

Future Funds and Infrastructure Investments: What Role, If Any?

Comments at the ANU/Lowy Institute
Conference on and Intergenerational
Financial Funds.

Sydney, August 24th, 2007.

Henry Ergas ♦

♦ The author has advised a number of entities that are directly affected by the regulations and other policy instruments discussed in this paper. However, the views expressed are those of the author writing in a personal capacity and should not be attributed to CRA International or any of its clients.

It is important in these discussions to make one's premises clear. Mine are as follows:

- By infrastructure I mean long-lived physical assets that provide the basis or physical support on which most economic and social activities rely. While the scope of this definition can obviously vary, I use the term to refer to the conventional utility industries – such as communications, electricity, transport (including rail links, ports and airports), water and sewerage services – as well as to the road network.
- There is nothing magical about infrastructure investment. Ultimately, it is a cost like any other, even though the stream of benefits generated by that investment is exceptionally durable. There is no virtue in having more infrastructure rather than less; rather, the crucial issue is that the costs associated with infrastructure be incurred efficiently, that is, in a way that maximises the net benefits they provide to society.
- However, while there is nothing magical about infrastructure, it is crucial to get it right. This is because many infrastructure assets are difficult to replicate, and some are natural monopolies. This means that under-investment in infrastructure is not self-correcting: alternative sources of supply will not develop, or develop efficiently, if existing suppliers are prevented from engaging in timely and efficient capacity expansion. The resulting bottlenecks are therefore likely to impose particularly severe constraints on economic growth.
- Properly regulated, most infrastructure investment should be commercially viable and private capital markets should be able to fund most of the infrastructure investment that is socially desirable. Moreover, it is usually desirable that it be so funded, as the “market failures” associated with private ownership are generally less severe than the “government failures” associated with public ownership, even when account is taken of claimed benefits of public ownership in terms of a lower cost of capital.¹
- That said, there are complex contracting issues associated with private ownership of infrastructure, and the efficiency comparison between ownership modes is affected by the extent to which those issues can be satisfactorily resolved.
- Additionally and importantly, there are areas of infrastructure which are not generally capable of being funded commercially. These include the bulk of the road network, which is unpriced and funded through taxation, and the “community service” component of the conventional public utilities.

Taking those premises as given, I will start by considering commercially-oriented infrastructure before turning to those parts of the infrastructure that are tax-funded.

The difficulties associated with securing efficient investment in commercially-oriented infrastructure need to be seen against the backdrop of the reform process that followed the Hilmer Report in 1993.² There is little doubt those reforms led to significant efficiency gains. These came mainly from the greater commercial focus that corporatisation – and even more so privatisation – brought to operations previously managed with little concern for costs and even less concern for

customer service. However, it has proven far more difficult to get the regulatory arrangements right, especially in terms of ensuring that the incentives are in place for efficient and timely investment. This was of less concern in the initial phase of reform because we entered the reform process with too much, rather than too little, infrastructure in place, allowing considerable scope for increased capital productivity, that is, for the ratio of utility capital inputs to GDP to fall (see Figure 1 and Figure 2). However, a decade of strong economic growth has focussed attention on the risk of capacity constraints emerging, with those risks being all the more salient given the significance and sheer size of the activities at issue (see Table 1; overall, the annual flow of capital services from directly regulated assets now amounts to some 3.5 per cent of GDP). The question then is whether there are distortions that prevent otherwise efficient investment in infrastructure from occurring.

In my view, there are such distortions and they are mainly of five types:

1. Regulatory arrangements that vest excessive discretion in regulators, creating scope for regulatory opportunism, that is, for regulators to expropriate returns on sunk assets;
2. Regulatory arrangements that are excessively complex, creating scope for gaming by participants in the regulatory process and delaying or even preventing efficient investment;
3. Vertically separated industry structures that are inimical to efficient vertical coordination, creating persistent difficulties when capacity expansion needs to be undertaken in a coordinated manner throughout a vertical production chain;
4. Risks and inefficiencies arising from continuing direct government participation in markets that are intended to operate on a commercial basis; and
5. Inconsistencies between policy instruments, including between and within regulatory instruments on the one hand and instruments of direct government intervention (such as subsidy schemes) on the other.

Each of these distortions is at work in virtually every infrastructure industry. Moreover, the distortions interact, with the outcomes of one distortion inviting others that add to the original distortion's costs. I want to illustrate this through a brief discussion of three major areas: telecommunications, energy and transport.

In telecommunications, it is the issues associated with regulatory discretion and time-inconsistent regulation that have been most acute, but those issues have resulted in other interventions that seem no less costly.

It is striking that over the period from July 2002 to November 2006, the regulated access charges received by Telstra from its competitors for the use of Telstra's assets *declined* by 64 per cent, supposedly starting from cost-based levels.³ However, Telstra's total factor productivity (estimated over the period from 2000-2005, which is the span of time for which reliable data is available) *increased* by only 7 per cent in total in a five year period, suggesting an annual rate of cost decrease in the order of 1.2 per cent. Regulated access charges, in other words, were being reduced nearly ten times faster than costs.⁴

The result has been twofold.

