# Road and rail pricing: some early observations ... and more questions*

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## Introduction

In its recent review of National Competition Policy Reforms, which I chaired, the Productivity Commission recommended a national review into the requirements for an efficient and sustainable national freight transport system, encompassing *all* freight transport modes.

We felt that there needed to be a much stronger focus on lifting the performance of the freight transport system *as a whole*, and on achieving outcomes that are economically, environmentally and socially sustainable. Efficient freight transport is vital for Australia's relatively small, trade-dependent economy, especially given our geography and widely-dispersed population and industry.

Well, we got the gig, as they say — or a significant part of it at least. COAG has asked us to identify:

- options and timeframes for introducing economically efficient road and rail freight infrastructure pricing, based on the principle of full cost recovery, including social and environmental costs;
- non-price barriers to competition and efficient operation of road and rail transport; and
- distributional impacts of any recommended changes, especially for regional and remote communities.

* Presentation to the CRA International Seminar, *Freight Infrastructure: What are the Challenges in Achieving Efficient Pricing?*, National Library, Canberra, Friday 28 April 2006.

Because of the breadth and depth of issues, and the ten-month time frame for the inquiry, there seems to be broad agreement that we will need to rise above much of the detail, and concentrate on areas in which we can add most value.

As indicated in the issues paper, we consider that a key contribution that the inquiry could make would be to establish a consistent framework and principles for efficient pricing of road and rail infrastructure for the long term, as well as feasible paths for implementing them over time. We also flagged our intention to explore mechanisms and institutional arrangements that would better integrate infrastructure supply and demand, especially for road. Our early consultations have revealed general support for this approach.

Given its broader and longer-term focus, it should be clear that the inquiry is not a re-run of the NTC's third determination. Inevitably, however, issues such as cost attribution will be re-visited. We also intend to set out paths for implementing longer-term policy goals, which will indicate directions for change in the shorter term.

We never had any illusions that this inquiry was going to be easy. Indeed, the deeper we dig, the more layers, the more challenges, we find ourselves confronting. Our initial observations on some key issues this morning, follow visits to about forty 'interested parties' so far (with more to come) and our wading through just some of the literature and consultants' reports. I should stress that we are still some way from coming to any conclusions: these remarks reflect 'work-in-progress' and are essentially an extension of the issues paper for the inquiry.

## Assessing intermodal distortions

A fundamental task for the inquiry is to establish the degree of subsidisation in rail and road freight infrastructure, both in their provision and use.

In the issues paper we suggested that competitively neutral pricing implies an absence of *differential* subsidies (implicit or explicit) between transport modes, or within them. No-one, so far, has suggested a better interpretation.

Full cost recovery — which is a requirement in the terms of reference — presumably would require that there be *no* subsidies at all related to freight infrastructure provision.

It would seem fair to say that underlying the establishment by COAG of the inquiry is a widely-held presumption that road freight is not paying its way. This presumption rests on three main contentions, namely:

- big trucks travelling long distances may damage roads more than they currently are being charged for;
- trucks more generally may impose external impacts on the community or the environment which are not included, or not included sufficiently, in freight charges; and
- freight users of road may not be making an adequate contribution to the true capital costs of road, both because of insufficient cost attribution and the PAYGO methodology.

## Capital costs of road versus rail

Taking the last issue first, cost allocation issues loom large from an intermodal perspective because road networks exhibit much greater economies of scope than rail. In addition to freight services, road networks provide local access as well as significant services for passenger transport. The costs of providing local access probably can be reasonably attributed to home and business owners. Some costs of road infrastructure also can be attributed to passenger vehicles and a significant amount directly to trucks.

While there is debate about how much road capital spending should be attributed to heavy vehicles, some costs inevitably are common to all users. Some say these should be allocated on the basis of vehicle kilometres travelled, others that larger vehicles should pay a proportionately greater share. There appears to be no unambiguously 'right' way to allocate these common costs — although efficiency could be enhanced by applying Ramsey pricing principles, at least in theory. We intend to look at the implications of different allocations of common costs. We are also conscious that what may look like a low allocation to freight vis-à-vis passenger vehicles, for instance, need not imply a *subsidy*, where there are genuinely common costs. Failure to attribute fully those capital costs unambiguously generated by trucks (such as deeper pavements and stronger bridges) would, however.

There is a lot of discussion about the implications of the PAYGO methodology for road charges. PAYGO can give the same outcome as life-cycle costing under certain conditions, but it would be a coincidence if those conditions were being met. Does this imply that road freight is being subsidised? A key criticism of PAYGO is that road users do not pay a rate of return on assets. Clearly they do not pay an

*explicit* rate of return to the government. But some argue that in paying 'up front' for road investment, road users themselves bear the cost of funding the investment, not the government.

Another issue is whether the level of road spending is 'optimal'. We're hearing that aggregate road spending has been inefficiently low for some time, allowing at least some parts of the road network to deteriorate in a way that is not economically desirable. If this were the case, it would follow that road freight charges, in the aggregate, have been too low compared with the amount required to provide efficient road service levels.

