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National Competition Policy Access Regimes and the National Interest

The case study of Pilbara iron ore

Prepared for

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Summary

- The landmark Hilmer Committee report set out the original framework for Australia's National Competition Policy in 1993, part of which was for a National Access Regime that provided for access to infrastructure by a third party.
- The original Hilmer report, and subsequent investigation and report by the Productivity Commission, highlighted the potential costs of regulating access to infrastructure by third parties and argued that a clear case be made that benefits outweigh costs before intervention occurs.
- The Prime Minister's Exports and Infrastructure Taskforce recently reinforced these points, pointing to the highly competitive world market exporters operate in and the need for careful application of cost benefit analysis before intervention by regulators. The authors recommended further tightening of the regulatory hurdles, one of which is the national interest test, for questions of access to export infrastructure.
- There is a convenient case study to demonstrate the importance of this recommendation. It is in the access to rail infrastructure in the Pilbara iron ore industry.
- The Pilbara iron ore industry generates \$15 billion annually in export earnings, contributes 1.5 per cent of GDP and represents an investment worth over \$35 billion in production capital and infrastructure, part of which is extensive railways. The rail infrastructure has been fully built and paid for by private companies. The size of these investments mean that only small changes in uncertainty and the cost of capital can have important ripple effects to the national economy.
- The National Competition Council has provided a draft recommendation for granting access by a third party to the railway line from Mt Newman to the Port Hedland.
- National Competition Policy was introduced because it is in the national interest. The policy is given effect through a set of legal rules and criteria to promote competition and national welfare.

- But legally determining compliance with a set of criteria that are, in effect, proxies for the national interest does not constitute a rigorous national economic benefit cost test.
- The issue should be a matter of economics, which can incorporate trade-offs and ‘shades of grey’ in various claims of national benefits and costs rather than ‘black and white’ legal determinations. Also, indirect benefits and costs have to be considered and these can only be addressed through an economic framework. The impacts of any change in competition policy in the iron ore export industry are indirect, and mediated through other economic relationships such as the exchange rate. Formal modelling is required to make an assessment of these.
- The framework for assessing national benefits and costs requires an economy-wide modelling exercise since two ‘states of the world’, one with access granted and one without, cannot be observed at one time. Known economic behaviours and relationships have to be modelled to project the course of action under the two different states of the world. Economy-wide analysis is required to capture all direct and indirect flow-on effects.
- The national benefit from granting access by a third party is the extra value of iron ore production in excess of the extra costs of producing that extra ore. It is the extra net contribution to Australia’s Gross Domestic Product over and above what the capital and labour resources could have contributed to national welfare if engaged in the next best activity in the country.
- The extra national costs of providing access to the infrastructure are the investment delays and the increased uncertainty about the security of investments by mining companies operating in the region. Any extra uncertainty from investment increases the cost of capital. On top of these costs but not modelled here are the regulatory and legal costs.
- Using two different but well-known economy-wide macroeconomic models of the Australian economy shows that the potential national economic costs from applying the access regime to the iron ore industry are likely to be much higher than the potential national benefits.
- Using plausible assumptions the benefits are at most around 0.01 per cent of GDP or around \$100 million, with real consumption around 0.02 per cent higher. The benefits stem from avoiding the cost of building additional railway lines and hence increasing the productivity of capital in the industry. The impacts on consumption come via a slightly higher exchange rate and slightly higher wealth.

- On the cost side, the direct effects are divided between the costs of a delayed supply response to world market conditions, and the possible increases in risk premia in the industry due to the same delays:
 - Taken together the cost to GDP could be around 0.15 of a per cent per year and the cost to household consumption around the same size.
 - While the effects on either side might appear small and uncertain, they are permanent — they occur year after year. The net present value of an annual loss of \$1.5 billion over 20 years using a real discount rate of 5 per cent is \$20 billion. Because they are permanent they are equivalent to a large change in the wealth position of the community. In other words a lot is at stake in what might at first glance seem to be a fairly minor policy change.
- It is important to acknowledge uncertainty in the above results. It is difficult to know the exact counterfactual. Would a declaration remove the need for another railway to be built, or would one be built anyway? Without a declaration would the third party find alternative means of transport, or would it be a case of coming to a different agreement on slightly worse commercial terms? Similarly, on the cost side, it is difficult to know what the imposition of another layer of access regulation and the need to negotiate with multiple parties means for delays in capacity expansion and increases in hurdle rates of return.
- The regulator is also faced with the same uncertainty. It is impossible to obtain all the relevant information pertaining to the decision. What this paper does is attempt to address the uncertainty by placing bounds on the likely costs and benefits and trace their effects through to the national economy by recourse to economic modelling.
- For a proper assessment of whether access under Part IIIA of the Trade Practices Act is or is not contrary to the public interest (Criterion F) there must be an explicit evaluation of the costs and benefits of access to infrastructure before regulatory interventions are made. This is consistent with the observations made by the Hilmer Committee, the Productivity Commission and most recently by the Prime Minister's Exports and Infrastructure Taskforce.
- Simply put, National Competition Policy was set up to promote the national interest. If that is the aim then a thorough economic assessment of national benefits and costs should precede any decision on access regimes for large scale infrastructure. To do otherwise may lead to decisions that reduce community welfare as this case study of rail access for iron ore in the Pilbara shows.

1

Introduction

In 1992 an independent inquiry into national competition policy was commissioned by the government. The report of that committee, to become known as the 'Hilmer report'¹ led the Commonwealth and State and Territory governments to implement a National Competition Policy package in 1995. One of the measures of that package was a National Access Regime that provided for businesses to seek access to infrastructure services on 'reasonable' terms and conditions. The regime provided for access to infrastructure via three routes, one of which was 'declaration' of the service if a number of criteria were satisfied.

The national access regime was a controversial piece of regulation and was reviewed by the Productivity Commission in 2001. They noted that access regulation can intrude significantly on property rights that would give rise to a range of costs and found that:

The potential 'chilling' effect of access regulation on investment in essential infrastructure services is the main concern.²

In 2005, a booming Chinese market for Australian resources led to export infrastructure bottlenecks and caused the Prime Minister to establish a taskforce³ to examine the issues. The taskforce looked at the regulatory environment and found that substantial regulatory risks existed and that the current system was not delivering the best result for the nation. The economic regulatory framework was:

'adversarial, cumbersome, complicated, time consuming, inefficient and subject to gaming by participants.'⁴

¹ Commonwealth of Australia, *National Competition Policy: report by the Independent Committee of Inquiry*, AGPS, Canberra, 1993.

² Productivity Commission, *Review of the National Access Regime*, Report no. 17, AusInfo, Canberra, 2001, p. xix.

³ Exports and Infrastructure Taskforce, *Australia's export infrastructure: report to the Prime Minister*, 2005.

⁴ Exports and Infrastructure Taskforce, p. 2.

A common theme of all three reports was the need to be mindful of unintended regulatory costs and give prominence to the national interest in questioning the need for regulation. Draft legislation is proposed to give effect to these findings that involves elevating the importance of the national interest test in decisions about access regimes. The three reports did not have many case examples to draw empirical evidence to support their findings. But another case example is looming.

In 2004, Fortescue Metals Group, a mining company with iron ore leases in the Pilbara, requested the Mt Newman to Port Hedland railway line be 'declared'. The National Competition Council (NCC) issued a draft recommendation on 4 November 2005. There has been no formal economic national interest test applied to this case. Other economic studies for the Pilbara iron ore industry have been made, but these are not formal economy-wide assessments of both the national benefits and costs from granting access to the railway line by a third party. The purpose of this paper is to look at the national interest objectives behind the National Access Regime and, using the recent case of access to a railway to carry Pilbara iron ore by a third party currently before the government, look at veracity or otherwise of giving prominence to the national interest in decisions of this type.

First, chapter 2 documents the development of the national competition policy and the prominent role that the framers of the policy had for the national interest test in limiting the scope of the regulatory regime that applies to access to infrastructure.

Chapter 3 then provides background on the Pilbara iron ore industry as a case study of how the current legislation applies to this case. It looks at the importance of the industry to the national economy, and the features that make the industry different to the former public utility industries that the National Access Regime was designed for.

Chapter 4 addresses the question of how the national costs and benefits of the application of the national access regime to the industry might be measured. The impacts of moving from a single owner to multi user framework are discussed, and an estimate made of the likely scale of the direct effects both on the benefits and the cost side. These are then used to calibrate some model shocks to illustrate the likely bounds of the impacts on the national economy. Two well-known macroeconomic models are used to produce the results.

Finally, in the light of the material in chapter 4, chapter 5 drills down to the particular case of the Fortescue Metals Group application for a declaration of a service on the Mount Newman railway line, particularly focussing on the approach the NCC has taken to the public interest test in making a preliminary recommendation on the matter.