First, "build or buy" decisions by Telstra's competitors have been severely distorted. The most visible sign of this has been Optus' running down of its Hybrid Fibre Coax network – see Figure 3 – despite the \$2 billion dollars that it must have cost to build and the relatively low incremental costs operating such a network generally involves.⁵

Second, there has been very little incentive for Telstra to maintain its own copper pair network, leading to rising fault rates in that network and serious capacity constraints.

The policy response to these outcomes has not been to regulate less or to regulate better – rather, it has been to regulate more, and more poorly, through regulatory measures that impose substantial penalties for failures to meet service quality standards that are themselves set without any reference at all to cost-benefit criteria.⁶ Compounding the resulting distortions are direct government subsidies allocated with little transparency and even less careful comparison of costs and benefits.⁷ Understandably, matters have now come to a head in the dispute about high speed broadband.

Issues associated with regulatory discretion have also been flashpoints in energy markets.⁸ That said, these distortions have probably been overshadowed by two others.

First, the regulatory arrangements for determining inter-regional interconnection augmentation in the National Electricity Market (NEM) have proven seriously defective.⁹ Very little augmentation has therefore occurred, despite strong and continuing growth in load. Uncertainty about the future of interconnection in turn distorts investment decisions in generation, creating a potential bias in favour of peaking investment located near load and against investment in base-load plant.

Second, sovereign risk arising from continuing government ownership adds to the risk profile bearing on generation investment decisions. This risk cuts both ways, with Queensland seemingly willing to invest in significant base-load plant well ahead of demand, while New South Wales has been slow to respond to demand growth.

As a result, while the NEM functions reasonably well in allocating existing load to generation plant – i.e. in achieving productive efficiency, given the merit order and transmission constraints – it is less well-placed to ensure efficient investment going forward. As in New Zealand, these difficulties may invite further direct government involvement in generation, undermining the original rationale for reform.¹⁰

Finally, the transport of bulk export freight is highly profitable, so that it is surprising that binding capacity constraints would persist. However, they have, most visibly at Dalrymple Bay and Port Waratah. While many factors are at work, the difficulties have been made more intractable by vertical separation, with ongoing coordination failures between mine, track, above-track rail, and port – see Figure 4. Continuing government ownership of key parts of the infrastructure has added to the mix. So has the involvement of regulatory agencies, which have created opportunities for market participants to seek to shift costs on to each other.¹¹

There is a striking contrast here between the East coast, where vertical separation has been imposed, and the highly vertically integrated production systems in the Pilbara. This can be seen by comparing Figure 5 and Figure 6: investment in rail and port capacity in the highly integrated production systems in Western Australia tracked the upswing in world prices almost perfectly, while the response in Queensland occurred only with a very considerable lag. That difference casts added doubt on the Hilmer prescription of structural separation, at least in terms of securing efficient and timely investment.

Given all of this, the sensible policy response is to fix the regulatory arrangements – by limiting regulatory discretion, removing unnecessary regulation and imposing more discipline on policy intervention.¹² Doing that is the best way to allow investment to proceed as and when desirable.

Relative to that option, devoting tax-payer funds, say from the Future Fund, to patching over deficiencies in the regulatory arrangements would be plainly inefficient. On the other hand, once those deficiencies are resolved, intergenerational funds, public and private, could compete to provide financing to infrastructure projects, presumably thereby lowering those projects' cost of capital.

That said, there are areas of infrastructure where social returns on investment exceed private returns. This is most obviously so in those areas where infrastructure services are unpriced – such as the bulk of the road network – but also applies to some loss-making services provided, supposedly for social purposes, by otherwise commercial entities.

The primary issue in these areas is not the availability of funding *per se*, as governments can and do finance these activities through taxation. There is no inherent advantage in replacing that funding with funding from other sources, unless those other sources are more efficient in raising funds (i.e. impose a lower deadweight loss), in selecting and managing projects, or both.

While claims that other sources will raise funds more efficiently are often unconvincing,¹³ it is at least possible that they could do better in selecting and managing projects. Certainly, experience in transport suggests there is scope for improving efficiency in that respect.

In road, for example, estimates using the Bureau of Transport and Regional Economics' Road Infrastructure Assessment Model (RIAM) suggest that road capacity exceeds the economic level in 25 per cent of the National Highway System and up to 45 per cent of roads in regional South Australia.¹⁴ While these uneconomic investments have been going on, upgrades to the Pacific Highway, which are compelling in cost-benefit terms, have been long delayed.

