



TRANSPORT ECONOMICS AND POLICY IN AUSTRALIA

A survey of some recent developments

by Anthony Casey and Sharyn Kierce¹

1. INTRODUCTION

Transport is a specialised subject both of economics and of government policy. The importance of movement in space and time to almost every market for goods, services and factors of production means that transport is a necessary interest of consumers, producers and governments. And what is interesting to consumers, producers and governments is of concern to economists and policy-makers.

In Australia, the Commonwealth Government has chosen to be informed by economic theory before making transport policies. In addition to employing specialists to conduct transport research, governments regularly take the advice of academic and commercial experts. Economics has guided policy, but policy has in turn led economics. Through their interest in finding economic answers to certain problems in transport, governments have encouraged the development of ideas and methods.

Transport economists are suppliers in the factor market of political ideas. As entry is cheap, there are plenty of rival suppliers and suppliers of complementary services. But it is an imperfectly competitive market with a product highly differentiated by price, scope and quality. The buyers are voters, but their agents are governments, and the latter are few in number. Policy advice displays economies of scale, too. Once an economic model has been sold, it is cheap enough to mass-produce.

Economists may believe that their product is as good as any on the shelf, but if they do not package it correctly, if they do not advertise its advantages, if they do not take account of market research, the needs of the buyer and successful practices by competitors, then their advice will sit there unnoticed.

This paper is summary market research. We discuss the connection between transport policy and economics at the Commonwealth level in Australia. We then consider the role of government and trends in transport policy and conclude with some reflections on aspects of the relationship between transport economics and policy, including the role of the Bureau of Transport and Regional Economics (BTRE).

¹ Sharyn Kierce is an economist at the Bureau of Transport and Regional Economics (BTRE). Anthony Casey was at the BTRE until last year and is now at the New Zealand Commerce Commission. The views expressed in this paper are the authors' and are not necessarily shared by the BTRE or the Commerce Commission. We would like to thank two anonymous referees for helpful comments, as well as Dr Mark Harvey, Ken Matthews and Joe Motha for comments and encouragement at various stages.

2. TRANSPORT ECONOMICS: SCOPE AND LIMITS

2.1 What is transport, anyway?

Economists were interested in transport before there was a transport economics. Adam Smith, for example, recognised that reducing the costs of transport between regions was important to commerce. It improved competition, reduced the cost of consumption and otherwise facilitated trade. (See, for example, Smith 1981 [1776], I.xi.b.5 where he recites the benefits of good roads, canals and navigable rivers.)² The classical economist's recognition of transport as important to regional commerce extended through to Marshall who gave technological advances in transport particular emphasis (Rostow 1990, pp. 183–4).

Before the twentieth century, economists had not yet divided the science into the many sub-disciplines that exist today. Transport was part of the greater economic problem. It was a means to an end. The end was communication between people and places, as where Smith (1981 [1776], V.i.d.17) says:

... in order to render that produce both as great and as valuable as possible, it is necessary to procure to it as extensive a market as possible, and consequently to establish the freest, the easiest, and the least expensive communication between all the different parts of the country; which can be done only by means of the best roads and the best navigable canals.

In this sense, the word 'communication' hardly appears in modern transport economics. This is a loss to us because it emphasises the behaviour that leads to transport choices. 'Communication' and 'transport' are old words. In the sense relevant to our subject, 'transport' appears as a verb from the fifteenth century, according to the *Oxford English Dictionary*, as an action from the early seventeenth century and as a means of conveyance after the Reformation. 'Communication,' in the sense meant by Smith, included material things, not just information or the media carrying information. From the 1600s, 'communication' referred to 'access or means of access between two or more persons or places; the action or faculty of passing from one place to another; passage (between two places, vessels, or spaces)'.

Outside discussions of military logistics, this use of 'communication' is rare today. Its loss is a pity because its association with transport reminds us why we undertake transport at all. It reminds us that people in different places want to communicate as traders, as tourists and as members of society. People transport things and themselves because they desire a communication with distant producers, buyers and others. In short, they want to communicate; in order to do so over distance, they must transport.

² See also an analysis of the relative costs of different modes of transport (I.iii) and suggestions for pricing policies for transport infrastructure (V.i.d). Smith's references to transport relate mainly to commodities, rather than passengers. Apart from referring to the peopling of colonies with 'felons and strumpets,' the one reference to human 'transport' in the *Wealth of Nations* is the observation that 'it appears evidently from experience, that man is, of all sorts of luggage, the most difficult to be transported' (Smith 1981 [1776], VIII.i).