2

National Competition Policy and the Public Interest Test

National competition policy has produced significant benefits for the Australian economy since its introduction in 1995. Initial estimates by the Productivity Commission put the potential long-run benefits of implementing the reforms proposed by the Hilmer Committee at 5.0 per cent of GDP.⁵ Its most recent assessment of national competition policy provides model-based estimates of the benefits of reform so far at 2.5 per cent of GDP.⁶ It argues that dynamic effects, for example, via increased take up of technology due to competitive pressure, while difficult to estimate, have almost certainly meant that the benefits have been larger. As the CIE noted in a recent paper commissioned for the National Competition Council:

By all accounts, the NCP has been a valuable experience. COAG itself recognises this in its communique of 3 June 2005, noting that the agreement to implement NCP was a key part of the reforms that have transformed Australia over the past 20 years, boosting the competitiveness and growth of the Australian economy and the living standards of all Australians.⁷

National competition policy is directed at lifting the productivity of the economy with the ultimate aim of improving the welfare of Australian households. The landmark Hilmer Report set out the basic principles and operational framework behind the NCP in 1993. The overarching objective of the policy was to enhance community welfare.

Economic efficiency plays a vital role in enhancing community welfare because it increases the productive base of the economy providing higher returns to producers in aggregate and higher real wages. Economic efficiency also helps ensure that consumers are offered, over time, new and better

⁵ Industry Commission 1995. Of this infrastructure reform, including access regulation, was estimated to potentially increase GDP by 2 per cent, real consumption by 1.4 per cent, and export volumes by 4.8 per cent.

⁶ Productivity Commission, 2005.

⁷ CIE/NCC 2005, p.4.

products and existing products at lower cost. Because it spurs innovation and invention, competition helps create new jobs and new industries.⁸

However, all policies have their limitations, and policy makers need to be continually on their guard to ensure that legislative and regulative frameworks are having the intended effects. The largest benefits of any new policy framework will be achieved at the early stages of implementation as the most obvious existing inefficiencies (which led to the policy in the first place) are addressed. As time goes by the benefits of applying the policy to new areas will naturally be smaller. The returns will be lower relative to implementation and other costs. At the same time the chance of instances of regulatory failure increases, as the regulatory institutions evolve, as case law develops, and as the legal and regulatory framework is applied to new situations not necessarily imagined by the original policy makers.

Background on the National Access Regime

The National Access Regime is a key part of National Competition Policy. The access regime as originally envisioned was largely designed to apply to infrastructure that was either publicly owned or in the process of being privatised (the traditional solution to the natural monopoly problem being to ensure the monopoly was in public hands). Industries specifically mentioned in the Hilmer report are electricity and telecommunications networks and rail, water and gas infrastructure — that is the former public utilities.

The core intention of the national access regime is to deal with the natural monopoly element of this infrastructure. The intent is to ensure that those institutions (either public or private) that own essential infrastructure do not unreasonably deny access to their competitors in downstream markets. It is designed to ensure competition in downstream markets and to avoid the unnecessary duplication of existing infrastructure (or underutilisation of infrastructure services due to monopoly pricing)

In framing the original policy the Hilmer Committee were acutely aware of the possibility of regulatory failure.

⁸ Commonwealth of Australia, *National Competition Policy: report by the Independent Committee of Inquiry*, AGPS, Canberra, 1993, p. 4. This position is reinforced by the Productivity Commission while noting the difficulty of making the principle apply in practice: ‘The ultimate objective of access legislation is to enhance community welfare. In an operational sense, however, this is difficult to convey in a meaningful way.’

The Committee is conscious of the need to carefully limit the circumstances in which one business is required by law to make its facilities available to another. Failure to provide appropriate protection to the owners of such facilities has the potential to undermine incentives for investment.⁹

Adding further:

Where a clear public interest exists, but not otherwise, the Committee supports the establishment of legislated right of access.¹⁰

The Committee was also concerned that any legislative framework would be subject to regulatory gaming by private players. It had reservations about the potential impacts on dynamic efficiency through adversely affecting the incentive to invest, and the possibility of regulatory failure, or perverse incentives to exploit any framework that came into existence. Given these reservations, the Committee proposed a number of criteria any access case had to pass to ensure that granting access would 'clearly be in the public interest' i.e that national benefits would clearly outweigh costs. They also thought that as a grant of access ultimately rested on an evaluation of public interest considerations, the final decision should be 'one for Government, rather than a court, tribunal or other unelected body'. That is the Minister should make the final decision based on recommendations from the competition authorities.

Having identified the criteria that needed to be met before the Minister declared a service, the Committee noted:

These criteria may be satisfied in relation to major infrastructure facilities such as electricity transmission grids major gas pipelines, major rail-beds and ports, but not in relation to products, production processes or most other commercial activities.¹¹ While it is difficult to define precisely the nature of the facilities and industries likely to meet these requirements, a frequent feature is the traditional involvement of the Government in these industries either as owner or extensive regulator.

The concerns about the dynamic effects on investment and the need for a clear national benefit also feature prominently in the Productivity Commission 2001 Review of the National Access Regime.

⁹ Hilmer Committee, p.248.

¹⁰ Hilmer Committee, p.248.

¹¹ 'For example in the US case of *Berkey Photo v Eastman Kodak Co* 603 F 2d 263 (end Cir 1979) a small photographic company sought (albeit unsuccessfully) to obtain access to the products of Kodak's research and development before Kodak could market its own innovations. This case illustrates the need to ensure that the proposed access right does not deprive investors of the fruit of risk-taking investment.'

Access regulation — and the accompanying pricing approaches or rules — are likely to alter the incentives to invest in essential infrastructure. Arguments that these changes in incentives will generally be detrimental to investment have featured prominently in debates on the merits of access regulation.¹²

The report contains lengthy analysis of the potential impacts of access regulation on investment.¹³ While the analysis itself is somewhat inconclusive, what is clear is that the uncertainty surrounding investment is one of the most difficult issues that policy makers in the access regulation area need to grapple with. Where uncertainty in returns are large the access regime has the potential to impose large dynamic costs. That is costs are dependent on uncertainty.

This, in combination with the possibility of other forms of regulatory failure such as strategic behaviour and regulatory gaming, mean that the costs and benefits of access decisions are hard to pin down.

Given such uncertainty, the option of no access regulation cannot be dismissed completely. At the very least, as the Hilmer Committee emphasised, there is a need for policy makers to tread carefully in this area.¹⁴

The Commission therefore suggested, as the Hilmer Committee did before it, that access interventions be limited to where a clear case could be made where the national benefits outweigh the costs.

Given the potentially large costs of inappropriate or poorly-applied intervention to facilitate access, the use of access regulation should be confined to situations where significant monopoly power is likely to be present. If regulation is applied to more ‘marginal’ cases, there is a high probability that the costs of intervention will outweigh the benefits.¹⁵

In the light of these considerations it recommended among other things that the objects clause of Part IIIA of the Trade Practices Act be amended to

¹² Productivity Commission 2001, p.66.

¹³ For example pp 66-89. Not only does this cover the impacts on investment in infrastructure itself, but also the impact on investment in related markets. One example the Commission uses is of the impacts of opening up access to gas pipelines. This might have the impact of encouraging investment by upstream suppliers. At the same time it might skew investment activity by upstream producers towards less efficient producers than the infrastructure owner.

‘This highlights the important point that increased investment in related markets based on inappropriate access prices and conditions will be a **cost** of access regulation not a benefit. It also serves to introduce the notion that competition is a means to an end (or ends), not an end in itself. While promoting competition will usually enhance living standards, it will not always do so.’ p. 89.

¹⁴ Productivity Commission, 1995, p. 93.

¹⁵ Productivity Commission, 1995, p. 94.

include to 'promote economically efficient use of, and investment in, essential infrastructure services'. (Recommendation 6.1)¹⁶

The Government agreed with the Productivity Commission's recommendations. It has amended the legislation adding the efficiency clause to the objects of the legislation, plus a term tightening Criterion A. The Government reasoning for its decision is worth quoting. The object clause the Government proposes is as follows:

The object of this Part is to:

(a) promote the economically efficient operation and use of, and investment in, essential infrastructure services, thereby promoting effective competition in upstream and downstream markets;

It explains this decision thus:

The promotion of economic efficiency is a fundamental objective of competition policy. The first objective explicitly recognises the importance of fostering efficient investment in new essential infrastructure, while at the same time encouraging the efficient use of existing facilities through innovation and productivity improvements.

Consideration of the impact of an access decision in a wider economic and public benefit context was one of the key reasons for including a statutory access regime within the NCP framework. ...