Equally, in intermodal rail, which largely fails to earn a commercial rate of return¹⁵, the recent commitment to develop an inland rail link between Melbourne and Brisbane is very difficult to justify.¹⁶ That link is likely to both be uneconomic in itself and to further reduce the East Coast line's limited ability to achieve economies of density. Fundamentally, if the costs of addressing the structural problems of the East Coast line exceed the benefits – which they may – then it is not sensible to spend even more building an alternative that cannot handle the bulk of the rail freight task.¹⁷

No more defensible, on cost-benefit grounds, is the Victorian Government's decision to spend over \$700 million upgrading regional passenger rail services: and to do so without renewing the track with gauge-convertible sleepers – a very modest expense that could have possibly been a positive aspect of the scheme.¹⁸

These distortions in resource allocation reflect politicised decision-making in the presence of soft budget constraints. In theory, hardening those budget constraints could improve the efficiency with which the decisions were taken. This would most obviously be the case if the decision-maker did not internalise (i.e. capture) the political benefits associated with otherwise inefficient projects but did internalise efficiency gains in the construction and operation of the assets.

There are two broad approaches to achieving this “externalisation” of purely political benefits.

The first, “private investor”, approach relies on PPPs to import the discipline of private sector budget constraints. The assumption, simply put, is that since the providers of finance secure no gains from politically popular but commercially unviable projects, those projects will not be funded.

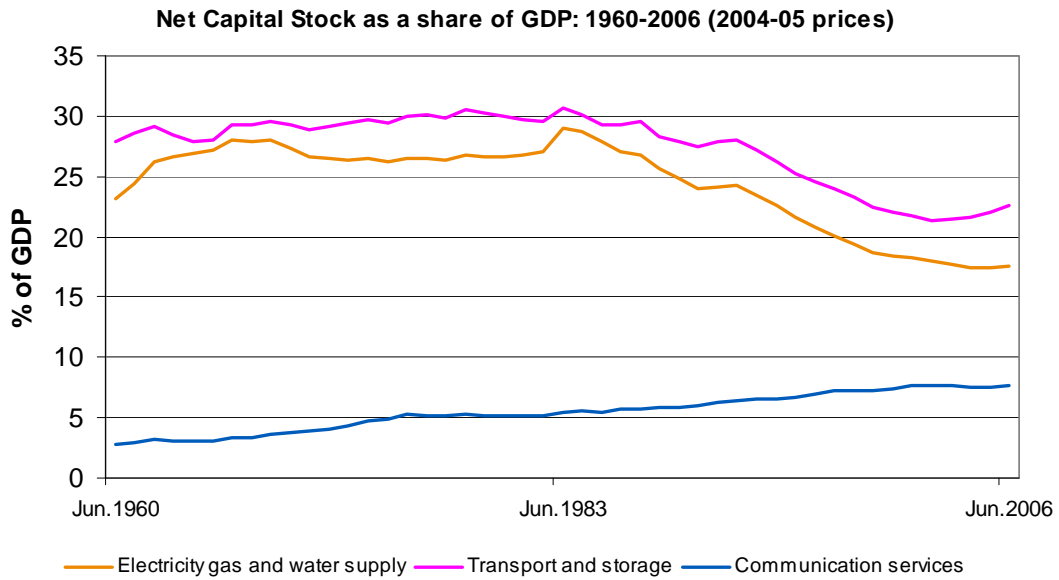
While PPPs deliver on that promise in some cases, in others, the criteria used to decide as between alternative funding options, the risk allocations that ultimately prevail and the pricing arrangements all appear inconsistent with even elementary economics.¹⁹ Additionally, even very inefficient projects can be made commercially viable through direct or indirect government subsidies.²⁰ The overall outcome can be that poor projects proceed but at even higher economic cost and with less transparency. Ultimately, PPPs are only as good as the governments that make them.²¹

The second, “public governance”, approach seeks to improve decision-making by distancing it from the political process. A well-known example in land transport are Road Funds, which receive hypothecated revenues and take responsibility for allocating resources to roads. While this model has proven relatively effective in some jurisdictions – such as New Zealand – it has worked more poorly in others (such as the United States), reflecting differences in independence, clarity of objectives, and commitment to rigorous cost-benefit analysis and public accountability.

There are approaches that have sought to combine features of each of these. These include the public and semi-public infrastructure funds that played an important role in Europe in the 1950s and 1960s, and that in some respects were multi-purpose PPPs.²² These funds took decisions in an environment where the choice of priorities was substantially simpler; even then, however, there were persistent controversies as to the efficiency of the decisions being taken. Certainly the Australian experience with economic development funds invites considerable caution.