Avoiding the association of transport with communication ignores the essential identity of the economic problems in modern communications economics and transport economics. Recent developments in activity-based transport modelling, spatial economics and investigating the relationship between transport and telecommunications provide help to direct attention back to the behaviour that leads to transport choices.

Economic discussions of transport can include a number of ideas about the subject, depending on policy agenda. Some agenda may draw attention to transport as a mechanical phenomenon, where the technical properties of particular vehicles or infrastructure may be evaluated with respect to policy objectives. Other agenda may require a focus on co-ordination within a network or between networks. Other pricing and planning options prompt economics to examine the composition of transport demand more closely. Usually transport is discussed as a kind of production different from that normally conceived in economics – the ‘widget’ industry, for example.

Mohring (1976, p. 1) distinguishes transport in this way:

The typical commodity of economics texts involves the physical transformation of materials from one form to another by people and machines located at a single point in space, while transportation entails the movement of people and things through space without (except accidentally) physical alteration.

Stubbs, Tyson and Dalvi (1984, p. 1) say that what distinguishes transport is that ‘each journey is unique in time and space; it cannot be stored or transferred’. Apart from quibbling with Mohring about whether it is possible that any two people or machines exist at ‘a single point in space,’ the observation that things transported move through space and are not physically altered in the process is essential to understanding the difference of transport as an economic activity.

Between time and space, transport economics emphasises time. Space and distance have no independent value to most people: they are a given and only have meaning in relation to time. Adventurers, surveyors, cartographers and explorers aside, no one sets out to traverse a greater distance in a given amount of time just for the sake of moving through a greater amount of space. People value destinations and time.³ Destinations may be defined by space and distance, but the important thing to most people is the satisfaction to be gained at the destination. We want the satisfaction offered by the destination sooner rather than later, so the time spent travelling is regarded as one of the costs of transport incurred in order to enjoy the end consumption.

³ It might be objected that a tourist could get greater satisfaction from covering as many provinces as possible in a six-week excursion of China, and if this were so, then the tourist would value the distance travelled. But the tourist is just packing more destination-value into the time available. Would the tourist be any less happy completing the same itinerary if China were half as large, everything else being equal? In microeconomic terms, space will determine the slope of the budget constraint, but it usually a fixed technological constraint to most people.

2.2 The characteristics of transport and the scope of transport economics

Transport systems affect our lives like few other activities or arrangements of resources. Roads and rail scar and define our built and natural environments. Exhaust and noise affect our health and comfort. Infrastructure claims large chunks of public money and fast-moving, heavy objects present an unnatural and common risk to life. Despite these less desirable aspects of transport, people and governments continue to spend money on it. We value the time that machines save us so highly that we are willing to tolerate social losses in addition to the material and labour used to provide transport.

If transport is a necessary part of reducing the length of time between the occurrence of want and the satisfaction of that want, if consumers and producers are free to choose alternative means of transport, if resources must be allocated to transport, and if there is a price for transport, then there is a transport market. And if exchanges and choices take place in a transport market characterised by scarcity and opportunity cost, then there can be an economics of transport.

Scarcity, demand, allocation, exchange: if this is all there was to transport, it would be no more interesting than any other economic activity (or at least, any other factor market). But transport poses economic problems that, if they are not unique to transport, are at least most commonly found in transport systems. Some problems are only sensible where the subject matter is transport. Network economics, for example, takes many of its more interesting problems from transport networks.

There is uncertainty about when transport economics, as such, began. Daughety (1985, p. 3) nominates Charles Ellet's 1839 study of optimal tariffs for a waterway. Ekelund and Hébert (1999, p. 3) locate the pioneers of transport economics in the Corps des Ingénieurs des Ponts et Chaussées. In the nineteenth century, Dupuit and his fellow engineers were developing methods and ideas still used for thinking about bridges and roads, and many other things, economically. Included in their legacy are ideas in cost-benefit analysis, utility theory and marginal cost pricing.

Winston's (1985) survey of developments in transport economics covers the twentieth century. He distinguishes between two general types of inquiry. The first attempts to solve transport problems using economics. The second explores and expands economic theory using transport as a subject. The first kind of inquiry tends to be policy-driven; the second tends to use transport as a motif, although policy-makers may pick up on the results.

