

E – BRIEF



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Road Congestion Charging

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1 Introduction

The car is the dominant mode of transport in many large cities, including Sydney. This creates problems of congestion, atmospheric pollution and noise for residents.

Sydney traffic, measured as vehicle kilometres travelled, is projected to increase 35% over the period 2005 to 2020. This will be 54.7 billion kilometres travelled in 2020.¹ Total movement of people to and from the CBD will grow, accompanied by equivalent growth in light commercial vehicles, couriers and other vehicles servicing the city centres. This future growth is likely to cause significant road congestion.

1.1 The cost of congestion

Australia's road users are not meeting the full community costs of their travel choices. Australian road users cause community costs of about \$30 billion annually but only contribute a little over one-third of this amount in taxes and charges. With such poor pricing of road use, there is excess road travel, with its attendant community costs of road damage, congestion, accidents, air pollution, greenhouse gas emissions and noise and with adverse social impacts on those without access to private vehicles.²

Australia wide in 2005 the social cost of urban road congestion was about \$9.4 billion. This is calculated on the

basis of potentially avoidable costs. This total is comprised of approximately: \$3.5 billion in private time costs (losses from trip delay and travel time variability); \$3.6 billion in business time costs (trip delay plus variability); \$1.2 billion in extra vehicle operating costs; and \$1.1 billion in extra air pollution damage costs.

The national total is spread over the capital cities, with Sydney the highest (at about \$3.5 billion), followed by Melbourne (with about \$3.0 billion). The congestion cost for Sydney is estimated to rise to \$7.8 billion by 2020.³

2 Congestion Management Measures

There are six broad categories of congestion management measures. These are:

- Road supply management;
- Road demand management – non-price measures;
- Road demand management – price measures;
- Alternative means of passenger transport;
- Freight management;
- Urban land use planning.

To be effective congestion management must deal with each of these areas. This E-Brief focuses on road demand management price measures.

2.1 'Carrots and Sticks'

International experience has shown that congestion is best tackled with a combination of incentives and disincentives. This involves measures to restrict or limit cars, combined with measures to improve the alternatives of passenger transport, walking and cycling. Use of incentives alone has often been unsuccessful, since people are reluctant to give up the perceived benefits of driving their own car. Equally, measures to limit the car are unpopular and impractical unless the alternatives are made much more attractive and convenient.⁴

In a review of world cities, the UK Commission for Integrated Transport concluded that when a 'carrot and stick' are introduced in tandem, a modal shift from the car to more sustainable modes of transport can be achieved. London, Barcelona and Singapore are among the few cities in the world to successfully achieve this.

However, those cities focusing only on public transport improvements have not been able to secure significant change to travel behaviour. The benefits from public transport improvements in terms of fewer journeys by car and less congestion have not been sustained, as the vacated road space has simply filled up with new traffic.

Governments are increasingly analysing policy options to reduce congestion. For instance, the Commonwealth government has stated that the broader adoption of efficient pricing signals in the transport sector would be expected to significantly reduce urban congestion.⁵

A review for the Council of Australian Governments concluded that Sydney and Melbourne appear to have

sufficiently severe congestion problems to warrant these being addressed by charging policies.⁶

Similarly, the NSW Independent Pricing and Regulatory Tribunal has recommended that:

In the medium term, consideration should be given to increased use of environmental levies in the NSW tax system. In this context, a review of policies for addressing congestion, such as public transport options, parking charges and road pricing, should be undertaken.⁷

3 Congestion Charging

The 'sticks' or disincentives referred to in the previous section on road congestion have usually been applied via some form of road charging. In relation to urban congestion there are two main ways to implement this. An area charge scheme imposes a charge on all motorists that travel within a defined area. The charges may be levied either for crossing a cordon around the area or for circulating within the area. The second option is to charge for a selected route, such as a toll way.

3.1 Area charging

Area road use charging schemes have been in use internationally for over 30 years. However, there are no examples of an area charge road system in Australia. Area charging schemes have generated significant interest since the introduction of the London Congestion Charge in February 2003.

Vehicles entering the Congestion Charge Zone in central London are charged an £8 fee between 7:00am to 6:00pm Monday to Friday. In February 2007 the congestion charging area was extended westwards. Traffic

entering the congestion zone in 2006 was 21 percent lower compared to 2002. The Scheme generated net revenues of £123 million in 2006/07. Revenue is spent on transport improvements, particularly on improved bus services. A cost benefit analysis of the Scheme suggests that the benefits exceed the costs of operating the scheme by a ratio of about 1.5 with a £5 charge, and 1.7 with the current £8 charge.⁸

An international review of area road charging schemes concluded that they have been almost entirely successful in meeting their objectives. They have:

- Significantly reduced congestion levels and travel times;
- Improved the reliability of journey times;
- Improved the efficiency in distribution of goods and services;
- Improved the environment and amenity of city central areas.⁹

The Bureau of Transport and Regional Economics warns that the larger the charging area, the less effective the cordon charging (as distinct from charging for being in an area) becomes as a comprehensive tool to tackle congestion.