Inclusion of the objects clause will improve procedures for reviewing decisions under Part IIIA. When decision-makers publish reasons for their decisions, a failure to address the objects clause will provide additional grounds for merit review by the Australian Competition Tribunal (ACT) and judicial review by the courts."

The Government also agreed with the Productivity Commission's Recommendation 6.2:

6.2 For all coverage decisions and determinations under Part IIIA, the relevant decision-maker should be required to have regard to the objects clause.

It also agreed with the Productivity Commission's recommendation to tighten the wording on Criterion A so that intervention would now only be required when it would lead to a 'material' increase in competition in another market. The government noted

The current declaration criteria, such as 'the national significance' test, preclude declaration where the relevant infrastructure and subsequent potential public benefits are not significant. However, this does not sufficiently address the situation where, irrespective of the significance of the

¹⁶ productivity Commission, 1995, p. 134

infrastructure, declaration would result in only marginal increases in competition.

The legislation incorporating these changes is still in the process of being passed into law. However the intention seems reasonably clear: to tighten and clarify the scope of the national access regime and ensure that it will only apply where national economic benefits clearly outweigh the costs.

These moves have been supported by the Prime Minister's Exports and Infrastructure Taskforce. The taskforce was highly critical of the impact access regulation was having on investment in export infrastructure.¹⁷ It argued that export industries are highly competitive and 'strongly exposed' to world market disciplines and hence 'regulation should be sparingly applied to export industries'.¹⁸

As a nation, Australia has a strong interest in the efficiency of export oriented infrastructure. However, it is important to remember that export industries operate in competitive world markets. Producers have little ability to increase price above the competitive level, as they are largely price takers for the final output. As a result, Australia's export chains are strongly exposed to world market disciplines, and have strong incentives to be and remain efficient.¹⁹

With that in mind access arrangements should where possible be left to commercial negotiation between the parties and intervention only contemplated where there is a clear case that the benefits will outweigh the costs. In other words, while the Taskforce welcomed the Government's response to the Productivity Commission recommendations, it argued that the changes should go further for the export industry and that at the very least regulators should be required to "tread lightly" in this area.²⁰

¹⁷ For example "The greatest impediment to the development of infrastructure necessary for Australia to realise its export potential is the way in which the current economic regulatory framework is structured and administered. It is adversarial, cumbersome, complicated, time-consuming, inefficient and subject to gaming by participants. There are too many regulators and regulatory issues are slowing down investment in infrastructure used by export industries', p. 2.

¹⁸ p. 39.

¹⁹ p. 39.

²⁰ The original Hilmer inquiry also argued that export industries were a special case and noted that they had traditionally been exempted from certain parts of the Trade Practices legislation.

Summary

In summary the economic analysis that underlaid the establishment of the access regime, highlighted the potential dynamic costs of regulatory intervention, and emphasised the need for a clear case to be made that benefits outweigh potential costs before intervention is contemplated. These points have been reinforced by subsequent inquiries. Legislation is in train that will tighten the scope of the application of the access regime along these lines. At the same time the Prime Minister's Exports and Infrastructure Taskforce has called for special consideration to be given to the export industry, that is that the national interest test be particularly prominent in this area.

3

The iron ore industry

Iron ore is one of Australia's most significant export industries. It is also the one that is most rapidly expanding. Over the four years to February 2006, annual production of iron ore increased by a massive 55 per cent to 240 million tonnes.²¹ With booming world prices, iron ore export values more than doubled over the same period — increasing by 126 per cent. The increase in iron ore exports over the last two years has been equivalent to 1 per cent of GDP (\$9.5 billion). Together with coal, iron ore sales account for almost all of the increase in national exports over the last two years (contributing 2.3 of the 2.7 per cent of GDP increase in exports). Without the expansion of iron ore volumes over the last four years the trade deficit would have been roughly half a per cent of GDP higher. In other words, the industry is large, dynamic and is having discernible national economic effects.

The industry's economic significance is likely to increase further in the near future as China continues to expand, and with it world demand for iron and steel. Planned expansions will roughly double capacity in the industry over the next ten years.²² On current projections iron ore exports will supplant metallurgical coal as Australia's most valuable merchandise export by 2006–07.²³ Not only is the production large relative to the Australian economy, but also it is of global significance with Australia projected to account for over 40 per cent of seaborne trade in iron ore by 2011.²⁴

²¹ In volume terms, iron ore exports now exceed those of coal.

²² ABARE projections indicate an increase in production capacity to 389 million tonnes by 2011 with exports of 375 million tonnes, an increase of 56 per cent on current levels (pp. 125-127). If production were to expand at a similar rate for a further four years, production levels would be double those in 2005 by 2015.

²³ ABARE 2006, p. 127.

²⁴ ABARE 2006, p. 125.

Features relevant to the Access Regime

Clearly, the iron ore export industry is one of national significance — one that has been a significant contributor to Australia's overall economic performance over the last ten years. It is also one that is unusual in a number of respects when it comes to the application of the National Access Regime:

- Firstly, as has already been pointed out, in the commodity export market producers are selling into a competitive world market and are price takers. They have no monopoly power. This has a number of implications with relation to the application of competition policy:
 - It means that, as producers are price takers, it is difficult to identify a secondary market where there would be a 'material' increase in competition due to increased access to infrastructure. Clearly Australian households are not directly affected, and the impacts on overseas consumers of marginal changes in Australian production would be difficult to discern.²⁵
 - But perhaps more importantly, and this is a key point, as there are no direct welfare effects on Australian households there is no way to assess the national economic impacts other than by recourse to economic modelling. (This is very different to other industries such as electricity or telecommunications where the impacts on consumers are direct, and directly observable.) The impacts of any change in competition policy in the iron ore export industry are indirect, and mediated through other economic relationships such as the exchange rate. Formal modelling is required to make an assessment of these. That is, to meet the requirement of a national interest test of the application of the national access regime, would,

²⁵ Australia accounts for around 22 per cent of World iron-ore production and 37 per cent of seaborne trade. Small shifts in Australian production will therefore only have a small effect on the world price in the short run and very little in the long run. For example — using the elasticity of world non rural commodity prices with respect to output in the CIE Australian macroeconomic model as a guide — a 1 per cent increase in Australian iron ore production *cet par* would reduce the World price by 0.2 per cent in the short run. In the long run the impact on price would be much smaller as other producers expand or contract production in response to the price change. (That is, it depends on the medium to long run elasticity of supply, which for commodity markets is normally assumed to be very high.) (In practice the elasticity of supply depends on the relative position of the cost curve for the various producers.)

Any movement in the World price would be redistributing welfare effects from domestic to foreign households. For example, lower output leads to slightly higher prices offsetting some of the costs to Australian households. The public interest test applies to both domestic and foreign households — hence it is probably reasonable to ignore these redistributive effects in this analysis.

in the case of this industry, appear to require some formal modelling input.

- Iron ore producers like other commodity exporters face periodic swings in prices. Iron ore prices are dependent on world demand for iron and steel, which is, in turn, highly dependent on construction activity and fluctuations in industrial production. The volatility in industrial production and construction is amplified as it feeds down the production chain to produce a high level of volatility in iron ore demand and hence iron ore prices. In addition to the volatility in the world price, iron ore producers are also faced with uncertain movements in the exchange rate.
- Hence there is considerable uncertainty over the future return to a project at any point in time. There are two implications of this: the first for need for flexibility in the supply response; the second for hurdle rates of return.
 - *Flexibility in the supply response* — volatility in demand and Australian dollar prices means that there are significant payoffs to being able to increase supply as quickly as possible in response to higher prices while they last (make hay while the sun shines). Suppliers that can increase supply rapidly in response to demand will yield much higher returns over time than those who can not.
 - *High hurdle rates of return* — high volatility means that hurdle rates of return tend to be high in the industry. Anecdotal evidence indicates that investors in the industry use hurdle rates of between 10 and 15 per cent to evaluate projects. The estimated risk premium in the mining investment equation in the CIE's Australian Macroeconomic model is 11 per cent. A part of this premium is due to risk aversion, which leads the investor to demand higher returns. However, it is not possible for risk aversion to account for all or even most of a premium of this size.²⁶ The widely accepted explanation of high hurdle rates of return is provided by option theory. Investments once they are made are irreversible. Hence having the ability to make an investment in an area where returns are volatile and uncertain is like holding a call option. The mere fact of having the investment opportunity has an option value. (There is the immediate prospect of a return, but also value in the ability to wait if there is the possibility that that prices and returns will be higher in the future.) Like an option trader the investor only commits to the investment ('kills the option') when the option is 'in

²⁶ Dixit and Pindyck 1994, *Investment under Uncertainty* provides a comprehensive survey of the issue.