Introducing his compendium of significant studies in transport economics, Mohring (1994, p. ix) identifies four reasons why transport warranted a devoted sub-discipline. These are:

1. Institutional characteristics. As in his 1974 definition, Mohring emphasises the movement through space of physically intact people and material. Stubbs, Tyson and Dalvi's (1984, p. 1) addition that trips are unique in space and time implies, according to them, monopoly characteristics in varying degrees. Walters (1987, p. 696) describes as typical road industries organised in small owner-driver units in competitive, sometimes regulated, markets. Railways are generally state-

owned or regulated and monopolistic. Airlines are often state-owned, but he noted the trend to private ownership. 'Ocean transport, especially the bulk-cargo business, is mainly in the hands of competitive private owners.'

2. The role of government. 'By building and maintaining highways, by establishing air traffic control facilities, by dredging and damming waterways, and by invoking their power of eminent domain, government agencies directly or indirectly provide rights-of-way for most forms of transport,' says Mohring (1994, p. 1). He adds, 'Transport regulation is still a way of life for a diminishing band of institutionally-oriented economists.' We discuss the role of government in the following section.
3. Economic impacts. By influencing location decisions and affecting property values, transport has an economic impact extending outside its own market. Transport evaluation studies use a range of methods to measure economic impact, but there is no general agreement on what impact transport has on an economy.
4. Cost allocation. For Mohring (1994, p. ix), transport economics comes into its own at this point. It is the work on cost allocation in the twentieth century that both distinguishes transport economics and draws it back towards conventional microeconomic analysis. For Mohring (1994), the key insight is this: a traveller is a consumer of transport services and a supplier of an input. The input in question is his own time:

The buyer of an airline ticket, for example, can be viewed as combining the airline's services with a vital user-supplied input, the traveller's own time, to produce a finished trip; the demand schedule for the airline's services is viewed as being derived from the demand for trips, not as an individual demand schedule in its own right (Mohring 1994, p. xii).

The view of the traveller as supplier and consumer is a profound one, and it makes life easier for the theoretician because the conventional rules of industry efficiency apply when the traveller's time input is counted. But it also suggests an empirical research programme, one that continues today: how to value time.

In addition to its innovations, transport economics borrows techniques from other branches of economics. Where, as it frequently is, transport investment is 'lumpy,' it is supplied in indivisible, usually sub-optimal amounts. Transport economics has therefore imported the theory of 'second-best' pricing from welfare economics. Transport economists need to consider the implications of joint costs, sunk costs and the behaviour of multi-product firms, so they make use of ideas in industry economics. As transport is a system of different organisations, institutions and modes (take, for example, a logistics supply chain), transaction cost economics is relevant (Panayides 2001). As transport outcomes depend on political choices and the success of interests to win rents from regulatory bodies, public choice is relevant (Ponti 2001). Hensher (2001) anticipates that the future of transport economics may involve understanding how people go about the search for information, rather than a focus on models that examine static end states. Many specialties sit within modern transport economics. The rest of this section considers only a few areas, but these areas are important to decision-makers in government.

2.3 Valuing time

Transport, to repeat, is primarily about time. Time provides the most interesting questions in transport economics. The time between the moment when a want or need occurs to a person and when it is satisfied will involve movement through space for some time, even if only to the fridge. If any distance separates the desire and the object of desire, some kind of transport must be employed. Both economists and policy-makers generally take an interest in transport once distances are non-trivial. At the level of Commonwealth policy this generally means distances that warrant using road, rail, ships or aircraft. As a trip is generally not valued for its own sake, people are willing to pay to reduce the time it takes. Time is not homogenous, however, and people may be willing to pay an additional direct or time cost in order to have better transport, according to quality criteria. Safe travel is generally more valuable than unsafe travel; comfort is preferred to uncomfortable travel; unimpeded travel is preferred to stopping and starting; sleeping, working and leisure time all have a different value to us; convenience and reliability make time more valuable; and shorter segments of time have a different hourly value than longer segments.

That time is valued is of course no insight of transport economics. One of the main tasks of transport economics is to find monetary values of time that are comparable with other things that are or can be denominated in money. Expressing the value of time in dollars allows us to show (or hypothesise) how people might equate travel time and, for example, income or consumption.