But this in itself need not mean that truck operators should simply pay more for the level of service they *currently* receive. It might mean that they should pay more to fund the increased road expenditure needed to *improve* the quantity and quality of roads. If the cost of poor road maintenance is borne largely by road users, then they (and the wider community) would be better off with higher levels of spending. A study cited by the World Bank estimates benefit–cost ratios for appropriate maintenance of roads of 2:1–3:1. On this basis, explicit road prices might rise but, all else equal, unit costs of road freight would decline.

In contrast to road provision, Australia's rail infrastructure now generally operates within a commercial structure, with maximum access charges based on a whole-of-life-cycle costing of capital assets. However, this does not mean that rail is unsubsidised.

It is generally acknowledged that many rail services are not priced on a full economic cost recovery basis, at least not if the expectation is that current services will continue. This occurs either because prices charged fall short of full economic costs as assessed by various regulators, or because, as is the case for Victorian rail infrastructure, substantial assets (including assets contributed by government) are excluded from the regulated asset base, resulting in lower allowable prices.

This implies one of two outcomes. Either significant rail investment will continue to rely on public funding, or else track and other infrastructure will deteriorate, reducing service levels. In practice, we observe periodic injections of public funds when asset deterioration threatens service viability.

As it is generally considered that road freight prices constrain rail prices, not the other way round, the point has been made that if road prices were to rise, so would most rail access prices. To the extent that higher rail access prices funded increased investment and maintenance, service levels could improve and effective user prices fall. But if higher prices and revenues merely displaced public subsidies, then the benefits for rail of higher road prices become less clear.

## Marginal cost pricing

It is hard to disagree that sending appropriate signals to infrastructure users about the costs they impose would lead to more efficient resource use and promote economic growth and community welfare. Mass distance and location-based charging for road use, and explicit charging for externalities (of road use in particular), are widely regarded as means of delivering more efficient social outcomes — and this is reflected in our Terms of Reference. This may well be the case but, as with so many matters in this inquiry, the way forward is not as easy as it might first appear.

### *Mass distance charging*

To charge for use, it is obviously pretty important to know what that use costs. We began this inquiry thinking that this had been established. We soon discovered that, beyond the generalities of 'power functions', it has not.

Damage to roads varies not only according to vehicle and load mass, the number of axles and, weight distribution, but also according to truck condition and the type, location and age of the road, as well as the weather. There is a wide range of views amongst engineers about the damage to roads and bridges of large trucks, yet this would seem important for implementing accurate mass (if not distance) charging. An alternative to engineering approaches is to apportion costs according to estimated econometric relationships between road use variables and road maintenance *expenditure* (rather than damage per se). The quality of the result, among other things, will depend on directness of the link between road damage and expenditure.

Realistically, the Commission is not going to be able to resolve debates amongst engineers about the damage inflicted by a 9-axle B-double passing over a bridge of a certain age on wet versus dry days. Instead, we hope to gain a sense of the broadly agreed ranges of appropriate cost attribution, and assess the impact on charges for different classes of truck. Given the lack of precision about the link between trucks and road damage, and difficulties in measuring 'real time' load mass, it seems mass distance charging would inevitably require a degree of judgement and averaging (though presumably it would need to involve considerably less averaging than currently occurs).

Monitoring technologies are also an essential ingredient in a shift to mass distance charging. Clearly, the introduction and timing of any such technological approaches should depend on the costs as well as their performance and the benefits from greater precision. However, we are also hearing that, over the longer timeframe

contemplated in this inquiry, technology should not be regarded as a constraint. It is seen as taking care of itself. That said, while technologies already in use can track location, time and distance, recording of mass *en route* appears more problematic.

### *Externalities and their efficient abatement*

The issues around externalities are also more complicated than is sometimes acknowledged. Efficient abatement of externalities would promote community welfare. But the fact that we observe accidents or pollution from trucks or trains does not necessarily mean that some effective actions are not already being taken.

The socially-optimal level of external impacts will rarely be zero or negligible, because actions that generate external costs also generate benefits. For road and rail freight, the benefit is related to the (sizeable) value of the freight task. In economists' jargon, the socially optimal level of the externality occurs where the marginal external cost reaches the marginal benefit, or where any additional activity would generate more social costs than benefits.

Whether existing measures (such as liability rules and safety and environmental regulations) efficiently internalise impacts is a matter for assessment. A rule of thumb for efficient abatement is that the policy instrument should target the source of the externality as directly as possible. It is conceivable that if other abatement mechanisms (including infrastructure user charges) have lower *unit* costs, substituting them for existing measures (such as prohibitions on use of a particular mode or vehicle) could *reduce* freight rates rather than increase them. The *net* effect on freight costs also will depend on whether the overall quantity of the external impact should be further reduced to achieve the optimum.

Most external impacts of transport use are not attributable to freight alone. For road, accidents, traffic congestion and air and noise pollution (which often are by-products of heavy congestion) are generated by passenger and light vehicles as well as heavy vehicles. Greenhouse gases are generated by all users of fossil fuels. More generally, while it is possible that targeting external costs attributable to transport alone would lead to some improvement in community welfare, such an approach will not always be the most efficient or effective. For example, imposing higher charges on Australian freight to reduce greenhouse gases could lead perversely to higher global greenhouse gas emissions if global demands switched to overseas production which was relatively more greenhouse gas intensive.

