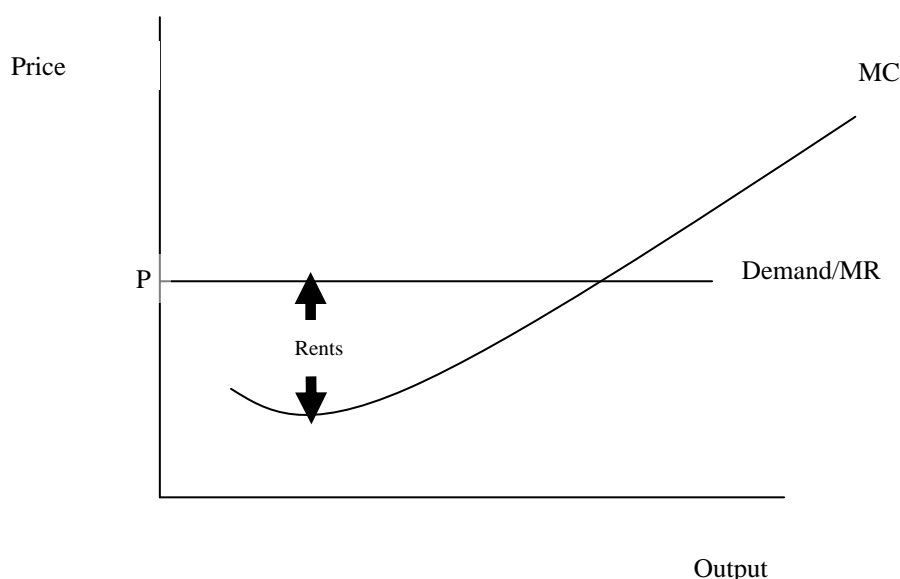


Figure Two: Demand Curve Faced by a Firm with Ricardian Rents

The firm faces a horizontal demand curve as the industry is competitive. It then earns the rents shown. This demand curve invokes quite different behaviour from the firm than the downward-sloping demand curve of a firm with market power. In particular, the firm has no incentive to hold back supply. If it holds back supply, since it cannot influence the price by doing so, it simply incurs losses. There is thus no resource misallocation.

¹ Unless it is funded exogenously, by government grants, for example.

Which Rents Matter?

The rents which matter, for the purposes of economic efficiency are only those which change behaviour away from that which would prevail in a competitive situation and do so in a manner which is either permanent or has no countervailing benefits. From this perspective, Ricardian rents are not of concern to regulators, because they do not result in a change of behaviour. Schumpeterian rents do not matter (in general) because they are relatively short-lived and because they are the mechanism by which incentives are given to incur the fixed costs of innovation are given. It is thus Marshallian or market-power rents which are of prime importance to economic regulation.

Rent in a Logistics Chain

Railways, like all transport, face a derived demand; they seldom serve final consumer demand, but rather form a link in the logistics chain which delivers goods to a final consumer market. The effect of railway exercising its market power in different types of logistics chains might best explored through some simple examples.

Consider first a market for groceries in a city which is served by a dozen supermarkets, each of whom is supplied by the same railway. Now, because of competition in the supermarket market, each supermarket might be unable to change its prices at all for fear of losing all demand to a rival supermarket. However, this does not mean that the overall market for groceries cannot be manipulated. The railway owner can go to each supermarket-owner in turn and offer them a take-it-or-leave-it deal whereby it increases price by ten percent. Since this does not alter the relative competitiveness of the supermarkets to each other (all face the increased cost of transport), each takes the deal because not to do so would result in no supply of groceries and the loss of all of their market share to a rival supermarket. In such a situation, the railway can act as a cartel manager. Figure Three shows what might occur.

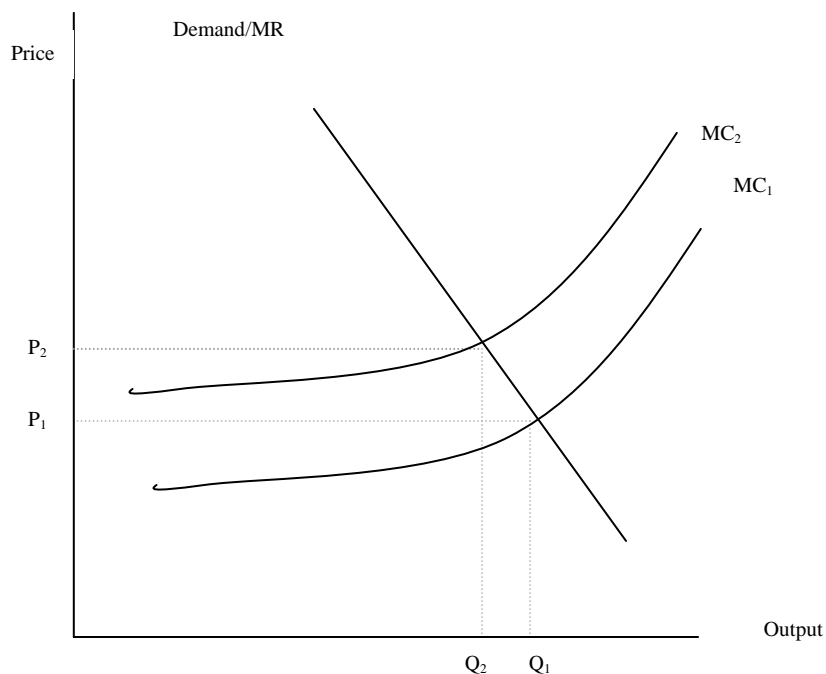


Figure Three: The Railway as a Cartel Manager

Prior to the increase in railway freight rates, supermarkets have a marginal cost curve MC_1 . The railway imposes its freight rate hike, and the marginal cost curve moves up, to MC_2 . This results in a reduction in supply and an increase in the price of supply which, because of perfect competition in the supermarket market, is captured by the monopolist railway. In this situation,

allowing third party access to the railway infrastructure may have positive welfare effects, provided above-rail competition is viable and does not impose costs of its own.