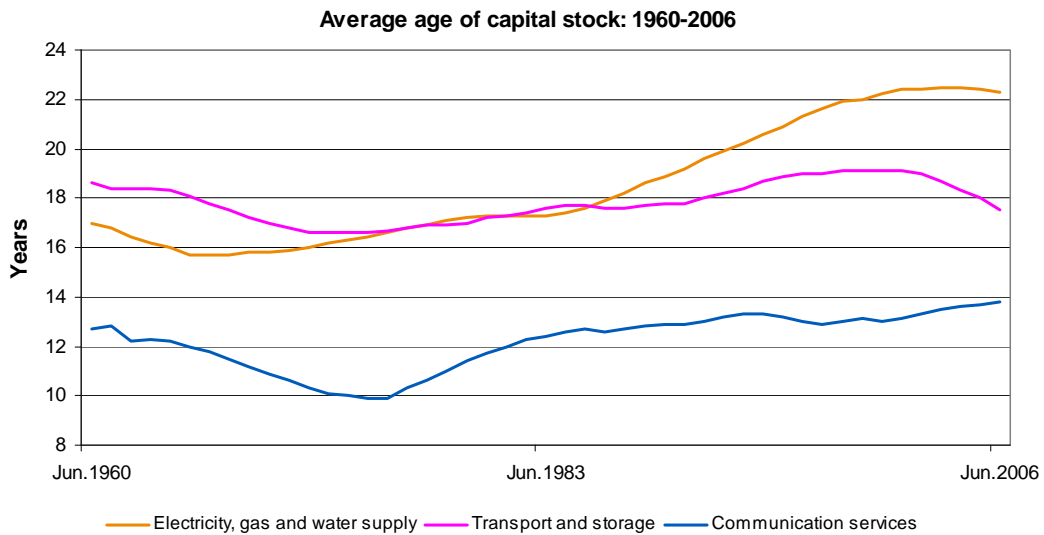
In short, there are serious issues associated with the efficiency of infrastructure investment, both in the commercial parts of the infrastructure industries and in those parts of infrastructure that are tax funded. The solution with respect to the first is clear: fix inappropriate regulation. As regards the second, we are still far from a consensus as to what works best and why. That said, a renewed and more credible commitment to serious cost-benefit evaluation of projects would be a very good start.²³

Figure 1: Trends in infrastructure investment: Net Capital Stock as percentage of GDP at 2004-05 prices



Source: ABS Cat No 52.04.0

Figure 2: End-year average age of gross capital stock, By industry (\$m)



Source: ABS Cat No 52.04.0

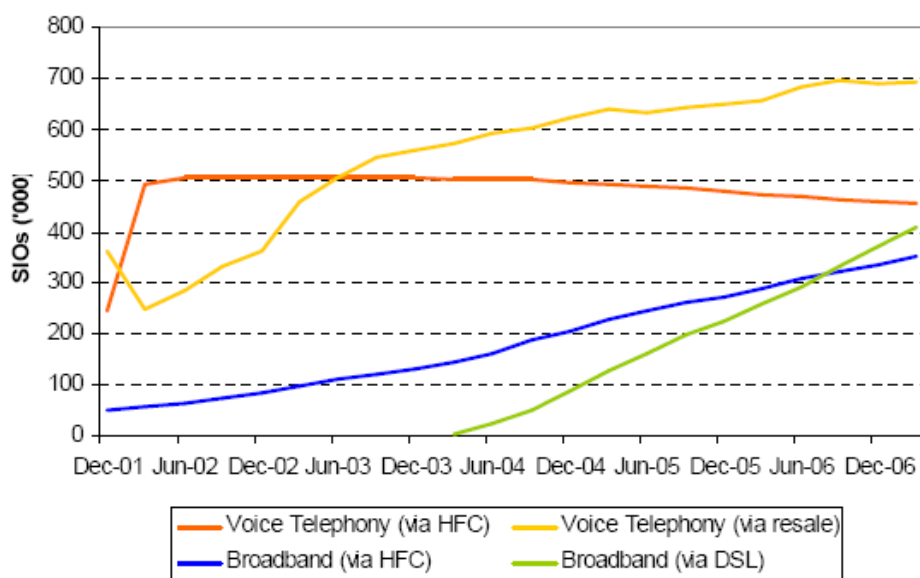
Table 1: Estimated value of regulated assets in Australia, 2006

Industry	Indicative asset base (\$bn)	Indicative economic life (years)	Indicative annual depreciation (\$m)	Return on capital (9.5% WACC) (\$m)
Electricity	42	20	2,100	3,990
Gas	12	50	240	1,140
Rail	27	40	675	2,565
Ports	9	30	300	855
Telecoms	36	12	3,000	3,420
Water	49	70	700	4,655
Airports	10	30	333	950
Postal	5	20	250	475
	191		7,598	18,050

Sources: AER State of the Energy Market 2007, Productivity Commission GTE report 2005-06, ACCC airport price monitoring report 2006, Analysis of regulatory decisions.