## Modal implications of competitive neutrality

If road user charges for big trucks *were* to rise, what would be the effect on rail? We are hearing a range of views and have seen some existing studies. Some suggest that rail could make significant inroads into the express freight market, others that the ability of rail to respond to increased demand is constrained only by lack of capacity. Against this, some argue that even with large price increases for road, any substitution would be limited because of innate differences in the freight services provided.

Some key factors influencing the outcome that have been identified include:

- The extent to which non-price factors drive modal choice;
- The extent to which higher road prices allow rail prices to rise to fund investments in rail necessary for improved service levels (including frequency and timeliness) — though what happens to any existing subsidies is also relevant, as noted previously;
- The location of road price increases. For example, it is conceivable that marginal cost pricing might lead to relatively larger price increases on lower quality regional roads where there is no competing rail service; and
- The extent to which higher road freight charges are part of a process that improves productivity in road freight, for example, by replacing mass limits or other non-price regulatory mechanisms.

It also has been put to us that the prospects for intermodal substitution are likely to be constrained by the legacy of past decisions. Longstanding underinvestment in rail infrastructure is often cited as a cause of current service difficulties. How this is best handled is unclear. But any rectification presumably would need to yield a pay-off in its own right. Importantly, efficient, competitively neutral prices for land transport infrastructure would signal whether increased investment in either mode is warranted in future.

Whatever happens *between* modes, cost-reflective pricing also has the capacity to bring about greater efficiency *within* modes through better use of existing capacity (a point Henry Ergas emphasised at the Commission's Federalism roundtable last year). For road, this could mean changes in fleet structures and fleet operations.

## Capturing the benefits of efficient prices

But demand management is only one side of the equation. The current disconnect between road charges and investment decisions is a fundamental constraint on efficient road infrastructure provision. More efficient road pricing, on its own, would not be sufficient to bridge this divide.

As mentioned earlier, we therefore see it as important, in meeting CoAG's expectations of this review, that we explore institutional arrangements and other mechanisms that would more directly integrate road infrastructure supply and demand. This includes examining the scope to run the road network more as a 'business', where charges and revenues are directly linked to services provided. Possible institutional models include 'effective road fund' and public utility models. Not only would the linking of payments to services rendered be likely to result in more efficient outcomes, it might help get support for efficient pricing in the first place. This leads to some final observations on implementing change.

## Implementation issues

The vote on the National Transport Commission's Third Determination provides recent evidence, if such were needed, that road pricing is politically sensitive. That is a reality, but we should not let it faze us. Australia is not unaccustomed to implementing politically difficult, but economically beneficial reforms, as evidenced by tariff liberalisation, industrial relations reforms and the National Competition Policy reform process. Experience tells us that critical elements of successful implementation include:

- a thorough public assessment of the problem, and of the costs if action is not taken;
- identification of practically implementable solutions together with an explanation of how they will improve outcomes;
- identification of winners (to help create a constituency for reform) and losers (to help assess the need for adjustment measures); and
- setting out a pathway which eases adjustment costs without unduly deferring the benefits of reform.

These are all areas where the Commission would hope to assist governments, as it has in the past.

Clearly, selling greater impositions on any group is a hard ask. It is particularly hard where users have developed expectations and even built the viability of their

businesses around low charges. For example, we have heard that low rail freight charges have become capitalised in the value of grain farms. When it comes to road pricing, any reform which involved higher charges might be more readily accepted by road freight companies and their customers if, at the same time, regulatory reforms reduced their costs, or if institutional reforms linked charges explicitly to the infrastructure services provided. At present, road users may be excused for viewing road charges as more akin to taxes than fees for service.

Similarly, from governments' perspective, the reality is that road charges are practically indistinguishable from (other) taxes. They do recover road expenditures, broadly speaking, but they have little influence on the investment or maintenance decisions that give rise to those expenditures. The Commission's Terms of Reference liberate it from being constrained by fiscal implications in making recommendations for more efficient freight infrastructure pricing. To the extent that charges are currently related to actual expenditures, the specific pathways through government might not be expected to pose too much of a problem. (However, the Transport Ministers' grounds for rejecting the Third Determination might suggest otherwise.)

Potential impacts on rural and remote areas, which are of particular concern to COAG, could be mitigated by parallel reforms. But, in some cases, efficient pricing might reveal or confirm that some services are simply uneconomic, requiring either explicit subsidisation if they are to continue on non-economic grounds, or a decision to let them close. If it is the latter, some direct adjustment assistance may be warranted.

## Next steps

This has been a brief run through of some of the framework issues that have emerged from discussions with participants over the past few weeks. Settling these and getting the analytical approach right will be fundamental. However, some key issues will only be resolved by empirical evaluation. That task is also ahead of us. We propose to distribute a draft report in early September for comment, which is not long off. To help us get there, we look forward to your submissions — the earlier the better!