3.2 Toll route charging

Australia is among the leading countries internationally in the introduction of single toll routes in urban areas. For instance, in NSW there are 161 kilometres of privately funded toll roads.¹⁰

There are now some 12 toll route schemes in the metropolitan regions of the eastern capital cities (Sydney, Melbourne, Brisbane). However, these schemes are all on 'new' routes, or routes with major enhancements in

capacity. The emphasis has been on route tolling as a means of funding new infrastructure rather than managing congestion on existing routes. Further, most Australian toll road schemes are privately owned and funded, with the toll revenues being applied to recoup the up-front private sector investment to construct the route.¹¹

3.3 Variable tolling

Variable tolling (tolls varied according to time of day, distance travelled and/or vehicle type) as a congestion management tool is increasingly being trialled and used in a number of overseas countries, particularly the United States. Singapore also applies variable charges to its radial city routes, the prices of which are adjusted according to speed benchmarks.¹² The US Department of Transportation is providing US\$59 million over 4 years for value pricing pilot projects, looking at managing congestion through tolling and value pricing (ie variable tolling) works.¹³

A COAG review of urban congestion concluded that there may be scope within Australia to make greater use of variable tolling on a peak demand basis, where tolled motorways are widely used by the community. The adaptive use of 'e-tolling' would be relatively inexpensive to implement.¹⁴

However, where different tollway contracts are held by a number of different commercial concessionaires, negotiations to achieve this would be extensive. To be acceptable to the affected parties, toll adjustments would have to be revenue neutral. Where this would result in a substantial increase to peak hour tolls, they might not gain a necessary threshold of public acceptability.

The COAG Review noted that variable tolling may impose the least disruption to existing tolling arrangements. However, whilst pricing could be revenue neutral, the distributional impacts would have to be carefully considered. COAG concluded that a disadvantage of variable tolling is that it focuses more on route management rather than corridor or network management of congestion.

4 A Successful Congestion Charge

The BITRE notes that the keystone for successful congestion charging schemes is that they bring about some change in road user behaviour, essentially a reduction in peakhour use.

For any congestion charging system to work, these alternatives must have some attraction. Authorities generally have little influence over flexibility of road users' departure time and are similarly constrained in providing alternative routes. Thus, they logically focus on encouraging the use of alternate modes, in particular, public transport.

Good public transport could be key to behavioural change. Australia's urban form tends to work against good public transport. The BITRE concluded that this makes it less likely that a congestion charge can be successful.

The BITRE also warned that the important, and often-neglected, point is that successful zone (*cordon based* and *area based*) congestion charging schemes rely on good public transport for movement to, and within, the charging zone. Without good public transport it is likely that an excessively high level of charges would be required to achieve the necessary driver behavioural change.¹⁵

5 NSW Government

As part of the November 2008 mini-Budget, the NSW Government announced variable tolling for the Sydney Harbour Bridge and Harbour Tunnel. Once the toll becomes fully electronic early in 2009, the toll will increase from \$3 to \$4 from 6:30am to 9:30am and 4:00pm to 7:00pm. The toll will drop by 50 cents over night and remain the same during the day.

Treasurer Hon Eric Roozendaal MLC announced that the variable toll fees are being considered for all toll roads. The introduction of a variable toll on the Harbour crossing was met with some community concern, most notably that pricing as a congestion management tool was not being shared across the city.¹⁶

¹ Bureau of Infrastructure, Transport and Regional Economics, [Estimating urban traffic and congestion costs in Australian cities](#). Working Paper No 71, 2007.

² Moore, P. [Inquiry into Sustainable Cities](#) In [International Association of Public Transport, Submission to House of Representatives Standing Committee on Environment and Heritage, Inquiry into Sustainable Cities](#), October 2003.

³ Bureau of Infrastructure, Transport and Regional Economics, [Estimating urban traffic and congestion costs in Australian cities](#). Working Paper No 71, 2007.

⁴ Glazebrook, G. 'Many cities have decided to tame the car.' In [International Association of Public Transport, Submission to House of Representatives Standing Committee on Environment and Heritage, Inquiry into Sustainable Cities](#), October 2003

⁵ Australian Government, *Budget 2008-09, Paper No 1, Statement 4 Boosting Australia's Productive Capacity: The Role of Infrastructure and Skills*.

⁶ Booz Allen Hamilton, Council of Australian Governments, [Study of Successful Congestion Management Approaches and the Role of Charging, Taxes, Levies and Infrastructure and Service Pricing in Travel Demand Management. Review of Urban Congestion Trends, Impacts and Solutions](#). November 2006.

- ⁷ IPART, [Final Report - Review of State Taxation - Report to Treasurer 17 October 2008](#).
- ⁸ Transport for London, [Central London Congestion Charging, Impacts Monitoring, Fifth Annual Report July 2007](#).
- ⁹ Booz Allen Hamilton, Council of Australian Governments, [Study of Successful Congestion Management Approaches and the Role of Charging, Taxes, Levies and Infrastructure and Service Pricing in Travel Demand Management. Review of Urban Congestion Trends, Impacts and Solutions](#). November 2006.
- ¹⁰ Roads and Traffic Authority, *Annual Report 2007*, at 25.
- ¹¹ Booz Allen Hamilton, Council of Australian Governments, [Study of Successful Congestion Management Approaches and the Role of Charging, Taxes, Levies and Infrastructure and Service Pricing in Travel Demand Management. Review of Urban Congestion Trends, Impacts and Solutions](#). November 2006.
- ¹² COAG, Competition and Regulation Working Group, [Review of Urban Congestion: Trends, Impacts and Solutions](#). December 2006.
- ¹³ US Department of Transport, [Value Pricing Pilot Program](#).
- ¹⁴ COAG, Competition and Regulation Working Group, [Review of Urban Congestion: Trends, Impacts and Solutions](#). December 2006.
- ¹⁵ Bureau of Infrastructure, Transport and Regional Economics, [Moving Urban Australia. Can congestion charging unclog our roads? Working Paper No 74](#). October 2008.
- ¹⁶ ABC News, *Congestion tax flagged for across Sydney*. 12 November 2008.

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