Consider now a railway serving a collection of coal mines, all of whom are supplying into a global coal market. Coal mines are subject to high sunk costs, and have a step-shaped marginal cost curve rather than the smooth curve shown in Figure Three. Also, the demand curve for coal is elastic, or flat, as the price for coal is set in global markets. In this instance, if the railway goes to each coal-miner in turn, suggesting the price increase of ten percent, there are three possible scenarios to consider:

- If all of the mines are earning no Ricardian rents, then all will be equally unable to pay the increased transport fee and hence the railway cannot make the threat.
- If all have the same costs and all are earning Ricardian rents, then, provided the increase in transport costs is not greater than the value of the Ricardian rents, then all will pay and the only effects will be distributional.
- If all have different costs and some costs are such that an increase in transport prices will make some uncompetitive, then these may fail and leave the market, and the supply curve of delivered Australian coal may shift inwards.

The first scenario is illustrated in Figure Four and the second and third in Figure Five.

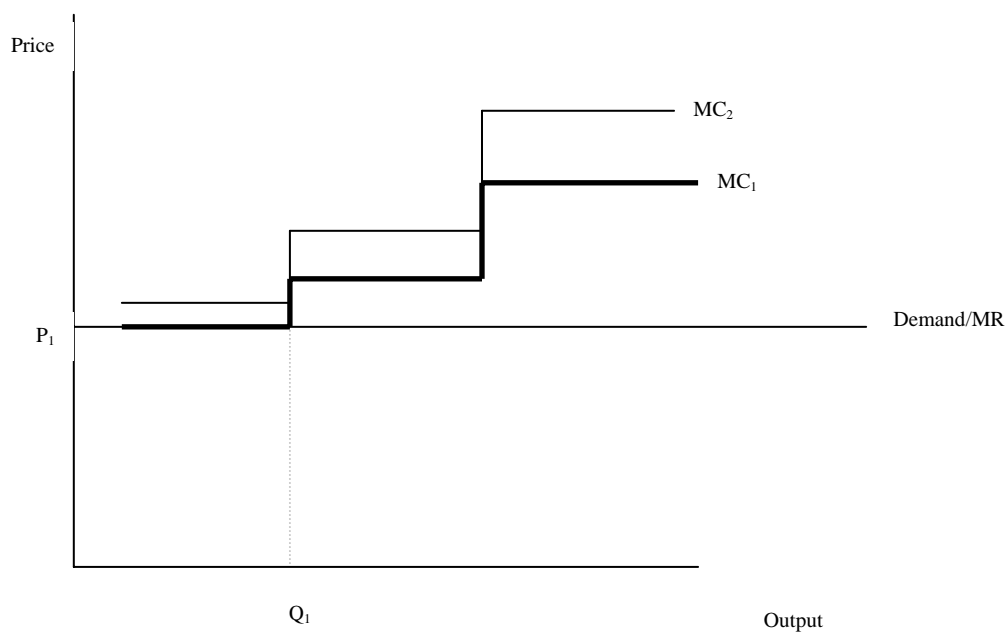


Figure Four: A Railway Price-Hike with no Ricardian Rents

In this instance, if the railway increases the railway freight charge, the costs of the shippers using the railway will exceed the price available in the market, and their output will thus drop to zero.² In such a situation, the railway has no incentive to raise its price above the costs of serving that particular shipper as to do so would mean the whole value of the shipment would be lost. A third party access regime would have no effect on this case, as access regimes do not create extra capacity, but rather ration existing capacity.

² Note that this can occur regardless of whether the marginal cost curve is stepped or a curve.