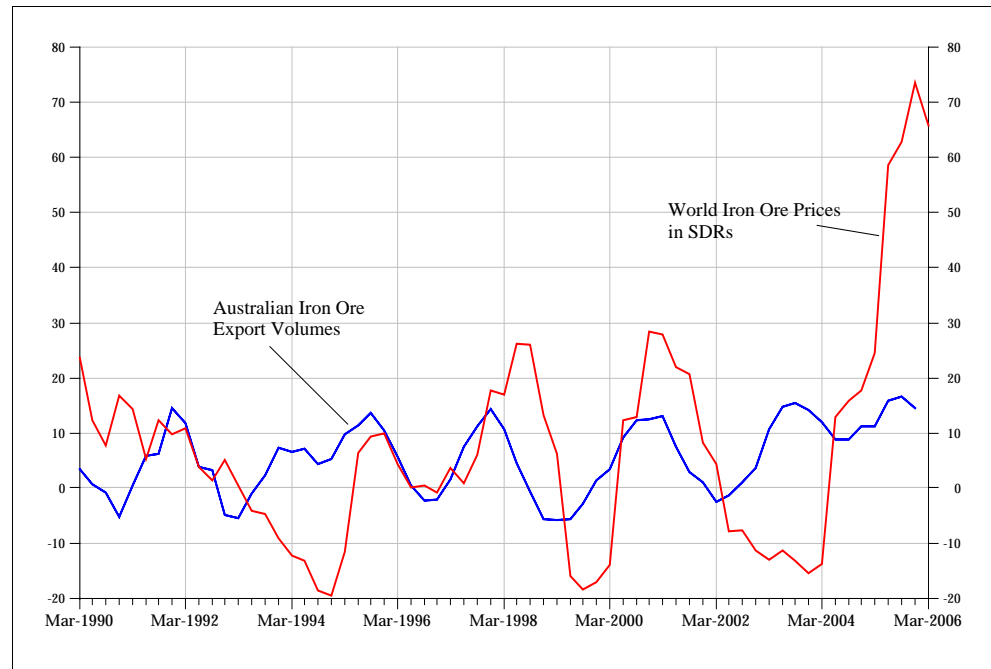
the money'. Therefore, before committing to the investment the investor requires an expected return that is higher than the standard risk adjusted discount rate to offset the cost of killing the option. Hence, hurdle rates in mining and other industries faced with volatile prices and returns are much higher than in industries that face reasonably secure domestic markets.

Consequently, unlike other industries, there appears to be the potential for anything that leads to delay in either the ability of producers to respond to fluctuations in demand, or in the ability of investors to be able to 'kill the option' at a time of their choosing, to have large dynamic costs.

- Unlike industries such as the traditional public utilities that serve the domestic market any short fall in investment in the current period will not be corrected in a future period. That is, for a domestic industry a shortfall in investment will lead to lower supply and higher prices in the subsequent period leading to a correction to investment levels. However, this feedback does not exist for the commodity export industry. Lost investment in the current period is not necessarily corrected in future periods, leading to the potential for permanent and growing losses in output and returns over time.
- Finally, Australian iron ore production is concentrated in the remote and sparsely populated Pilbara region of Western Australia. The industry that has grown up there since export bans on iron ore were lifted in 1960 is unique in its integration of mining, rail and port infrastructure. As the Prime Minister's Export and Infrastructure has noted the vertically integrated infrastructure facilities have led to a unique ability to respond to fluctuations in demand. This can be seen in the large response in export volumes to movements in the world price (chart 3.1). It can also be seen in the much more rapid iron ore supply response than that of coal (chart 3.2). Over the period shown iron ore exports have been roughly two to three times more responsive to changes in market conditions than coal. This has been particularly marked over the last four years. Since 2002 iron-ore exports have increased by 55 per cent. In comparison coal exports have increased by only 18 per cent (or 4 per cent a year — little more than the growth in GDP) despite experiencing similar price increases and growth in world demand. It seems reasonable to assume that a large part of the difference in responsiveness is due to differences in the operation and control of infrastructure. The multi user regimes that dominate the coal industry appear to be characterised by protracted negotiations and regulatory intervention when the industry needs to undertake capacity expansion. In contrast the single owner integrated infrastructure model

that has developed in the Pilbara appears to be almost uniquely successful in its ability to respond to demand.

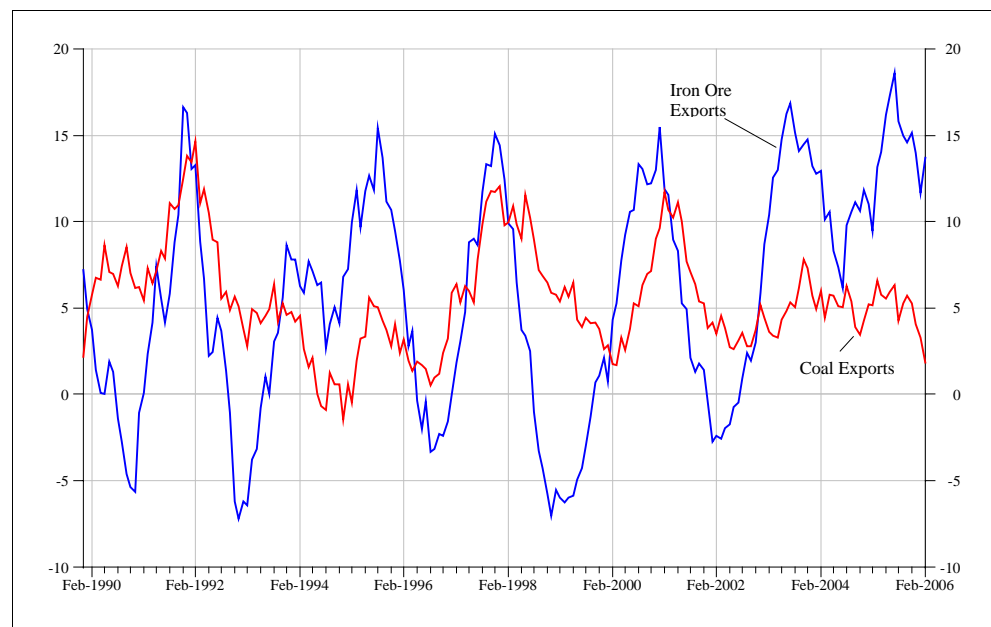
3.1 World iron ore prices and Australian exports^a



^a Quarterly data - per cent change on a year earlier

Data source: IMF IFS Database, ABS Cat No 5432.0

3.2 Responsiveness of iron ore and coal exports^a



^a 12 months to - per cent change on a year earlier.

Data source: ABS Cat No 5432.0

4

National impacts

Earlier in chapter 2 the case for a public interest test was set out. Those who framed the original policy on the National Access Regime and subsequent investigators have all noted the dangers of regulatory failure and of imposing dynamic costs to investment. As a result all have agreed that intervention should only take place in cases where the potential benefits to the national economy clearly outweigh the costs. The key question is how do you measure the costs and benefits in any particular case? The legislation sets out a requirement for a public interest test, but does not specify how that should be carried out. The regulatory decision-maker, is faced by uncertainty and partial information in making a decision on the issue. Just as investment decisions are shrouded in uncertainty, so too are the decisions of the regulatory authorities.

For a lawyer faced with uncertainty, the response is to look for a precedent. This tends to lead to a 'black and white' approach where the decision depends on a series of discrete criteria.²⁷ For an economist however it is a question of attempting to put a number on different 'shades of grey' and to find a way of balancing the costs against the benefits. One way of dealing with uncertainty in this context is to put bounds on the problem, and then to use those to frame the question of where the balance of probabilities lie. This is what is done below posing the question, what is the maximum potential benefit that comes from applying the access regime, and against this what is the scope of the possible potential costs?

In the specific case of the iron ore industry, there are features of the industry, as noted earlier, that would appear to make the application of the National Access Regime problematic. In particular, as commodity producers, iron ore miners are price takers in a highly competitive world

²⁷ In the case of the National Access Regime, a general presumption has developed that if a particular application passes the other criteria, then it also must be beneficial to the public interest, i.e. pass the public interest criterion. (NCC, 2005, Par 11.25, P.145). However each of the other criteria are judged on a binary basis, whereas in each case the truth will usually lie somewhere in between. Moreover, the precedents that are judged to be of economic benefit in one industry may not be of benefit in another. Hence, whether a proposal passes or fails each of the other criteria is no guarantee that it also passes or fails the public interest criterion which should involve formal cost benefit analysis..

market, and hence the costs and benefits are not felt directly by Australian households. Apart from everything else this means that making an assessment of the possible costs and benefits, which in this case are indirect, requires reference to economic modelling. That is a formal framework is required to trace through the indirect effects to Australian households and hence what the Hilmer Committee referred to as ‘community welfare’.