Time is often a critical factor in evaluating transport policies. For example, a 1996 Bureau of Transport and Communications Economics (BTCE) study of policy instruments designed to reduce greenhouse gas emissions in the Australian transport sector showed that implementing optimal road user charges in six capital cities would provide a net benefit to the economy—independent of any slowing of the enhanced greenhouse effect. The main source of benefit was time saving from reduced congestion.

In cost–benefit analyses or demand forecasting of proposed transport investment, time savings are often also the main feature. A new road is built to give people and goods quicker passage between two points. Whether or not it is worth doing so will depend on how people value time. If a proposed measure designed to improve road safety slows down drivers, the decision might depend on how much people are willing to trade off risk and time.

The cost to travellers (or shippers of freight) of transport is often called the ‘generalised travel cost’. This can be defined as follows:

The cost of undertaking a trip is the sum of financial outlays and the value of time spent on the journey. Financial outlays include both those that represent the cost of resources used (such as expenditure on petrol, parking charges, road tolls, or fares for public transport), as well as transfer payments such as an excise on petrol. The value of travel time can be estimated from utility equations ... or a proxy variable such as hourly wage rates can be used (BTCE 1996, p. 497).

In addition, other qualitative factors, including safety, comfort, connectivity and so on, can be equated with financial outlays and be included in generalised cost.

Consumers supplying their own time is surely true of other services where the end is desired and time sacrificed to achieve that end—for example, haircuts. But while the insight of passengers supplying time are yet to be exploited in the economics of hairdressing, it has allowed transport economists to disentangle some stubborn knots in transport project evaluation and enabled them to shape policies to deal with the multi-layered problem of externalities.

How can time be made commensurable with direct outlays? Valuing time is a controversial exercise, with empirical and theoretical questions being regularly examined. That time savings are valuable is axiomatic, but how to identify them is another matter. In a lively exchange in the early eighties, Abelson (1980) and Hensher (1981), for example, debated whether or not the standard value of time was adequately specified and valued. It was Hensher's view that travel time values are unreliable because we had yet to find a way to define what the cost of time means for empirical purposes. We are confounded because people's revealed preferences may not reflect their true preferences and because we are unable to distinguish between the opportunity cost of time and the disutility of time spent travelling (Hensher 1981, pp. 15–8).

Studying the value of time is of central importance to economics as a behavioural science and makes a great difference to evaluating transport policies. The research programme outlined 26 years ago by the European Conference of Ministers of Transport (ECMT) remains incomplete but actively pursued. According to the ECMT, we need further information on the 'value of working time; disentangling the effects of the duration and unpleasantness of travel activities; the perception of time spent travelling; the importance of the amount of "spare" time people have at their disposal; and public transport mode choice' (ECMT 1975, p. 8). The Bureau of Transport Economics' (BTE) (1999, p. 39) suggestions for future research add to the list 'convenience benefits from savings in freight travel time,' 'benefits from travel times becoming more predictable' and choosing the right value for non-business travel time.

Time valuation is an area where perhaps, despite the energies and insights of researchers, the subject is yet to achieve its potential in guiding policy. Road user pricing designed to alleviate congestion, for example, can be optimal only when we can discern the cost to drivers of delays imposed on them by other road users. How economists can advise policy-makers about how to infer time values in practice is a daunting question.

2.4 Externalities and environmental impact

Transport externalities and environmental impact have long presented a problem. Before the motor car, residents of large cities depended on horses and were often ankle-deep in externalities. Also metal-shod hooves, filth and rain combined to ruin soft road surfaces. Today we have different externalities to worry about, but the

transport economist has never been busier with them. Among the more significant unintended consequences of transport are:

- noise;
- pollution;
- visual disamenity;
- congestion;
- security hazards; and
- safety hazards.

Most of these topics are not exclusive to transport economists. Pollution, visual amenity and safety risks can be analysed without necessary reference to transport (but transport analysis often requires reference to these externalities). Noise and congestion, too, occur outside transport systems, though transport provides some of the most important examples.

Transport economists' analysis of externalities is concentrated on two main areas: valuation and corrective measures. Research on valuation explores various ways of making intangible benefits and costs commensurate with market values. Research on corrective measures considers the efficiency of these measures, often with a focus on the prices required to make those consuming transport take account of the social costs of their choices.