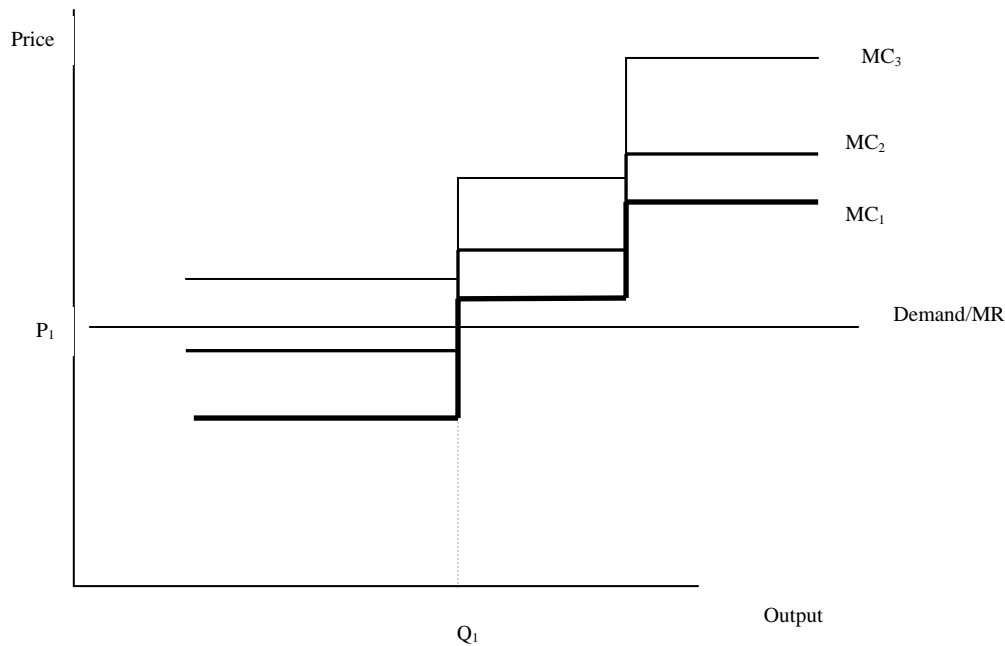


Figure Five: A Railway Price Hike with Ricardian Rents

In Figure Five, the price increase by the railway first increases the cost curve of the coal mine from MC_1 to MC_2 . In this case, the effect on output is zero and all that occurs is that the railway captures more of the Ricardian rents being earned by the mine. This is the second dot-point discussed above. The provision of a third party access regime will make no difference to the overall output of coal, or to its price. What it will rather do is ensure that the coal mine recaptures the Ricardian rents as rival above rail firms compete for carriage. If, however, the railway increases its prices further, so that the marginal cost curve of the mine is MC_3 , the mine is no longer viable in the world market, and fails. In this case, a third party access regime which allowed the coal mine to move its costs down would have an output effect, but it would have no price effect, as prices are set in the global market.

However, consider the strategy of raising the price of coal haulage such that the costs of the mine are raised to MC_3 . Is it worthwhile? Due to the stepped nature of the marginal cost curve, the railway faces the risk of losing all coal haulage from the mine priced out of the global coal market by its actions. Alternatively, if Figure Five was drawn such that the intersection between the MC curve and the demand curve was at the second step, it would risk losing all of the coal haulage at the second level of mine capacity as the mine found it only profitable to produce at the lower level of capacity. Since the relationship between the increase in price (for the railway) and the revenue lost through the mines becoming unviable at a certain capacity is nonlinear, the railway would only have an incentive to increase rail prices if it could recover more revenue through exercising its monopoly power and appropriating the Ricardian rents of the lower cost mines which do not leave the market than it would lose when some or all of the capacity of the high cost mine is removed. There are thus two situations whereby the railway has an incentive to raise the price of railways services when this will cause output of a mine to decrease:

- The mine which fails is very small relative to the whole coal haulage market or, if it simply moves down a step in capacity, these steps are fairly close together so little output is lost when the marginal cost curve rises.
- The mine which fails (or reduces output) is much more costly than the next most costly mine, so that there are large Ricardian rents in other mines.

Logistics Chain Rents With Price Discrimination

The discussion above makes an implicit assumption that the railway operator charges a single price to all shippers of a given type; all coal miners, for example. However, the monopolist railway provider need not charge the same price to all coal miners but might rather structure charges such that the price demanded of each coal mine was just sufficient to extract all of the Ricardian rents from that coal mine, and was thus different from the charges levied on all other coal mines. This is a form of price discrimination by the railway.

Such a pricing regime need not affect the static efficiency of the industry, provided the railway extracts no more than the Ricardian rents from each mine. The Ricardian rents may, however, be difficult for the railway to perceive, as it faces an informational asymmetry in regards to the cost curve of each mine. If the railway errs on the side of caution and assumes the costs of each mine are higher than they actually are (as indeed, the mines will endeavour to convince the railway is the case) then this need not cause any efficiency concerns. If, however, the railway errs on the side of aggression in pricing, this may force some mines out of the industry and, in this situation, the provision of a third party access regime may prove beneficial to the industry.

MARKET POWER IN LOGISTICS CHAINS SERVED BY AUSTRALIAN RAILWAYS

If economic regulation is intended to address problems associated with the exploitation of market power, then it seems sensible to examine the logistics chains of which rail is a major part in Australia to determine what kind of market power rents are available in them. Figure Six shows the major logistics tasks for the Australian rail networks.

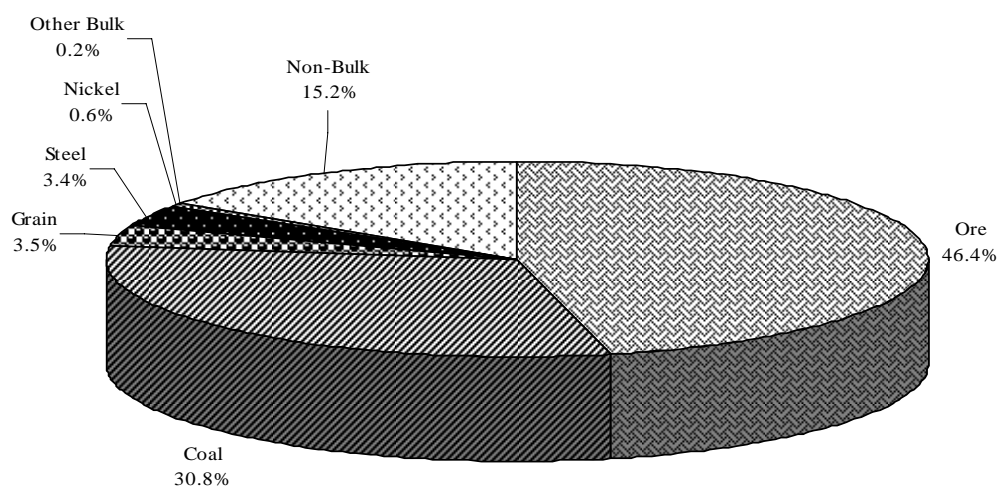


Figure Six: Major Rail Tasks, 2003, (billions of ntk) (ARA, 2003)