The table 4.1 summarises the potential costs and benefits.

4.1 Costs and benefits

<i>Direct benefits</i>	<i>Direct costs</i>
Range from small positives if decision leads to increased use and hence productivity of railway infra-structure, (higher productivity of the industry as a whole) to small negatives if the decision leads to production disruptions or a less efficient producer being cross subsidised by a more efficient producer..	<p>Project delays due to increased complexity, leading to decreased export revenue as supply does not respond as fast in reaction to higher prices.</p> <p>Increased uncertainty and hence increased risk premia and hurdle rates of return for investment projects. (This is inextricably linked to the previous point – any likelihood of delay increases the uncertainty of the return to a project).</p> <p>Deadweight administrative costs of complying with the access regime.</p>
<i>Indirect benefits</i>	<i>Indirect costs</i>
<p>If productivity is higher, increased profitability of the industry as a whole, higher output and exports, with benefits translated back to the household sector via the exchange rate. Essentially a small positive supply shock in the model.</p> <p>Environment benefits of fewer railways</p>	Essentially the reverse of the indirect benefits - include exchange rate reactions downstream impacts on employment and household consumption - measured using model

Benefits

The primary aim of the access regime is to increase the efficient use of key infrastructure and to increase competition in secondary markets. One concern that has been raised in the Pilbara is the impact that control of infrastructure has on other mining lease holders in the area – the junior explorers.

- The issue of assessing any benefits to junior explorers of the access regime is problematic as the counterfactual of what would happen without the access regime is not known. For example, existing lease

agreements with the State Government oblige the existing lease holders to ‘carry the freight of the State and third parties on the railway... upon reasonable terms and at reasonable charges’. The difference between the right to access haulage services and the right to run your own trains on a line might be viewed as a legal imposition of a small shift in the bargaining position between two players in the market. This would have implications for the sharing of rents but almost no direct implication for economic efficiency.²⁸

- Insofar as there are benefits flowing from opening up new mines to minor players, these benefits will only be temporary. Any viable lease if not developed by its existing owner at worst would sooner or later be bought up and developed by one of the major players.²⁹
- If a project goes ahead because of improved access to rail services the benefit is not measured as the project’s value but in terms of the excess of the projects returns over its costs. That in turn means that the upper bound to the direct benefit is the difference in the alternative costs of providing the rail service. That is, the cost of building duplicate railways would seem to set an upper limit to the direct benefit.
- At the same time, the existence of the National Access Regime leads to the possibility that potentially uneconomic producers could force their

²⁸ One of the problems that the NCC appears to be attempting to address is not one of efficiency, but one of rent sharing. The problem arises if the owner of the infrastructure uses its rights over the infrastructure to reduce the value of other leases in an attempt to force a buy out of the leases (which seems to be the nub of the FMG claim — NCC p.18, supported by Junior explorers in the Pilbara (NCC, p.23). However, this is not a cost to national welfare, but a cost to the owners of the leases. While there may be individual gains and losses for the various holders of equity in the different companies it is really a question of the distribution of wealth (not the amount of wealth), with few if any implications for national consumption or national economic welfare (cf Coase’s Theorem.)

²⁹ It makes sense that the majors would have secured more than sufficient leases to accommodate their own expansion plans and optimise the use of their infrastructure. ABS data indicates that in 2004-05 there was a capacity of 15.3 billion tonnes in existing economical leases (economical being defined as profitable to mine at 2004-05 prices), or 75 years of production at current rates. ABS Cat No 5206. Iron ore mining involves considerable fixed costs in production and infrastructure and therefore is characterised by significant economies of scale. Any individual lease will be worth more to the existing producers and hence the industry is dominated by two major companies: BHP BIO and Rio Tinto Iron Ore. In realising the potential of their leases junior explorers have at least four options. First is the choice of developing the lease themselves, or selling their lease to one of the majors. If they develop the lease themselves they have the option of (a) selling their output to an existing producer, (b) accessing haulage services at “reasonable rates”, or (c) developing their own transport and marketing infrastructure. It is not clear why efficient commercial arrangements would not be made in the absence of a regulator..

way into arrangements that would otherwise not be commercially viable.³⁰ This would be effectively a subsidy from the efficient producer to the less efficient producer,³¹ an outcome with a net economic cost to the national economy.

- There is also the possibility that the access arrangements lead to production disruptions (diseconomies of scope), reducing the overall productivity of the existing capital stocks.

Potential Costs

The potential costs are of two types:

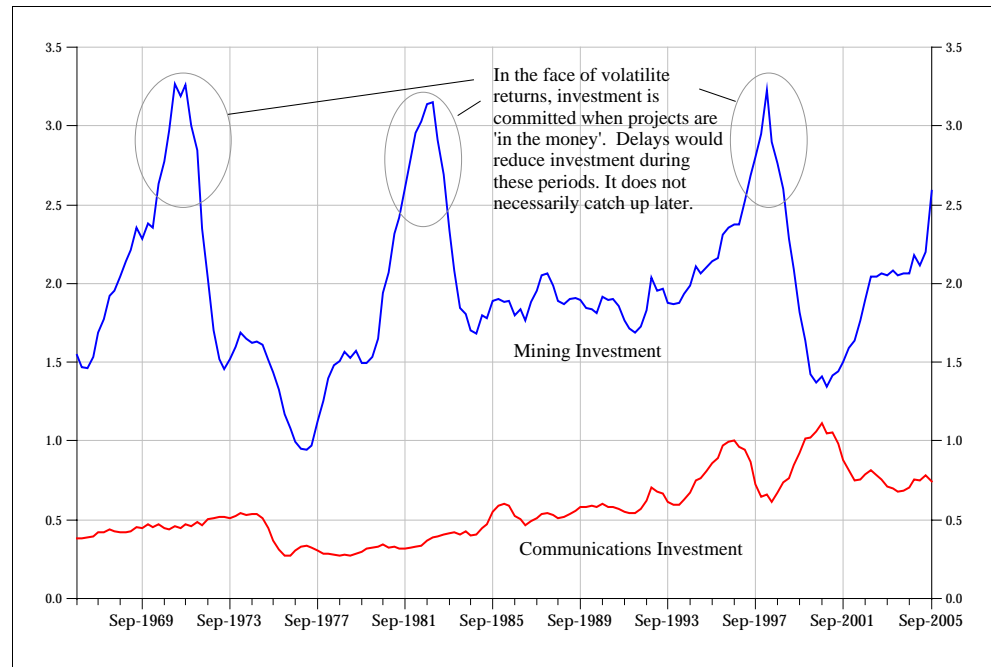
- The first is the potential for delayed response in supply. These potentially arise for two reasons. Firstly the national access regime would add another layer of regulation on the industry. The current lease arrangements with the State Government require lease holders to carry freight of third parties at reasonable rates. This seems a reasonably simple and straightforward arrangement. Adding the regulatory infrastructure of the ACCC, NCC and ACT into the mix would on the face of it seem likely to lead to delays as regulatory approvals and disputes are resolved, even with the best intentions of the regulatory authorities to respond quickly. In addition, as the submissions to the NCC case have highlighted, planning capacity expansion in an industry where production and transport infrastructure are vertically integrated requires careful coordination. Introducing the multi user access model as against the single owner model seems likely to lead to a more drawn out process. Even moving a small way towards the coal industry model would imply significantly slower response of capacity to market conditions in the iron-ore industry.
- The second is the potential effect on returns and risk premia of these delays. Again there are two components to this. Firstly the part of the risk premia justified by risk aversion will be pushed up somewhat by delays. The longer it takes to push through the investment and get the capacity in place the greater the risk on the return (uncertainty in the outlook depends on the time horizon). The second component to the premium is the option cost — if the investor is unable to commit when he is ‘in the money’ investment plans might be shelved while producers wait for the next upkick in the commodity cycle. (Clearly in

³⁰ For example stranded leases that would otherwise have to wait their turn as infrastructure developed.

³¹ see Baumol, 2005, P.4.

history capacity expansions have occurred when market conditions have been favourable see charts 3.1 and 3.2 above and 4.2 below.) Within the context of the model this overall impact on investment is picked up by a higher hurdle rate of return.

4.2 Windows of opportunity – mining investment over GDP^a



^a Per cent of GDP at constant prices

Data source: ABS Cat Nos 5206.0, 5204.0 and CIE calculations

Model-based evidence

As mentioned earlier the impacts on households and national welfare are necessarily indirect as the miners are selling into a highly competitive commodity market. Hence, it is inevitable that we need to use models to obtain an idea of the relative magnitudes of the costs and benefits. It is impossible to calibrate the shock precisely, but we do have enough information to discuss the broad order of magnitude of the effects.