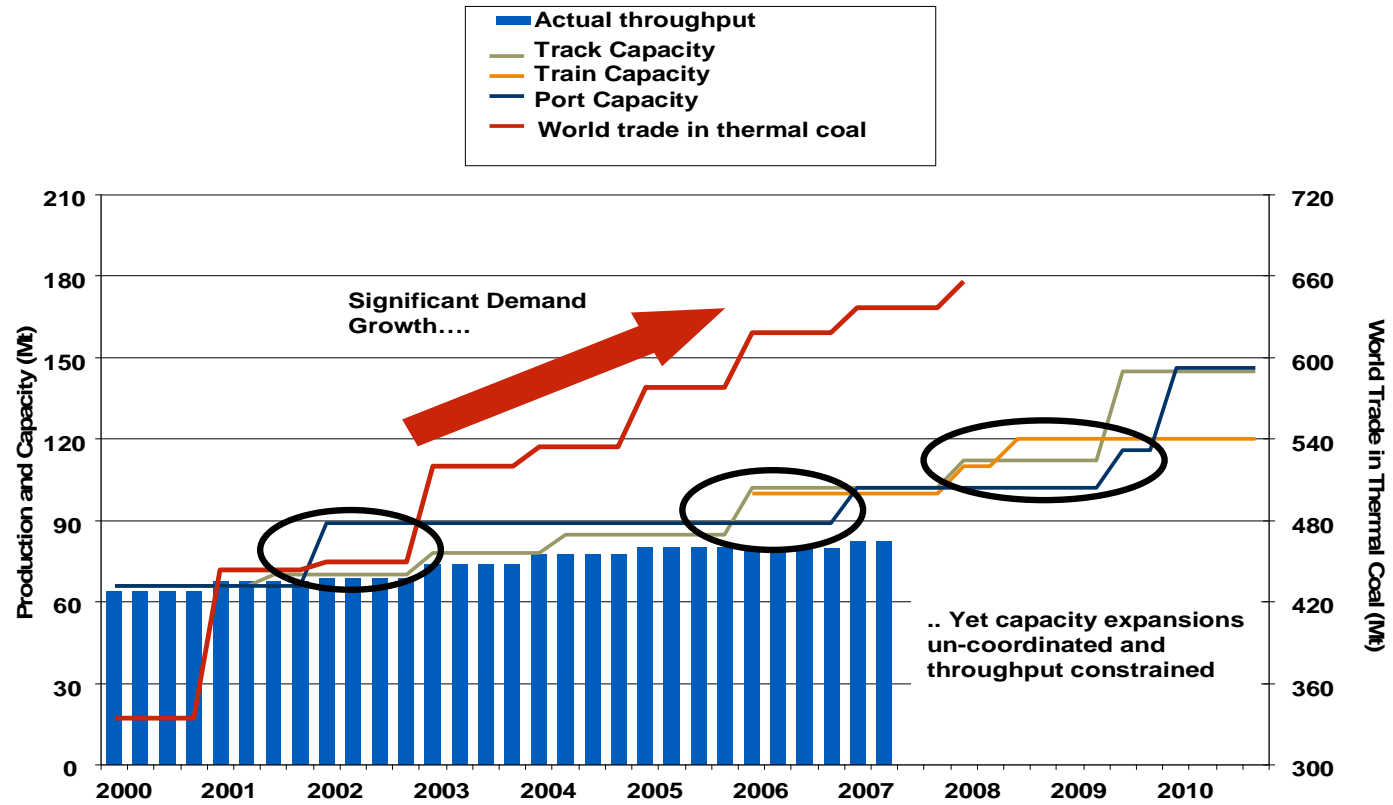
Note: These estimates exclude the value of assets that are materially affected by industry regulation but are not themselves directly regulated, such as electricity generation, gas producers and "uncovered" transmission pipelines and retail assets in telecommunications and energy.

Figure 3: Trends in Optus' use of its Hybrid Fibre Coax (HFC) network, as compared to use of wholesale services purchased on regulated terms from Telstra, December 2001 to June 2007



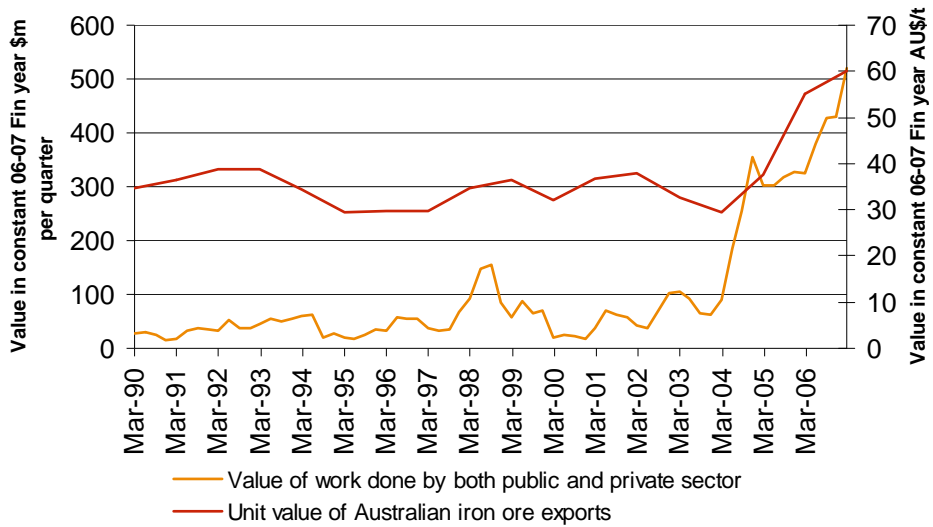
Source: Optus Annual Reports and Announcements