Iron ore and coal make up almost 80 percent of the freight task. Grain has a relatively small share, but is important because of the large network required to support it. Alumina and bauxite are not shown on Figure Six above because they are only hauled a short distance, even though their tonnages are large (more than steel, nickel and grain). Due to these large tonnages, bauxite and alumina are also examined below. Most of the non-bulk freight is intermodal freight, although a small portion of it is motor-vehicle carriage and other freight.

Market Power in Iron Ore

The iron ore industry and market power within it have recently been the subject of inquiry by the National Competition Council (NCC) in its deliberations as to whether the BHP-Billiton iron-ore railway in the Pilbara should be subject to third party access. The NCC made its decision to declare the infrastructure on the basis of the effects on the market for iron-ore tenements and for rail transport services. On the question of the global iron ore market, however, the NCC came to the firm conclusion that it was a highly competitive, global market, and that the existing mining companies were unable to exercise any market power within the market (NCC, 2005).

If the market for iron ore globally is competitive, it remains to examine the cost structure of the industry. Unlike Figure Three the railways supplying iron ore in the Pilbara are at present vertically integrated into the rest of the mining operations of the parent companies. As such, the railways have an interest only in cost minimisation and none in attempting to extract monopoly rents from the mining company which are part of the same company.

Consider in more detail what would occur if an access regime were in place and one new player enters the rail service market. The railway owner is an iron ore company and the only other service using the link is its own. The entrant is also in the same iron ore market. There is thus only one set of Ricardian rents (other than the incumbent's, which it in any case fully captures) for the incumbent to earn, those of the entrant. The rational response of the incumbent is to price such that all of the Ricardian rents of the entrant are captured in the price of access to the rail infrastructure. This will not change the output of the iron ore industry, nor the price it receives in global markets. Even if this strategy causes the entrant to depart the market and the incumbent to take over the entrant's operations, there would still be no impact on either output or price. It is thus difficult to see a rationale for providing third party access to infrastructure in this case.

The situation changes if a third entrant enters and the incumbent can charge only one access price. Now the incumbent, as with the coal railways, may face an incentive to force one entrant from the market in order to appropriate a larger share of the rents of the remaining firm. In this case, a third party access regime may prove useful, but even here the same effect could be gained by the incumbent enforcing differential haulage charges.

Market Power in Coal

On average, over the past eight years, Australia produced approximately 21 percent of the world's thermal coal exports and 52 percent of its coking coal exports (ABARE, 2005). This seems like a substantial market share, but Australia produces only six percent of total coal production, and domestic coal is a close substitute for imported coal; the more so when one of Australia's largest customers is also the largest producer of coal in its own right and has recently begun investments which will add some 500 million tonnes (or twice total Australian hard coal production) to its coal producing capacity (ABARE, 2006). Both the US and South Africa are also able to act as swing producers; selling coal in global export markets when prices rise.

Further evidence of the competitiveness of global coal markets was seen in 2005. At the beginning of the year, the thermal coal market was very tight, and spot market prices were very close to contract market prices. During the course of the year, Indonesia increased its output by almost 20 percent, and by early 2006 spot market prices were ten percent lower than contract prices and contract prices paid by Japanese consumers had decreased from US\$52.50 per tonne to US\$41 (ABARE, 2006). This is how competitive markets operate.

It remains to examine the nature of coal production in Australia, to ascertain whether there are large differences in the cost structures of mines, and hence a prima facie case that railways

serving coal mines to have an incentive to price some out of the market. Note that, unlike iron ore, the railways serving coal mines do not export coal themselves, and also that there are a large number of coal mines. The Productivity Commission (PC, 1998) undertook a benchmarking study of some 27 Australian coal mines against their peers overseas. The study is roughly contemporaneous with the advent of access regimes in coal chains and suggests some interesting results. In general, it finds that the larger Queensland mines perform better than NSW. In terms of truck and shovel operations, the study finds that Queensland mining productivity ranges from seven percent below US best practice to 46 percent below, whilst NSW mines range from 19 percent below to 57 percent below. In terms of dragline operations, there was a gap of 30 percent between the best and worst performers, and in long-wall mines, the best mine was ten percent below US best practice whilst the average was 25 percent below.

The 27 mines in the Productivity Commission study represent 40 percent of coal production. Given that around 100 mines are in operation, the sample seems likely to be biased towards larger operators and that the true range of costs is even higher than the study's findings suggest. It would thus seem that there is a risk that a monopoly railway could price smaller mines out of the market, and hence that the decision to institute a third part access regime on the coal export chains was not an unwise one.