Part of the problem is a dynamic one relating to the impact of delays on returns to the industry and hence to the national economy. To capture these effects we need to employ dynamic time-series models of the economy rather than comparative static CGE models. To cross check the results two models are used here: AusCubed which is a more detailed industry version of the McKibbin Software Group's G-Cubed model, and the CIE's Australian Macroeconomic model (appendix A provides more details) .

To illustrate the potential costs the simulations are run off a baseline that mimics the present cycle in iron ore commodity prices. In the baseline, iron

ore prices increase by around 80 per cent and then gradually return to close to historical average levels over the subsequent five to six years.³² (In the case of AusCubed this is an artificial baseline. In the case of the CIE Australian model the latest CIE forecast baseline is used.)

Three shocks are then run on this baseline:

1. *Increase in capital productivity.* This is meant to capture the possible impact of the increased utilisation of railway infrastructure. One of the key questions is how large the shock should be. As discussed above the maximum benefit that could result would be the avoidance of the duplication of a railway line. As discussed in the text it seems likely that the actual impact of capital productivity would be substantially less than this. (For example, given the rapid expansion of production in the Pilbara it is difficult to imagine any transport infrastructure would be under-utilised for long.) That is the simulation is not meant to represent the likely impact on capital productivity but rather to put an upper bound on the impact.
 - The cost of constructing a typical 300 kilometre line in the region is approximately 400 to 500 million dollars.³³ Within the model this needs to be calibrated against the size of the capital stock in the industry. (The railway infrastructure is counted as part of the mining capital stock by the ABS.) Within the context of the models the infrastructure is not separately identified within the production function. Hence we need to calibrate an increase in capital productivity as a whole.³⁴ The additional railway infrastructure if it were to be built would be put in place over the next several years so the difference in productivity needs to be scaled against the future size of the industry — it is not an immediate increase in capital productivity but one from around 2010 onwards. The value of the capital stock in the iron ore industry is projected to be around \$90 billion by around 2011. Consequently the shock is calibrated as a ½ per cent increase in capital productivity in the industry. It is impossible to be precise about this calculation It is

³² A more precise but much more time consuming exercise would be to run stochastic simulations which replicate the variance of commodity prices in history, in combination with an increase in quadratic adjustment costs leading to longer lags in investment. Hitting residuals to delay the pick up in investment in the current commodity cycle provides a simple if less precise way of estimating the likely size of the effect.

³³ NCC, 2005, p 43-45.

³⁴ Neither do the models include regional or sub sector detail. In the case of Auscubed the other minerals sector is identified, while in the CIE model it is the mining sector. In both cases the shocks are scaled according to iron ore's share in the sector.

simply meant to give a broad indication of the size of the maximum feasible benefit.

2. *Delay in investment* – as discussed above the introduction of the access regime is likely to lead to delays to investment. There are a number of aspects to this. The largest part is the move from infrastructure controlled by a single operator, to multiple user regimes. With a number of producers having the right to run trains on a common line any expansion of capacity may be delayed by negotiations between the parties. The second is the delays involved in seeking regulatory approval in combination with the possibility that small players may use the regulatory infrastructure to improve their commercial bargaining position (tying up major expansions in the process). It is impossible to be precise over the scale of these effects. Material in the submissions by BHP Biliton Iron Ore and Rio Tinto Iron Ore anticipate delays of at least 12 months or more.³⁵ This is disputed by Fortescue and largely dismissed by the NCC. While the size of the effects are in dispute the direction of the effects seems reasonably clear, by simple comparison with the experience in the coal industry. Hence, it seems reasonable to assume that the changes will lead to at least six month delays. This might be represented as moving a small way towards the coal industry experience. Hence this shock is calibrated as a six month delay in investment, noting that delays could be longer (i.e. that the shock does not represent the outer bound of the effect)
3. *Increased risk premium* — this is the most difficult of the three shocks to calibrate, and perhaps the area where there is the greatest uncertainty. While the size of the effect is uncertain the direction of the effect is clear. Clearly anything that delays investment in an industry that faces volatile world prices will increase the standard error around the projected return on the investment. In addition to this there is the option aspect to the timing of investment decisions. Clearly in the iron-ore industry it pays producers to wait for market conditions to become favourable before committing to new investments. If these investments do not take place within the timeframe of a given boom they are likely to be postponed until the next. It is difficult to put a figure on these impacts without a detailed study. However it can be observed that the existing risk premium is high at around 11 per cent. It seems reasonable to speculate that the timing impacts would be equivalent to adding around half a per cent to the hurdle rate for investments in the

³⁵ The Port Jackson Partner's report also assumes the introduction of multi user regimes and the additional regulatory requirements will lead to 12 month delays in projects.

iron ore industry.³⁶ It is also easy to imagine that the effects could be larger than this. That is, the simulation doesn't provide an upper limit on the possible cost, but rather only gives an illustration of the likely scope of the effect.

Results

Table 4.3 shows the key results from the simulations. In interpreting the results the focus should be on the broad picture rather than on the precise numbers. As noted above it is not possible to be precise in calibrating the shocks in this exercise. Moreover each linkage in the model is subject to uncertainties and approximations. That said, the models do provide a formal and widely accepted framework for tracing through the various effects on the national economy and a means of quantifying their relative sizes.

The impacts on GDP and consumption shown above are invariably smaller than the direct impacts on the individual industry. This is due to series of linkages that modify the direct impacts on both the benefit and cost side. In particular:

- Any impact on export volumes are offset slightly by changes in the world price.
- They are also moderated by the exchange rate. The elasticity of the real exchange rate to mining export volumes in the steady state of the CIE model is around 0.3.³⁷ The combination of the movement in the world price and the movement in the exchange rate means that the impact on export values in dollar prices is not as large. While the price effects only impact on the mining sector, the impacts on the exchange rate are felt across all categories of exports (manufacturing, services and

³⁶ Perhaps another way of visualising this is to think of the asymmetry that drives the option result in terms of investment timing. The layer of access regulation and the introduction of multi player systems has an asymmetric effect on the timing of investment. It extends the planning process and delays the response of investment at the start of a boom. However it has no effect on the timing of the cancellation or postponement of projects when the boom comes to an end. No approval is required to cancel a project. As investment booms in the mining industry typically lasts two to three years, something that delays investment by say six months can be expected to materially reduce the level of capital stock in the industry over time.

³⁷ This in turn is broadly consistent with the reduced form elasticity found in a number of studies by Treasury and the Reserve Bank of Australia. See for example Blundell Wignall et al 1993, and the discussion in Douglas Thompson and Downes, 1997.

4.3 Simulation results (per cent deviation from baseline)

	<i>AusCubed</i>	<i>CIE AUSMac</i>
1. Increased Productivity^a		
▪ GDP	0.008	0.004
▪ Household Consumption	0.014	0.002
▪ Employment	0.003	0.001
▪ Real Exchange Rate	0.014	0.004
▪ Wealth	0.014	0.001
2. Delayed Investment^b		
▪ GDP	-0.11	-0.14
▪ Household Consumption	-0.06	-0.10
▪ Employment	-0.01	-0.02
▪ Real Exchange Rate	-0.25	-0.75
▪ Wealth	...	-0.11
3. Increased Risk Premium^a		
▪ GDP	-0.04	-0.03
▪ Household Consumption	-0.07	-0.08
▪ Employment	-0.02	-0.01
▪ Real Exchange Rate	-0.07	-0.12
▪ Wealth	-0.07	-0.03
Combined 2 and 3		
▪ GDP	-0.15	-0.17
▪ Household Consumption	-0.13	-0.18
▪ Employment	-0.02	-0.03
▪ Real Exchange Rate	-0.32	-0.87
▪ Wealth	-0.07	-0.14

^a Deviation after 5 years

^b Deviations averaged over the first five years.

agriculture). (In effect this mirrors what has happened in the recent boom — the Australian dollar rising with commodity prices reducing the Australian dollar for other exporters. While this is a cost to other export sectors, it is a benefit to importers and Australian consumers.)

- Finally a significant proportion of mining capital is foreign owned so that only part of the impacts on profits are felt by Australian households. The impacts on national income are less than that on GDP

The two models give broadly similar results. In comparison to the AusCubed results, the CIE model estimates slightly larger impacts from investment delays and slightly smaller impacts from increasing the risk premium. It has a richer dynamic structure, keying off the historical quarterly data and possibly does a better job of capturing the dynamics of the case where investment is delayed. It treats financial markets as forward looking, the business sector less so, and the household sector as largely backward looking. The far greater degree of forward-looking behaviour in the AusCubed model probably tends to attenuate some of the impacts on GDP and consumption of the case where investment is delayed.