Figure 4: Capacity and Output at Dalrymple Bay



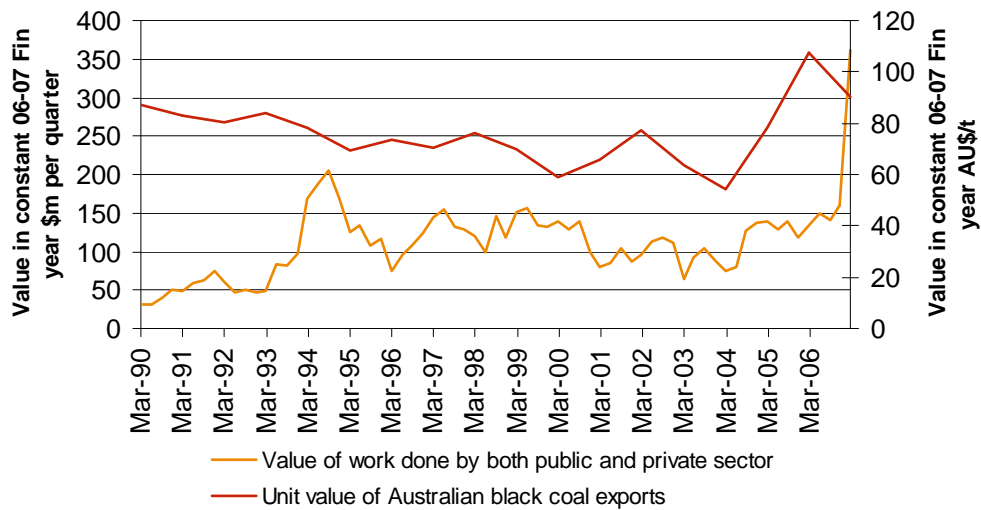
Source: PWCS, RIC/ARTC Annual Reports, Hunter Valley Coal Chain Logistics Team (various presentations & press releases), ABARE

Figure 5: Value of work done on railways, ports and harbours and bridges in WA and unit value of Australia iron ore exports, 1990-2007



Sources: ABS, CAT No. 8762.0; ABARE, Australian Commodities Statistics; values deflated using the CPI.

Figure 6: Value of work done on railways, ports and harbours and bridges in Queensland and unit value of Australian black coal exports, 1990-2007



Sources: ABS, CAT No. 8762.0; ABARE, Australian Commodities Statistics; values deflated using the CPI.

- ¹ This is not to accept the contention that the public sector cost of capital is indeed very low. Rather, it is clear that the social discount rate exceeds the risk free rate, except when the net income stream is expressed in appropriately measured certainty equivalents. Although it recognises this, the Victorian Competition and Efficiency Commission (2007) *Guidance Note on Discounting*, Melbourne, (to give but one example) recommends using the risk-free rate. This is plainly incorrect and understates the opportunity cost of capital to the public sector.
- ² As part of those post-Hilmer reforms, infrastructure activities previously run as government departments, or as statutory authorities, were corporatised, and in some instances privatised. Notably in energy and transport, this was accompanied by vertical separation, with separate entities being set up to own and manage stages in what were previously vertically integrated operations. In parallel to these changes, the regulation of these entities was either transferred to independent regulatory commissions or, in some cases, formalised into concession arrangements.
- ³ This is the simple weighted average of ACCC Indicative Prices for PSTN Originating and Terminating Access Service, the Line Sharing Service and the Unconditioned Local Loop Service. Applying revenue weights to these access services (i.e. calculating the average by weighting each service by its share in Telstra revenues for the three services combined) makes little difference to the result. The calculation excludes the Wholesale Line Rental service and the Local Call Service, which are pure resale services, whose regulated prices are set on the basis of a “retail minus” approach rather than on the basis of a regulatory estimate of the costs of service. Prices for the “retail minus” services are set on such a “retail minus” basis because retail price regulation requires the retail price to be set below long run average costs.
- ⁴ Equally, in a striking example of time inconsistency, the ACCC set the price of ULLS for 2005 at \$22 in Band 2 areas in its Model Price Terms and Conditions Paper (ACCC 2003, *Final Determination for Model Price Terms and Conditions of the PSTN, ULLS and LCS Services*, October) but in its most recent ULLS arbitration decision (draft final) it has retrospectively revised the 2005 price in Band 2 areas to a rate 42 per cent lower than this (\$12.60).
- ⁵ Optus has taken the commercial decision to abstain from providing cable telephony services to certain customers passed by its network including those in multi-dwelling units and those in single-dwelling units that are not immediately adjacent to its cable – see ACCC’s *Answer to Questions on Notice*, Question AT 47, Senate Economics Legislation Committee, 16 February 2006. This has the effect of excluding 0.8 million homes, or 36 per cent of the total 2.2 million homes, passed by the Optus HFC. Instead, Optus has chosen to serve these customers using Telstra’s copper network via the Unconditioned Local Loop Service (ULLS). While there are clearly costs that would be incurred by Optus in connecting customers to its HFC network – for example, in the case of multi-dwelling units, obtaining access to existing cabling or deploying new cabling – these are far from insurmountable and would more than likely be incurred by Optus if cheaply priced access to Telstra’s network were not available. As this has occurred, Optus has increased its use of access to Telstra’s network relative to its use of its own HFC network. Thus, Optus now has more DSL broadband customers than cable broadband customers. Moreover, while its use of third party access services to provide voice has been on the rise, Optus’s use of HFC to provide voice has been declining in absolute terms. It is equally striking that Transact in the ACT, having also recently built an HFC network, has begun to shift to using the Telstra Unconditioned Local Loop Service, as the regulated access charge for that service (which the ACCC claims recovers the *average* cost of the copper pair network) is below the *incremental* cost of operating the Transact HFC.