Market Power in Aluminium

Thirty years ago, it might have been appropriate to consider the influence of market power in world aluminium markets, as 'producer prices' were set by the dominant firms in the industry. However, since 1978, aluminium has been traded on the London Metals Exchange and aluminium contracts are now predominantly based on these market-determined prices. Moreover, whilst Australia produces around a third of the world's bauxite and alumina (AAC, n.d.), much of this is for vertically integrated aluminium producers with global operations. Australia only produces around seven percent of the world's aluminium (ABARE, 2006).

Again, it seems difficult to conclude that global aluminium markets (or, by extension, those of its precursors, bauxite and alumina) are anything but competitive, particularly given the market-made price. It remains to be considered whether the cost structures of the bauxite mines, alumina refineries and aluminium smelters around Australia are such that there would be an incentive for an incumbent railway to price such that one was forced to leave the market or lower output. Refineries on the East Coast of Australia (Gladstone in Queensland and Gove in the Northern Territory) do not receive their inputs by rail, but by conveyor or by ship.³ It is the operations in Western Australia which are thus of interest. There are four refineries in WA, three owned by Alcoa and one by Worsely Alumina. Detailed cost data for the Alumina refineries are not available. However, aside from the cost of energy, in general cost depends upon the scale and age of the refinery. Kwinana is the oldest and smallest of the four refineries, followed by Wagerup and then Pinjarra and the Worsely refinery. The latter two are roughly the same scale and age. If all four refineries were in separate ownership, there may be scope for an incumbent monopolist to price such that the Kwinana refinery were priced out of the market and Ricardian rents were obtained by the remaining three. However, the fact that three of the four are owned by Alcoa means that this is less likely as Alcoa has some ability to cross-subsidise between refineries in order to make them viable. As such, the case for third party access to railway lines serving the alumina market seems weaker than it is for coal.

³ Although Gladstone does receive coal via rail for power generation. Bell Bay has a short rail link to the adjacent port but there is no access regime in Tasmania at present. The Aluminium smelters in Victoria and NSW are not served by rail.

Market Power in Grains

Australia produces around three to four percent of the world's wheat, one and a quarter percent of the world's coarse grains and less than one percent of the world's oilseed (Connell, Barrett, Berry & Sheales, 2003). Around 60 percent of Australia's grain crop is exported, meaning that Australia enjoys a higher share of the global export trade in these commodities; 16 percent of wheat, 17 percent of barley, three percent of coarse grains and two percent of oilseeds (PC, 2000). However, there appears to be little evidence that these market shares are sufficient to impart any degree of pricing power to Australian grain producers. The Productivity Commission (PC, 2000), examining the single desk policy for the sale of Australian grain, find no evidence that this policy affords Australian grain growers any ability to influence global grain prices, even when the AWB endeavours to strategically target certain sub-markets in grain. Grains have been traded on commodities exchanges in the US from the late 19th Century and are now traded on bourses around the world. Each of the grain types has a benchmark grain price against which contracts are quoted. The major influences on the supply-side of the global grain market appear to be the weather and government subsidies to grain farmers depressing global prices. The Productivity Commission (PC, 2005) reports subsidies to Australian wheat farmers are less than a tenth of the OECD average.

Australian grain producers and their monopoly marketing agencies appear to have little ability to influence global grain prices, meaning Australian grain producers face the same horizontal demand curve as minerals producers. However, their cost curves are more likely to be curves than stepped due to the smaller fixed costs in farming. This provides more of an incentive for incumbent monopolist railways to raise prices and potentially force some farms out of business. There would thus appear to be a prima facie case for allowing third party access to grain lines, and indeed, once access became possible in Victoria, the first applicant was a grain handler.

There are three caveats, however, to the above statement. Firstly, railways face competition in their grain haulage tasks from trucking. As with intermodal freight below, if the competitive trucking industry is able to provide an effective cap to rail freight prices for grain, then this is a more efficient solution than third party access and regulation. Comparing freight rates for truck and rail is fraught with difficulty, because cents per net tonne kilometre (ntk) for both modes decrease as distance increases, and do so at a different rate. However, Sd+D (2004a) in assessing the Victorian network, suggest grain freight prices would increase 25 percent in the absence of rail freight options. In South Australia, by contrast, the figure is only three percent. In WA, road freight costs for grain range from 6.24 cents per ntk for distances of more than 200km to 7.49 cent per ntk for distances of less than 50km. For rail, the equivalent figures are 4.02 to 7.57 cents per ntk and are thus roughly comparable, particularly as distances decrease. In NSW, a recent study was undertaken comparing the costs of haulage on a number of marginal lines with the cost of the same haulage by road (GIAC, 2004). A plot comparing annual maintenance costs per ntk against the length of the haul is presented in Figure Seven.⁴ The rail figures are indicated with blue dots and the road figures with red triangles. These rail links represent perhaps a 'worst case scenario', as they are amongst the rail links with the highest costs relative to an equivalent road haulage task. Clearly, in this worst case, there is little point in regulating rail rates, as rates in the road freight industry will ensure that rail cannot even recover its costs, let alone earn monopoly rents.

⁴ The study also incorporated the need to upgrade both the road and the rail network, and these infrastructure costs are not included here, as current rail charges are based only on maintaining the rail links on a 'fit for service' basis. Rail investment figures were provided for three scenarios and road for one scenario. In general, the rail figures were several multiples of those for road.