As with estimating time values, uncontroversial values for externalities and for environmental improvements and harm are more easily hypothesised than found. On this ground, the economist treads warily. The economist may feel relatively comfortable when considering markets consisting of voluntary participants, but when actions affect non-participants or when they concern environmental goods whose value may depend on bold ethical assumptions, the policy-maker may be right to consult additional or alternative approaches.

2.5 Evaluation methods

Roads, air- and seaports, bridges and canals cost a great deal of money to build and maintain. Most of this money comes from Commonwealth, state and local governments. Faced with limited budgets, not all proposals can be undertaken, even those demonstrably worthwhile. Economic evaluations help decision-makers by explaining the economic implications of various projects, perhaps allowing them to be ranked by (for example) a social welfare criterion. Economics helps government infrastructure investors, lessors and operators by providing advice on:

- pricing;
- economic effects of infrastructure and choosing between possible projects; and
- appropriate management structures.

Abelson (1980, p. 2) identifies the three major ingredients of a transport evaluation. They estimate '(i) construction, operating and maintenance costs (ii) user benefits and (iii) non-user benefits'. The first of these ingredients involves no special method.

Estimating user and non-user benefits (and costs) are where economics comes into its own (even though, as mentioned, engineers may have paved the way and posted the signs).

Economists have at their disposal a set of elaborate methods with which they can assist decision-makers to understand some of the consequences of infrastructure investment and expenditure programmes. Among these are cost–benefit analysis, computable general equilibrium modelling and input–output analysis. These methods are by no means exclusive to transport, but they are surely tools of the trade. Their persuasiveness is tremendous. The first two may be used to assert, for example, that society will be better off by a certain large measure if a project goes ahead. A decision to say no must answer the question of why these benefits should not be realised. Input–output models are often used to say that a certain transport industry involves, directly and indirectly, several hundreds local jobs. A decision not to proceed must answer the question of how these jobs will be affected. Cost-benefit, general equilibrium and input-output analyses may help policy-makers discover not only the impact of a particular project or policy but where this impact will occur.

Private interests, too, often use these methods to argue in favour of a proposal. And, as they are powerful and complex, so are they amenable to manipulation, exaggeration or error. Double-counting, wrongly estimated time benefits, the choice of an inappropriate discount rate and various other assumptions can skew a cost–benefit analysis to favour an argument. General equilibrium models have gained an enormous degree of popularity recently. One cause of their popularity must be the availability of cheap computing power. The complexity of the models makes them formidable tools with which to fashion an argument and their complexity increases the danger of misuse. Their workings are possibly inscrutable to all but a small number of specialists. Likewise, input–output analysis can simply be misunderstood as demonstrating something that it does not and cannot. Governments therefore rely on economic advice to examine, interpret and criticise these methods.

Simple models can be persuasive and effective, too. Nelson (1987, p. 62) observed that the US Civil Aeronautics Board chairman in 1977 and '78, Alfred Kahn, was successful at promoting airline deregulation among legislators, though he conducted the argument in terms not much more technical than undergraduate price theory.

In many cases, however, policy-makers rely on a wider set of criteria than positive benefit-cost ratios and changes in the sum of consumer and producer surplus to make decisions. Conflicting objectives – such as equity, preserving symbolic value or environmental concerns – along with the degree of uncertainty (sometimes understated) that underlies economic modelling, mean that the justification for decisions need to be supported by a range of approaches. Often the economic evaluation presented to policy-makers will have nothing to say on these matters. It is sometimes implied that economics does not place any weight on matters that are not readily expressed in dollar values. Rather, it may be that mainstream economics is reticent on some subjects out of scientific pretension or in full acknowledgement that its methods are inadequate to deal with them.

3. TRANSPORT POLICY: THE ROLE OF GOVERNMENT

Governments have played a pervasive role in transport, acting to a greater degree than they do in most other sectors. Governments have not only been investors in transport: they have exercised many types of control over transport services, prices, investment, labour and capital.

Stubbs, Tyson and Dalvi (1984) list four types of actions that governments undertake in transport markets:

1. control of quality: for example, in safety, governments set speed limits, vehicle safety standards, standards for bus and aircraft construction and control operating practices of both operators and owners.
2. control of quantity: typically in public transport: for example, licensing.
3. control of the organisation of the transport sector: for example, through ownership, regulation and competition policy.
4. and control of resource allocation: pricing and investment control, for example, through road user taxes, asset provision, subsidies and grants.