- ⁶ Prior to January 1998, there were no regulated service performance requirements and published consumer metrics were limited. Consumers therefore had no regulated guarantees of when telecommunications services would be connected or repaired. As part of the legislative package associated with the first phase of Telstra's privatisation, the Telecommunications (Consumer Protection and Service Standards) Act 1998 introduced a system of Customer Service Guarantees (CSGs) which were intended to fill that gap. Accompanying the performance requirements was a scale of damages that the carriage service provider was obliged to pay to customers if it failed to meet the level of performance set out under the CSGs. The levels at which the CSGs were set (both in terms of the service standards and in terms of the liquidated damages due to consumers in the event of breach) were largely arbitrary and certainly not the result of any form of systematic cost-benefit analysis (which could have determined whether the incremental benefits to consumers from higher levels of service performance exceeded the incremental costs). Indeed, a study I did with a colleague some years ago indicates that the costs of meeting those initial targets greatly exceeded the consumer welfare benefits. Thus, in 1999, the total benefits associated with addressing systemic quality problems (including in terms of consumer gains and network-related cost savings) were between \$644 million and \$713 million in present value terms over the length of the project life. These benefits were outweighed by the costs which (again in present value terms) were \$1,387 million over the project life. Since then, the CSGs have been steadily increased, while the consumer benefits from them have diminished, probably substantially. The Government has never accepted proposals to refer the level of the CSGs to the Productivity Commission for independent review.
- ⁷ Since 1996, nearly \$4 billion (expressed in 2007 prices) has been allocated for direct government subsidies to telecommunications services in non-metropolitan areas. From what one knows of the programs on which the outlays have been spent, it seems highly likely that at least half of the outlays have been completely wasted. To those outlays must be added the further \$1 billion recently awarded the OPEL consortium. For none of these amounts have any cost-benefit studies been released.
- ⁸ The setting of revenue and price caps for electricity transmission and distribution, for example, has been and remains contentious. Indeed, those issues were central to the problems that arose in South East Queensland in 2003/04, when the electricity distribution network failed to keep pace with the growth in demand, and that were subsequently the subject of an inquiry (the Somerville Review).
- ⁹ These arrangements centre on the so-called Regulatory Test for transmission investments, the requirements for which are set out in Clause 5.6.5A of the National Electricity Rules. That test distinguishes between reliability investments, which merely need to be assessed on cost-effectiveness grounds, and "market" investments, which need to be assessed in cost-benefit terms. It is the latter test that has proved unworkable. Revisions to it have been proposed by the Ministerial Council on Energy and the Australian Energy Markets Commission (AEMC), but it is at least an open question whether they will resolve the underlying problems.
- ¹⁰ In New Zealand, the Government intervened in 2004 to address perceived supply risks by commissioning a 155MW power plant.
- ¹¹ The coal facilities at Dalrymple Bay are declared under part 5 of the Queensland Competition Authority Act 1997 and are regulated by the Queensland Competition Authority. Many of the issues associated with the capacity constraints at the terminal are discussed in the recent O'Donnell Report commissioned by the Queensland State Government. Port Waratah Coal Services (PWCS), which owns and operates the Carrington and Kooragang Island coal loading terminals at the Port of Newcastle, is regulated under the terms of a lease from the New South Wales State Government and additionally, under the terms of a re-authorisation granted by the ACCC under the terms of section 90(8) of the Trade Practices Act to engage in conduct to which sections 45D, 45DA or 45DB of the Trade Practices Act might apply.