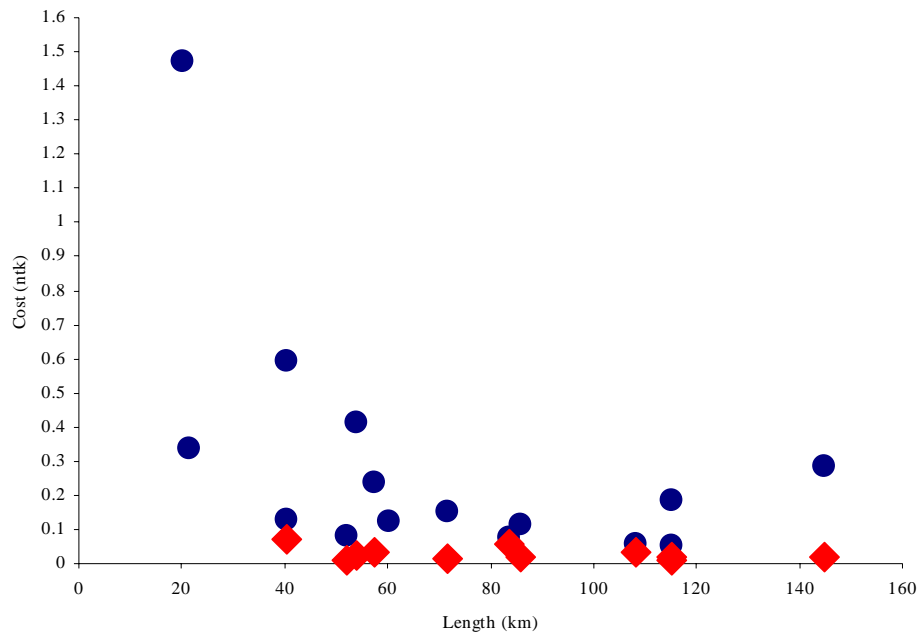


Figure Seven: Road and Rail Maintenance Costs per ntk Against Route Length (NSW Case Study GIAC, 2004)

Secondly, railways do not really face a large group of farmers as their customers for grain haulage. The single-desk policy for grain exports and the small number of bulk grain handlers mean that there is significant monopsony power to counteract the monopoly power of the railways in each state. In such situations of bilateral monopoly, regulation is unlikely to achieve much by way of allocative efficiency.

Thirdly, it may be reasonably argued that the main problem facing the grain rail network at the moment is not competition in haulage, but the very viability of rail as a hauler for grain at all. The grain rail networks were constructed more than a century ago and many links have seen little or no maintenance expenditure in decades. Arguably, viability is a more urgent focus than competition, and indeed it seems a little odd to concern oneself with a potential monopoly rent which arises from an asset base which is itself close to failure, as the rent may disappear along with the railways unless some other solution to improve the viability of the networks is found. Thus, whilst third party access to some grain links may be appropriate, access as a general principle for grain networks seems misplaced.

Market Power in Steel

Steel hauled on railways is not, in general, for the export market, but rather for domestic consumption. The steel is used in such a wide variety of markets that it is impossible to generalise as to the market power of end markets. However, at least some major end markets, such as construction, are highly oligopolistic and thus there would appear to be at least some market-power rents available in these chains, providing some potential for rent extraction by the railway carrying the steel. This would seem to indicate a prima-facie case for third party access and regulation.

However, there are only three steel producers in Australia who use rail haulage; Bluescope Steel in Newcastle, Smorgon Steel in Victoria and One Steel in Whyalla. Each uses a different railway to haul its steel for a large part of the journey. Thus, one has a bilateral monopoly, with two equally powerful parties in negotiation. The railway is also tied to steel haulage to a certain degree, because efficient haulage of steel requires specialist wagons which cannot be used for any other purpose, which gives the steel-makers additional bargaining power in negotiations.

There is nothing intrinsic about a bilateral monopoly bargaining situation which provides an advantage to one side over another; advantage rather depends upon the negotiating skills of each of the parties in the negotiation. More importantly, from a public policy perspective; if the problem is monopoly rents in the logistics chain which delivers steel to final markets, then addressing one link in the chain in isolation will not lower rents, but will simply transfer them to other links in the logistics chain. Indeed, a third party access regime in networks serving steel markets would be to the distinct advantage to the steel producers as they are a monopsonist on each line and, if a second above-rail shipper arose, they could play each shipper off against each other to capture more of the monopoly rents for themselves. There thus does not appear to be any overwhelming public policy case to be made that third party access on steel networks would lead to a significant degree of welfare improvement.

Market Power in Intermodal Freight

Intermodal freight, like steel, serves a domestic market and faces a downward-sloping demand curve for the products carried by rail in each of the markets which are served by the rail links. As such, it would seem there is a prima facie case for third party access to rail links serving the intermodal freight market.

There is, however, a caveat to this statement. Like grain, intermodal freight railways face competition from trucks, which also carry the same freight. In fact, in general, the prices for haulage are set by trucking and followed by the railways. If it is the case that the cost differentials between the two modes is very small, then arguably, the competitive trucking industry could be equally, if not more effective than regulation in ensuring that railways do not exercise their market power.

The ACCC (ACCC, 2001) assessing the Australian Rail Track Corporation (ARTC) network notes that the ARTC's returns appear lower than the full economic costs of its capital and that a lack of cost-recovery is unlikely to eventuate in the absence of competition. It further notes that, whilst the ARTC is intending to move towards a position of full cost recovery, it (the ACCC) does not believe this will be achieved during the course of the life of the first access agreement. Indeed, the ACCC seems more concerned about dynamic inefficiencies resulting from the ARTC being unable to earn rates of return sufficient to fund investment into the longer term than it is about abuses of market power.