The emphasis between the use of these controls varies over time, between modes and between vertical sectors of transport industries. The instruments of transport policy are commonly legislative and financial. Stubbs, Tyson and Dalvi (1984) recognise that governments trade off objectives—for example, controlling quality (say, via a safety measure) may lead to reduced quantity (increased travel time or reduced service frequency).

The fundamental reason for government intervention in any area is the failure of the market to reach a socially optimal solution. Market failure can result from a number of areas. Ponti (2001, p. 1) argues that the transport sector 'looks specially prone to market failures: natural monopolies are dominant in infrastructures, environmental and safety externalities are of growing magnitude, as are congestion-related externalities'. Having insufficient individual incentive or information, or faced with insurmountable transaction costs, people rely on governments to intervene.

There are three key reasons normally given for government intervention in transport. First, some transport industries may be natural monopolies. Winston (1985, p. 67-68) shows that there is no consensus view on the existence of economies of scale in transport. He points to studies that find constant rather than increasing returns to scale suggesting that the scale economies justification for government regulation is not always applicable to transport. The distinction between natural monopolies in transport infrastructure versus transport operation has been emphasised recently. Natural monopolies associated with a railroad track do not necessarily translate to natural monopolies for rail transport.

A public good argument has also been invoked as a justification for government involvement. If private firms don't provide enough transport services for society, the government might step in. Governments might intervene to correct transport

externalities where policy-makers perceive that the private decisions of people supplying and consuming transport services affect others (for better or worse).

3.1 Transport policy and microeconomic reform

To 'correct' market failure, governments have to know what is the best outcome for society. Knowledge of the social optimum, or even of its general whereabouts, is not always possible. Even if technologies, preferences and inputs could be fixed, so that, at least in principle, an optimum allocation of resources could exist, the information required may be unknowable. Policies made in the absence of this knowledge can be worse than the failure of markets. In the past couple of decades, governments have appreciated that the market ought to be responsible for a greater part of the outcomes in national transport markets, with policies designed more towards setting the rules and monitoring their effects. Microeconomic reform in Australia affected few policy areas more than transport, and the story of how the trend towards reform happened is relevant to the contribution of economics to policy.

Problems with government intervention included perceived inefficiencies (wasted resources), lack of financial discipline and poor performance in terms of innovation and technology.

Winston (1985, p. 83) identified three primary effects of government intervention (in this case, regulation) on efficiency:

1. static deadweight loss (social cost) from rate regulation caused by setting rates in excess of long-run marginal cost;
2. dynamic welfare loss from excess capacity, attributed to exit regulation that has precluded abandonment of service; and
3. the adverse effect of regulation on technical change and productivity.

The policy shift toward microeconomic reform (reforms that included deregulation, corporatisation, privatisation, user pays *etc.*), of which transport was a large component, began in the late 1970s and gathered pace in the 1980s in Australia. Various explanations for such a fundamental shift in policy and its timing have been discussed (for example, see Dollery 1994, Gerritsen 1992 and Gregory 1992), though without complete consensus.

Deregulation was a new approach to transport policy. Starting in the mid-1980s, with the aim of improving economic efficiency, Commonwealth-owned transport infrastructure and operations were progressively reformed. Major government business enterprises like Australian Airlines, Australian National, Australian National Line and the Federal Airports Corporation (FAC) were directed to behave like private corporations. The Government prescribed financial targets (for example, cost recovery requirements, dividend policies, rates of return, user-pays principles and so on). And in 1990, the government ended the two-airline policy.

Part of these reforms often involved the creation of community service obligations to ensure that social objectives were met alongside commercial objectives. For

example, rules concerning the maintenance of existing rail and bus routes or services in particular areas were introduced.

After corporatising government-owned transport infrastructure and operations, the Government took deregulation a step further by selling transport assets. The FAC sold most of Australia's major airports to private firms. An 'open skies' aviation policy was pursued. Australian National was sold and the Australian Rail Track Corporation was set up to own and manage interstate rail infrastructure. Many state governments also sold their rail interests. In January 2002, the Commonwealth, NSW and Victorian Governments announced the sale of National Rail and FreightCorp to a private consortium. In the maritime sector, Australian National Line was sold, most states have corporatised their ports (although to varying degrees) and some ports have been fully privatised. The government still plays a major role in the provision of road transport infrastructure but there are now privately built and operated toll roads. Governments have embraced liberal economic principles at some levels, such as full cost-recovery and user-pays. However, Williams (1995, p. 115) argues that this has arisen 'from fiscal deficiencies, as much as economic philosophy'.