- ¹² This was the central recommendation of the Report of the Prime Minister's Export Infrastructure Taskforce. The specific recommendations made include placing more of the onus on regulators in terms of rejecting proposals put to them by access providers. That recommendation echoes one made by the Productivity Commission in its 2001 Review of the National Access Regime, but has not been acted upon.
- ¹³ An example is the claim that it is more efficient to fund roads through tolls than through taxes, so that PPPs should be used to build toll roads. This seems plainly incorrect. Were tolls indeed more efficient than taxes, and were government no less efficient than other sources of funds in project selection and management, then the government should build the roads, and charge tolls that are above the marginal externality cost of congestion by an amount sufficient to reduce the most distorting taxes up to the point where marginal deadweight losses are equalised. More generally, for many local public goods (such as street lighting and other local amenities), it is difficult to improve on the efficiency of properly-structured land taxes.
- ¹⁴ These estimates also find that maintenance expenses depart from efficient levels in a third of New South Wales roads, by length, and an even greater share of the National and regional South Australian road systems.
- ¹⁵ Intermodal rail in Australia suffers from enduring difficulties, not least a freight task in which the volumes naturally suited to rail are relatively small. These difficulties have been aggravated by quality problems in the rail network, with those problems being most acute in the approaches to Sydney. Vertical separation post-Hilmer produced some, significant, efficiencies in the short run, but probably made the underlying difficulties even more intractable. The result has been an intermodal rail network that is not generally commercially viable. The principal exception in that respect is the East-West corridor, but even there, access charges are below the long run replacement cost of the track.
- ¹⁶ To the best of my knowledge, there are no studies suggesting that the magnitude of the Brisbane to Melbourne freight task would be capable of supporting such a line any time before 2020. Rather, it seems clear that even on optimistic projections as to the magnitude of that task, and the share of it that could go by rail, an inland link would not be commercially viable. As for the period subsequent to 2020, it seems unlikely, on the balance of probabilities, that such a link could be viable, so that the risks involved in its construction are substantial. Obviously, the viability of such a link would be diminished were the East Coast Line improved. Equally obviously, it makes little sense to both improve the East Coast Line and build the inland link. As a result, the relevant issue is which of these options is more efficient: the answer is clearly the former, as it would also secure density economies from Sydney traffic. In short, if it makes sense to continue to invest in intermodal rail (which may or may not be the case), then the efficient investment is likely to be in addressing the bottlenecks that affect the East Coast Line.
- ¹⁷ If intermodal rail is to have any future on the East Coast, the issues associated with the accesses to Sydney need to be addressed. Funding from AUSLINK is being used to construct a Southern Sydney Freight Line (SSFL), consisting of a dedicated freight line for a distance of 30 kilometres between Macarthur and Sefton in southern Sydney. The objective of the SSFL is to provide a third track in the rail corridor specifically for freight services, allowing passenger and freight services to operate independently. The resulting single track (which will run next to the Main South Line between east of Sefton Park and south of Macarthur) should greatly reduce rail freight bottlenecks through southern Sydney and improve freight transport flows between Southern destinations and Sydney ports. While this will be a substantial improvement, the physical constraints on access will persist on the Northern approaches to Sydney, which are of obvious importance for rail flows to and from Queensland.
- ¹⁸ The current Victorian State government came into office with a commitment to convert most (but not all) of its railways to standard gauge (most of the intrastate lines in Victoria are broad (Irish - 1600mm - 5'3") gauge). As of yet, that conversion has not occurred. When rail has timber sleepers and changes gauge from broad to "standard" (Scottish - 1435mm - 4' 8.5"), all that is required is to drill additional holes into the sleepers and shift the rail inwards. However, if there are concrete sleepers, which are shaped for the gauge, there is a need to reshape for both gauges. As a result, the only way to regauge with concrete sleepers is if the sleepers have been made that way in the first place. If so, it is simple to unclip and reclip the rail - a relatively cheap option; if not, the costs are very high.

¹⁹ Obvious examples of difficulties with PPPs include the Airport Rail link in Sydney and – though views on this instance differ – the Sydney Cross-City Tunnel. Both of these projects involved substantial renegotiation, which materially altered the effective risk allocation. Equally, the urban rail franchises in Melbourne were renegotiated following the exit of National Express in December 2002. This is not to say that any of these projects were necessarily welfare-reducing but rather to highlight the many difficulties involved in designing effective PPPs. These difficulties are reflected in the high transactions costs associated with establishing PPPs, with those costs usually being in the order of 3–10 per cent of construction costs.

²⁰ These forms of assistance may be very opaque indeed. “Traffic shaping” measures, for example, have been used to divert traffic flows to PPP-financed road segments. The economic costs of these measures obviously fall in the first instance on motorists (in the form of additional congestion and hence travel-time costs) and subsequently to some degree on land values, but are real nonetheless. Similarly, ancillary concessions – such as rights to develop adjacent land – have been used to bolster the viability of rail projects. Finally, implied guarantees, associated with the scope for refinancing, are a form of contingent liability that bears on taxpayers and that is rarely properly accounted for.

²¹ Moreover, even if the efficiency of PPP-type arrangements were improved, they are of limited applicability in important areas of infrastructure (such as densely meshed urban road networks, and the local and secondary roads that account for a large part of ongoing outlays) where there is little scope to define viable, stand-alone, projects.

²² Examples of entities that provided infrastructure finance during that period include the German Kreditanstalt für Weideraufbau, the Caisse des Dépôts et des Consignations and the Credit National in France, and IRI and its affiliated financing structures in Italy.

²³ It is difficult to say how much role rigorous cost-benefit analysis has played in the allocation of transport funds in the recent period, but it would be reasonable to infer that that role has been quite limited, at both a Commonwealth and State level. Even the Australian Transport Council’s (2006) *National Guidelines for Transport System Management in Australia*, which define the approach to be taken to cost-benefit analysis, allow at section 2.12 for public policy determined “fudge” factors, to be specified by the agency undertaking the analysis, so as to reflect such policy considerations as distributional and regional weights. There is a fairly marked contrast here with the UK Treasury’s Guidance on cost-benefit evaluation (*Appraisal and Evaluation in Central Government*, (2006), generally known as “The Green Book”), which takes a more restrictive attitude to distributional considerations and similar “policy” factors.