The ACCC also believes that a substantial portion of ARTC's business (both non-bulk freight and passenger) is highly elastic, due to the existence of a competing road sector. For this reason, the ACCC suggests that the ARTC would be unlikely to be able to increase its prices or reduce its service levels compared to those extant at the time of its draft decision (ibid). The ACCC goes on to say that this provides a strong incentive for the ARTC to negotiate prices which ensure that freight will be carried by rail, and that it disagrees with suggestions that the company will ignore the effects of pricing on competition. From the ACCC's discussion, it seems unlikely that the ARTC is extracting many monopoly rents. This, however, may be because of decisions that ARTC have made in relation to how they structure their access charges, and the rents extracted by the rail industry (of which it could capture more, if it so chose) may be higher. This issue is examined by examining the relative cost structure of rail and road directly.

The Australasian Railway Association (ARA, 2005) has undertaken an exhaustive study of road and rail freight costs. Whilst the ARA is a lobbying agency for the rail industry and the report was produced to advocate more cost recovery from trucking (meaning that the costs of rail may be overstated and those of trucks understated), the report rigorously documents its sources and uses, where possible, the assumptions of independent agencies such as the National Transport Commission. As such, distortions do not seem to be too egregious. A

simple comparison of costs between road and rail from the document is reproduced below, in Table One.

Table One: Road and Rail Costs by Corridor (ARA, 2005)

Corridor	Road (c/ntk)	Rail (c/ntk)	RIC-Efficient Rail (c/ntk)
Sydney-Brisbane	6.4	6.6	4.3
Melbourne-Sydney	6.0	6.9	5.5
Melbourne-Brisbane	5.8	5.9	3.8
Melbourne-Adelaide	6.6	3.8	3.8
Adelaide-Perth	6.3	2.6	2.6
Melbourne-Perth	6.1	2.8	2.8
Sydney-Perth	5.7	3.5	2.5

Two sets of figures are presented for rail, to take into account the costs which would eventuate if perceived inefficiencies in NSW’s rail network (which was managed by the Rail Infrastructure Corporation, or RIC, at the time of the report) were addressed. From Table One, it is clear that rail has a cost advantage only in only East-West freight, where there seems limited scope for trucking to act as a constraint on railway freight rates. It would thus seem that, in this case, there may be a need for separation and regulation on this corridor, provided there is sufficient freight on it to induce competition in the above-rail sector.⁵

Figure Eight shows how road and rail freight rates compare over the past few decades.

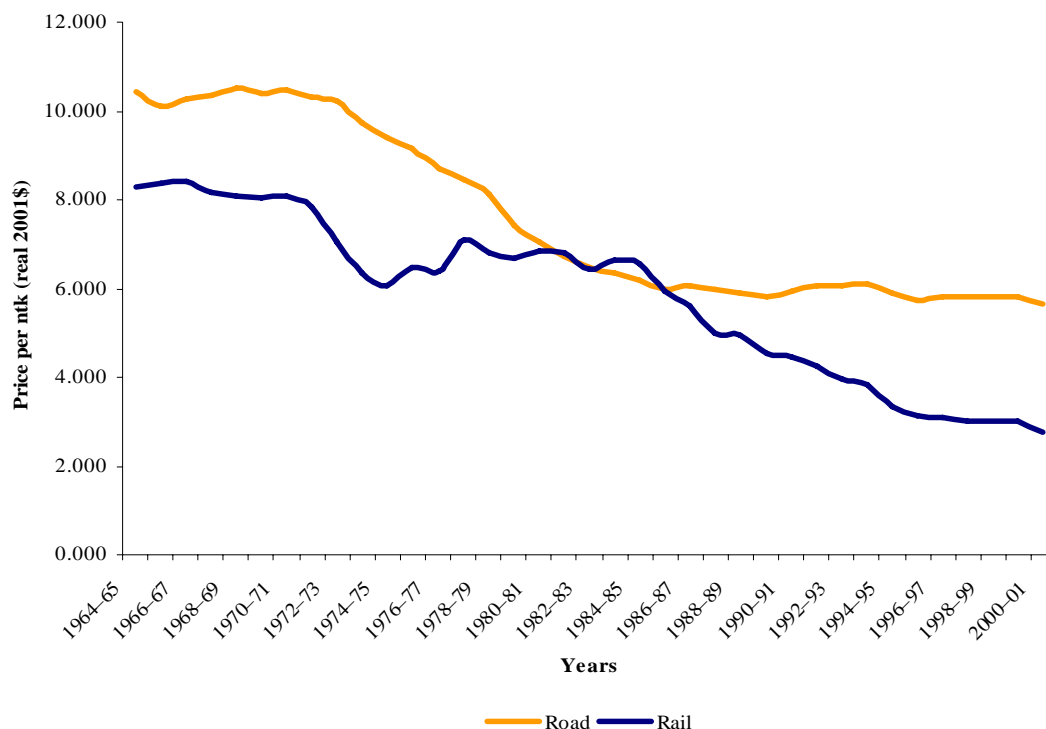


Figure Eight: Road and Rail Freight Rates (BTRE, 2002)

⁵ This is the implicit assumption underlying all conclusions in regards to the likely success of regulation; if there is no scope for either competition or contestability in the above-rail sector, then separating the business into above and below rail will not induce the benefits of competition. The issue is one of the subadditivity of the above-rail task. On the East-West link, however, there has been competition, albeit only a small portion of haulage, ever since third parties were first able to gain access to the track, more than a decade ago.