Other explanations suggest that the reforms were driven neither by financial imperatives nor by economic argument, but as a result of various other influences on public choices. The literature notes two opposing currents in the relationship between economics and transport policy. For example, Walters (1987, p. 696) notes that economics was a significant influence in driving transport policy in America toward deregulation. But Keeler (1984, p. 104) observes that governments embraced deregulation just as economics was accepting a theory of government intervention that explored the relationship between private interests and regulatory capture.

Until the 1960s, 'public interest' theories of government intervention dominated economics—governments intervened to improve social welfare. In the late 1970s, public choice theory produced an alternative explanation of government intervention. The 'private interest' or 'capture' theory put forward the idea that governments intervene in response to the competing demands of different interest groups. It was argued that regulatory capture was the real reason behind government intervention—that governments exerted favourable control in return for the votes and financial backing of interest groups. Public choice theorists predicted that regulatory capture and rent-seeking behaviour would lead to an increase in regulation.

Dollery's (1994, p. 86) argues for a synthesis of private interest and public interest explanations of microeconomic reform in Australia, a synthesis that might help explain why reform occurred in some sectors and not in others, or why some reforms were sudden and uncompromising while others took longer. Reforms were the result of a complex set of factors including:

- the influence of traditional economic efficiency and public interest theories;
- the emerging problems of government intervention identified by economists;
- the external environment—that current account difficulties in the mid-1980s led to a perceived need for reform;
- a shift in the policy agenda;

- the general move to the right in the prevailing economic orthodoxy—the rise of economic rationalism and the influence of the United States; and
- the increasing numbers and political strength of economists in the government bureaucracy.

For a detailed discussion of the relative importance of these factors see Dollery (1994), Gerritsen (1992) and Gregory (1992). Gerritsen (1992, p. 26) proposed a model to explain why microeconomic reform happened when it did. He identified three elements—a ‘policy community and public interest’; ‘partisan coalitions and pressure groups’; and the ‘politics of agenda-setting and agenda management’.

The incentives, influence and success of these competing interests change according to the opportunities available in the markets they focus on. So, for example, were an industry to change such that the costs of regulation rose and the benefits declined, then rational behaviour by interest groups could lead to reform (Dollery 1994, p. 89).

It is ironic (as Dollery 1994 and Keeler 1988 pointed out) that governments took notice of traditional ‘public interest’ economics at a time when economics was producing new theories to explain government intervention, theories that might suggest that governments could be persuaded to intervene more in markets. But this suggests that policy-making occurs under the influence of both public and private interests, and the balance between them will change with time and economic conditions. It also suggests that the economist is only one voice among many in policy debates.

In Australia, the transport policy community includes industry and sectoral policy networks—politicians (the Australian Transport Council), bureaucrats (the Standing Committee on Transport and its committees, National Road Transport Commission, National Transport Secretariat etc.), journalists, pressure groups (environmentalists, transport industry associations, motorists’ groups etc.), trade unions, academics and others.

All of these groups play a role in shaping transport policy with varying degrees of influence and agenda. Agenda-setting is very important in transport policy. For example, the role of the Interstate Commission, the Hilmer report and Crawford’s shipping report all put deregulation and competition policy reforms on the public and political agenda. Among so many competing views, economists do well to make themselves heard. ‘Economic efficiency has no guaranteed priority in future policy agendas’ notes Gerritsen (1992, p. 36 and see Gustafsson, Johansson, Falkemark, Garling and Johansson-Stenman 2001 for a discussion of goal conflicts).

Questions that will direct the future of transport policy will include:

- How much further can the deregulation, liberalisation and microeconomic reform process go in transport? How successful has it been? Who wins and who loses?
- Are economic rationalism and non-interventionist policies still the prevailing view amongst economists and policy-makers?

- After two decades of 'efficiency' focus are we seeing a shift toward an 'equity' focus?
- Will the pendulum swing back to interventionist policy? If so, when?