Looking at the overall picture presented by the results, perhaps the simplest way to characterise them is that they show that the scale of the costs is potentially an order of magnitude higher than the upper limit of the benefits. Partly this results from the fact that the industry is extremely capital intensive. (This point is explained more fully at Appendix B.) Delays and increased risk premia impact on the whole capital stock, while the increased efficiency in the use of railways is only on one component.

The results are similar in some ways to the only other existing examination of the potential economic impacts of introducing the access regime to the Pilbara — a study by Port Jackson Partners. That study provided a range of scenarios around delayed expansion paths for the industry, or the abandonment of individual projects, with costs in terms of lost export revenue to the industry of between \$13 and \$29 billion over 20 years (on a net present value basis).³⁸ The modelling approach in this paper is very different, approaching the problem on a theoretical basis using dynamic models of the national economy, but the conclusion is broadly the same. Tracing through the direct impacts to the industry to the national economy and Australian households involves a range of offsets as mentioned above. Even so the net present value of a cost to GDP of 0.15 per cent of GDP measured over 20 years at a real discount rate of 5 per cent is approximately \$20 billion — broadly consistent with the scale of effects in the Port Jackson Partner's paper.

However, as mentioned there is a significant amount of uncertainty around the results. That said, the balance of probabilities seems to be on the downside. It is difficult to imagine that the benefits could be larger than those shown for the reasons already discussed, and in fact it seems likely that they would be much smaller and possibly even negative. At the same time it seems plausible that the costs could be much higher than those shown. We have only imposed relatively small delays in investment and small increases in the risk premium. However, much more work is needed to pin down the exact impacts on the national economy, and one would think that this should be an important part of establishing the national interest case. Given the uncertainty around the impacts, and the balance of results above, it is difficult to see how an argument could be made that the national economic benefits 'clearly' outweigh the costs in this case, as recommended in the Hilmer report.

³⁸ The Port Jackson Partners estimates use a real discount rate of 8.6 per cent and present the lost revenue as it would be evaluated by investors in the industry.

5

Specific case of Fortescue

In June 2004 Fortescue Metal's Group made an application to the National Competition Council for the declaration of a service on two railway lines in the Pilbara (the Mount Newman and Goldsworthy lines). The Council released a decision in December 2004 that the Goldsworthy line was part of a production process and therefore exempt from a declaration, but that the Mount Newman line was not part of a production process and therefore warranted further consideration. Submissions from the parties were called for and considered through 2005 and the NCC released a draft recommendation for comment on 4 November 2005. The final recommendation, which has not been released, was sent to the Minister (the Parliamentary Secretary to the Treasurer) in mid March. The Parliamentary Secretary has 60 days (until 22 May) to make a recommendation on whether a service should be declared. At the same time BHP and Fortescue have lodged applications to the Federal court in relation to the matter.

The application seems like a case in point of where national costs and benefits should be carefully considered. It is obviously a landmark case for the industry. However, despite the importance of the case the NCC's discussion of the national economic costs and benefits seems somewhat limited. As argued earlier the welfare benefits to Australian households are entirely indirect in this case and model based evidence is required to make an assessment. It is up to the NCC to demonstrate that the case is in the national interest in making its recommendation to the minister, and yet no detailed economic assessment of the likely costs and benefits of the decision to the national economy has been made. Given the results presented in the previous chapter, and the uncertainty that surrounds the impacts, it is difficult to see how a 'clear' case could be made that the national economic benefits outweigh the costs.

The maximum estimated direct benefit is likely to be bounded by the cost of duplicating sections of the Mount Newman railway, which the NCC puts at between \$350 and \$630 million.³⁹ However, the actual direct benefit is likely to be much smaller than this and could be negative. Given the rapid expansion of the industry it is difficult to see that transport

³⁹ NCC 2005, p. 46.

infrastructure if it were to be put in place would be under-utilised, or that the various parties would not agree to efficient commercial arrangements in the absence of the regulator. At most the imposition of the access regime would seem to be leading to a shift in the bargaining position of the parties — the difference being the ability to access rail haulage services at reasonable prices, or the ability to run trains on the line.

At the same time the specific nature of the industry means that a decision to declare a service has the potential to have large dynamic costs. The case creates a precedent and would have an impact on project planning and investment across the industry. The costs of delays in capacity expansions would be permanent, a reduction in national income and consumption felt year after year. The scale of these potential costs appears to be at least ten times that of the maximum possible benefit, and as mentioned the benefit seems particularly uncertain.

As discussed in chapter 4 part of the problem seems to stem from the difference between legal and economic approaches to uncertainty. Faced with uncertainty the NCC has approached its task by assessing the case against the legislated criteria such as:

- whether there is an increase in competition in a secondary market;
- whether it would be economical to duplicate the infrastructure; and
- whether an effective access arrangement already exists.

All of which are highly disputed by the parties.

In the NCC decision, the presumption is made that passing each of the criteria demonstrates that a benefit exists, even though it is clearly the case that it is impossible to be sure that a benefit exists. What is clear is that the decision would alter the commercial bargaining position of existing players, but the counterfactual of what the commercial arrangements would be under existing conditions is simply not known. Hence the benefit is highly uncertain.

When it comes to examining the potential costs that would arise through increased complexity in project planning and delays in capacity expansion these are simply dismissed as the responsibility of the parties to deal with and reach an agreement.⁴⁰ Yet the dynamic costs of these delays are

⁴⁰ By relying heavily on criterion b, whether it is economical to construct another facility, the NCC focuses on the economics of the railway line itself and the potential for scheduling problems etc. It does not focus on the wider ramifications for investment in the industry or the impacts on the economy as a whole. Hence it concludes that any 'deterrent of declaration on efficient investment' can be addressed by the ACCC in setting charges for the railway service (a further redistribution) (par 11.34, P.147). There is no attempt to

absolutely critical in an industry which faces volatile prices and world market conditions. There is no systematic examination at all of these. Nor is there any attempt to trace the costs and benefits through to the national economy and back to Australian households — even though, for this industry, the welfare effects are entirely indirect.

Consequently the case demonstrates the limitation of the current legal framework (which as noted is in the process of being changed) and the need for formal and rigorous analysis of the national economic costs and benefits in cases where there are significant national economic impacts at stake.

examine what drives investment in the industry or how the industry might be different to other industries (that are used as a precedent) in its impacts on the national economy. The question of the charges on the railway line is a minuscule one compared to the potential dynamic costs to the industry and the economy.

6

Conclusions

National Competition Policy was established in Australia with the primary purpose of improving national welfare by increasing efficiency in the economy. Part of this policy was to establish a National Access Regime by which access to essential infrastructure where natural monopolies may exist, could be provided to third parties. To implement this policy a set of criteria and rules were established all with the intent of improving economic efficiency and national income. The intent of the National Competition Policy and National Access Regime legislation is one of economic efficiency and not equity or fairness. It is through improving efficiency that national welfare is increased. But granting access to infrastructure can intrude significantly on property rights and this can result in significant costs. In particular, regulation can increase risk attaching to investments and cause lengthy delays in undertaking required investment.

Recognising the potential for regulatory failure and the potential costs, the three reports, the Hilmer report, the subsequent Productivity Commission Inquiry into the National Access Regime and the Prime Minister's Export and Infrastructure Taskforce, all highlight the need for prominence of a national interest test before deciding against regulatory intervention in granting access to infrastructure.

This issue is an important one and a case study currently before government demonstrates why. Using the draft recommendation to declare the Mt Newman to Port Hedland railway for use by a third party, shows that if the access regime leads to investment delays and increase risk premia, the cost to the national economy are likely to far outweigh any benefit. It seems likely that the costs could be at least ten times greater than any likely benefit.

While the national economic benefit cost test involves modelling, and any such results are subject to uncertainty and caveats, there is no way of assessing the national welfare effects other than by use of an economic model. This is because the welfare effects in this case are indirect. The effects cannot be captured in a legal framework.

That the benefits do not outweigh the costs in this case of the Pilbara iron ore industry, should not be a surprise. The third party seeking declaration of the railway line, Fortescue Metals Group, is traded openly on the stock exchange. That means its assets, including its iron ore leases, are for sale. Due to economies of scale, those assets are worth more to the existing operators in the region than they are to Fortescue or any other potential entrant. Existing operators have the natural advantage of port and rail facilities that they have built and paid for. Yet the existing operators have not purchased the mining leases from Fortescue. That can only mean it is not in their economic interests to do so and it is better for them to deflect resources to developing other alternatives in the region. In other cases where there have been highly economic alternatives resources to develop, the two existing operators Rio Tinto and BHPBilliton have purchased and developed those assets.