Converting the ARA's cost figures 2001 dollars, the costs of the railway freight task ranges from approximately 2.34 (2.25 cents if efficiency improvements are made in NSW) to 6.22 cents per ntk, whilst road ranges from 5.14 cents per ntk to 5.95 cents per ntk. By comparison, the rates in 2001 were 5.66 cents per ntk for trucks and 2.75 cents per ntk for rail. These are average rates for the country as a whole and the road freight rates were based on all different truck configurations, whilst the ARA cost figures are based solely on B-doubles. Even so, it seems likely that only the longer links between Adelaide and Perth and Melbourne and Perth have railway rates greater than the cost of rail service provision.

If we assume that the cost structure of the railways corridors in 2001 was the same as in 2005, and that the East-West corridor charged the average rate from Figure Eight, this means that costs were 2.34 cents per ntk between Adelaide and Perth and 2.52 cents between Melbourne and Perth. If we assume rates on both links are 2.75 cents per ntk for all freight,⁶ this means profits of roughly 0.41 cents per ntk for Adelaide-Perth and 0.23 cents per ntk for Melbourne-Perth. According to the Australian Bureau of Statistics (ABS 2002), some 3.9 billion ntk of freight travelled between Victoria and Western Australia, and a further 1.1 billion ntk travelled between South Australia and Western Australia by rail. Assuming all of this freight earned the same profits, this represents roughly \$18.76 million in monopoly rents on this corridor. Sd+D (2004b) suggest that 60 percent of the freight on the East-West link is non-bulk freight. Bulk freight (with the exception of steel) is generally priced at rates much lower than intermodal freight. If we assume bulk freight rates are equal to average costs and no monopoly rents are earned from bulk freight, then this gives a lower-bound figure of \$11.25 million. For other corridors, the figures would be zero or negative by the same calculation mechanism. As rough guide, National Rail Corporation's revenue at the time was in the order of \$400 to \$500 million per annum, so this rent equates to between 3.7 and five percent of revenues.

It seems, then, that the potential monopoly rents available on the East-West link are not trivial.⁷ However, the ARA's cost figures and the ACCC's assessment of ARTC's network in general suggests that many other lines show little ability to earn monopoly rents. Thus, in a similar manner to grain, it seems there is a stronger case for a line-by-line assessment of potential monopoly power and hence of regulation than for a regulatory regime imposed on the network in general.

CONCLUSIONS

From the discussion above, there appears to be a strong case for third party access in coal chains, a weak case for access in aluminium, iron ore and steel and a case for a line-by-line assessment in the case of intermodal freight and grain. This conclusion is made, however, with three important caveats:

- The desktop examination of the cost structures conducted for this paper was cursory and provides a basis for questioning the current policy, though not yet for altering it.
- Arguments presented here relate to static efficiency, which is what the neoclassical frameworks of regulation is designed to maximise. The distributional effects of railways capturing more of the Ricardian rents in export logistics chains could have some important dynamic efficiency ramifications which are not captured here. For example, if railways capture most of the Ricardian rents in an alumina chain, the alumina producers would have

⁶ And make the implicit assumption that this rate is based upon competition with trucking rather than being set by public policy.

⁷ In its access arrangement, ARTC proposes rates which the ACCC (2001) believes will not even earn a the cost of capital still less a monopoly rent, which suggests that much of the rent is taken by above-rail operators. However, Part IIIA is based on the potential of market power abuse, not actual abuse and the fact that the ARTC had not abused its market power in the past would not, in itself, excuse it from regulation in the future.

few incentives to expand output. New entrants to the mining industry may also be deterred. By the same token, if third party access results in railways not being able to capture any of the Ricardian rents in minerals export chains, then this may dissuade expansion by existing railway operators of their capacity, and act as a deterrent to future investment by new entrants in the rail industry. Since rail is used for more than just carrying minerals, this could have important widespread implications.

- No comment has been made here about the technical efficiency of the existing railway compared to a potential entrant. It could be, for example, that the incumbent is not particularly technically efficient and the marginal cost curve for the whole logistics chain could be shifted downwards if the incumbent could be moved out and another monopolist take its place. For example, the Productivity Commission (PC,1998) investigating the black coal industry in NSW and Queensland at the outset of the recent decade of reforms in rail, suggested that the productivity of Australian coal rail operations was some 20 percent below that of better overseas operations. Clearly, a third party access regime may have assisted improving productivity in these coal chains by providing a strong incentive for productivity improvement through the pressures of contestability.
- Rail is carrying numerous types of freight, and the logistics chains described in this paper are often interlinked. It is difficult, in reality, to talk about “the coal export chain” or “the intermodal network” as we have done here because trains serving both markets often utilise the same tracks. However, the findings of this paper may mean that there may be merit in examining each rail link and the freight which is carried upon it, allowing access where a sufficient proportion of the freight task is (or could be shown to become) made up of the commodity where third party access is warranted and avoiding the costs of an access regime where it is not. This is not a perfect solution, but it is unclear whether the outcomes would be worse than they are at present.

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