It is difficult to identify why the free market would not be producing efficient outcomes in this case. This should be a major cause of concern for the NCC. It highlights the need to undertake formal economic analysis of benefits and costs before making decisions of this type. If promoting the national interests is the primary objective of government policy, a thorough examination of the national economic costs and benefits should be applied to major policy decisions rather than using proxies or checklists of whether criteria are met. In the case of the national access regime, the public interest test, which is the bottom line of the access legislation, seems to have withered on the vine. It needs to be reinvigorated.

Appendices

A

The models

Two models have been used in this paper. The following provides brief descriptions of the models. More detailed documentation is available on the web sites or by request.

AusCubed Model

The AusCubed Model is a more detailed Australian version of the McKibbin Software Groups GCubed model. Rather than the standard eight industry structure of the GCubed model, Auscubed has 57 industries. The industry disaggregation is designed for analysis of greenhouse gas mitigation policies and hence most of the detail is for the agricultural, mining and manufacturing sectors. Mining is broken down into four sectors: coal; gas; oil; and other minerals. Service industry classifications are similar to those in the CIE model below. Given the level of industry detail, only two countries are included in the model Australia and the Rest of the World.

The G-Cubed model was developed by Warwick McKibbin and Peter Wilcoxon. The model was constructed to contribute to the policy debate on environmental policy and international trade with a focus on global warming policies, but it has many features that will make it useful for answering a range of issues in environmental regulation, microeconomic and macroeconomic policy questions. It is a world model with substantial regional disaggregation and sectoral detail. In addition, countries and regions are linked both temporally and inter-temporally through trade and financial markets. G-Cubed contains a strong foundation for analysis of both short run macroeconomic policy analysis as well as long run growth consideration of alternative macroeconomic policies. Inter-temporal budget constraints on households, governments and nations (the latter through accumulations of foreign debt) are imposed. To accommodate these constraints, forward-looking behaviour is incorporated in consumption and investment decisions. G-Cubed also contains substantial sectoral detail. This permits analysis of environmental policies which tend to have their largest effects on small segments of the economy. By integrating sectoral

detail with the macroeconomic features of the MSG2 model, G-Cubed can be used to consider the long run costs of alternative environmental regulations yet at the same time consider the macroeconomic implications of these policies over time. The response of monetary and fiscal authorities in different countries can have important effects in the short to medium run which, given the long lags in physical capital and other asset accumulation, can be a substantial period of time. Overall, the model is designed to provide a bridge between computable general equilibrium models and macroeconomic models by integrating the more desirable features of both approaches <http://www.sensiblepolicy.com/>

CIE Australian Macroeconomic Model

The CIE Australian Macroeconomic Model is a quarterly time series structural model of the Australian economy. It is essentially an outgrowth of the Treasury Macroeconomic (TRYM) model. It is an evolution of that model towards a CGE style model incorporating input output based demand systems and far greater industry and commodity detail than the original model, but retaining the same overarching design philosophy. Like the original TRYM model it has three decision units (the household sector, the business sector and the public sector) and three markets: the product market, the labour market, and the financial market. Like TRYM each equation has a long run representation. The long run components are combined to form a steady state version of the model which is simulated to provide forward values for expectational variables. Unlike AusCubed, which has an annual frequency, a richer theoretical structure and is largely calibrated, the parameters in the CIE model are entirely estimated off the historical time series data. The model is updated quarterly and used for detailed forecasting and sensitivity analysis. Rather than being designed primarily to assist thought experiments, it is meant as a practical tool to be used in day to day forecasting and applied economic analysis. The comparative advantage in a model of this type is that it is honed by being constantly tested against the data.

The model identifies 11 industries, namely:

- Agriculture
- Mining
- Manufacturing
- Construction
- Electricity, Gas and Water
- Communication services
- Finance and Insurance
- Property and business services

- Distributional services (consisting of retail trade, wholesale trade, and transport and storage)
- Consumer services (consisting of accommodation, cafes and restaurants, cultural and recreational services, and personal and other services)
- Human capital services (consisting of health, education and government administration).

More detail on the model can be obtained by contacting the CIE.

B

Impact of the risk premium

One question that arises from the results presented in Chapter 4 is how a small change in a risk premium can have such large impacts on productivity and output vis a vis a direct increase in capital productivity. The simple intuitive explanation is that the capital stock has to adjust to equate the marginal product of capital with the rental return (or user cost – the risk adjusted required rate of return plus depreciation). If the required rental return was 10 per cent and the risk premium increased by 1 per cent then for a given level of profits the capital stock would need to adjust by roughly 10 per cent to restore equilibrium. That is a policy which increased the risk premium by 1 per cent would need to increase the productivity of capital by around 10 per cent to come out in front.⁴¹ In the case of the application of the national access regime to railways in the Pilbara the size of the part of the capital stock that will be made more efficient is simply not big enough to have a large effect on overall capital productivity. Hence the risk premium and investment lag effects dominate.⁴²

Here we formalise this rough calculation to show why a 5 basis point (0.05 of a percentage point) change in the risk premium might cause a significant change in real output and hence productivity

In the long run the marginal product of capital depends on the interest rate, the risk-premium and Tobin's q according to the relationship:

$$\frac{F_k + \phi}{r + \delta + \xi} = q$$

⁴¹ The impact of a change in the risk premium on the interest rate and capital stock should not be confused with the impacts of monetary policy on interest rates. The effect of the risk premium is permanent, whereas interest rate changes induced by monetary policy are temporary.

⁴² Note that this result holds for an industry that is a price taker – that is faces an highly elastic long run demand curve. For a domestic industry with inelastic demand curves the price response to the fall in supply will lead to higher returns, truncating the adjustment of the capital stock. The risk premium impacts will be felt more in terms of prices than productivity.

where

F_K is the marginal product of capital;

r is the real interest rate;

ξ is the risk-premium;

q is Tobin's q ;

δ is the depreciation rate; and

ϕ is the adjustment-cost of installing capital (quadratic in the rate of investment).

The adjustment cost of installing capital is a function of the ratio of investment to the existing capital stock and, in the long run, is equal to the depreciation rate plus the rate of population and productivity growth — that is, it does not change. To focus on the effect of a reduction in the risk premium, assume that the real interest rate and Tobin's q are fixed. Then:

$$\Delta F_K = \Delta \xi = -0.0005$$

for a change in the risk premium of 5 basis points. If output is a Cobb–Douglas function of capital and labour, with a share of approximately 0.8 for capital then:

$$F_K = 0.8 \frac{Y}{K}$$

Consequently,

$$\Delta F_K = \Delta \left(0.8 \frac{Y}{K} \right) = -0.0005$$

$$\Delta \left(\frac{Y}{K} \right) = \frac{Y}{K} \left(\frac{\Delta Y}{Y} - \frac{\Delta K}{K} \right) = \frac{-0.0005}{0.8} = -0.000625$$

Using again the share of capital in output of 0.8:

$$\frac{\Delta Y}{Y} = 0.8 \frac{\Delta K}{K}$$

$$\frac{\Delta K}{K} = 1.25 \frac{\Delta Y}{Y}$$

The capital-output ratio K/Y in the mining industry is approximately 5, so substituting this into the preceding relationship yields:

$$(1 - 1.25) \frac{\Delta Y}{Y} = 5 \times (-0.000625)$$

$$\frac{\Delta Y}{Y} = 5 \times (-0.000625) / (-.25)$$

$$= +0.0125$$

$$= 1.25\%$$

If the company tax rate of 30 per cent is included in the analysis, then the initial relationship between the marginal product of capital and the risk adjusted real rate of interest needs to be adjusted thus:

$$\frac{0.7F_K + \phi}{r + \delta + \xi} = q$$

Proceeding as above, the percentage change in output is increased by a factor of $1/0.7$ — that is:

$$\frac{\Delta Y}{Y} = 1/0.7 \times 1.25\% = 1.78\%$$

Of course, the above is just a rough approximation of the size of effects. But the rough ‘rule of thumb’ here is that a 5 basis point change in the risk premium could lead to between a 1.25 per cent to 1.78 per cent change in real output in the mining industry.

Industries such as electricity gas and water, and communications are also extremely capital intensive (although less so than the mining industry) with GOS shares of around 74 per cent and 66 per cent respectively. This highlights the importance of the conclusion drawn by the Hilmer Committee and the subsequent Productivity Commission inquiry that regulators need to approach the question of access regulation extremely cautiously. It may be that where multi user regimes are necessary the access regulation can increase certainty and reduce hurdle rates of return. At the same time regulatory intervention that is poorly handled has the potential to be particularly damaging over time. As discussed in the text this appears particularly likely in the iron ore export industry.

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