The structural adjustments (for example, job and service losses) which have followed deregulation have led to objections to 'economic rationalism' and a greater political focus on social issues in recent years. There is some evidence that transport policy is concerned more with distributional issues. The Roads to Recovery programme is a prominent example of this. The title of Ekstrom's (1995) paper, 'Past trends—the need for a break with these so that, while maintaining the prime importance of "policy", the ethical dimension of the problems is addressed,' is itself a summary of the choice faced by policy-makers.

4. THE RELATIONSHIP BETWEEN TRANSPORT ECONOMICS AND POLICY IN DOTARS

In 1978, the chairman of the economic research committee of the European Conference of Ministers for Transport summarised a symposium convened to discuss the contribution of research to transport policy (Frybourg 1978). He proposed three criteria that must be met before economics can make a successful contribution.

- economic research must show sufficient interest in transport problems;
- methods must be adapted to the quickly changing socio-economic environment; and
- there must be a readiness for dialogue between scientists and politicians.

These criteria remain useful when assessing the present state of the relationship between Australian transport economists and policy-makers.

Eleven years ago, at the seventeenth ATRF, Roger Beale, the Associate Secretary of the then Department of Transport and Communications, presented a paper titled 'The role of research in transport policy development'. The paper assesses research using similar criteria to those listed above. According to his view, the contribution of research (referring primarily to economic research), occurs at the following stages in policy-making:

- identification of issues;
- inquiry;
- development of options;
- political decision-making;
- implementation; and
- ex post evaluation of policy-making.

The BTRE is one source of economic research in transport policy-making at the Commonwealth level. The Bureau of Transport Economics (BTE) was established in

March 1970 within the Department of Shipping and Transport. Ian Sinclair, the Minister for Shipping and Transport in 1970, proposed the establishment of 'an investigatory body of experts who would concern themselves with the gathering and analysis of factual information about the transport industry and the analytical study of both broad trends and particular problems in the provision and co-ordination of transport services' (Sinclair 1970, p. 2). Federal Cabinet determined that this body 'would ... be given the greatest possible measure of independence' (Commonwealth of Australia 1970). While its areas of research interest have varied over time, transport has remained its main focus.

Reflecting the current Government's emphasis on regional development, the BTE became the BTRE in January 2002. Much of the BTRE's transport research explores the connection between transport and regional development.

The BTRE is not the only source of economic analysis in DOTARS, however. Quite apart from other economic agencies and consultants, economic training and literacy is becoming more common among public servants. The current Secretary of DOTARS, Ken Matthews, says that he uses an economic framework all the time and speaks of 'we economists' as those who deal with public policy in an economic way (pers. comm. 24 October 2001). As the 'economic way' becomes more commonplace in the public service, economic analysis will likely become more prominent in briefing papers and reports. As policy advice draws more on economic arguments, critical policy-makers will require economists to develop and refine their methods.

5. CONCLUDING REMARKS

A University of California economist, J. Bradford De Long, recalled a discussion after trade talks at the Clinton White House. An unsympathetic official rebuked the economist: 'What you economists don't see is that you are pushing for the public interest. But there are other interests that can be more important' (De Long 2000, p. 139). 'What can be more important than the public interest?' asked De Long. But he conceded that, in fact, many more things can be and are more important. Religion, pressure groups, electors' preferences, personal whim, bureaucratic ambition, prejudice, fear: many forces jostle with each other and economics to determine the actions of governments.

Political needs and recommendations from economics can be compatible. Williams (1995), for example, suggests that while a user-pays transport policy is worthwhile as an instrument for improving economic efficiency, it can find coincidental support among policy-makers. Sometimes aligning policy outcomes and economic advice is no co-incidence at all. Voters demand (among other things) good economics and politicians are happy to supply it.

What is the proper relationship between economics and transport policy? The views of three senior public servants are worth quoting. In 1957, the economist and Secretary of the Department of Trade, Sir John Crawford, addressed the following question to the Canberra branch of the Economic Society of Australia and New

Zealand: 'Do administrators take any notice of economics?' His answer was 'Perhaps yes, despite economics' (Crawford 1957, p. 1).⁴

His qualifications can be summed up as follows:

- '... the great issues of public economic policy *must be capable of literary exposition* if administrators and politicians are to be educated and influenced' (*ibid.*, p. 5, emphasis added).
- Economists could offer advice on particular issues even though the 'regrettable fact is that they don't. Is it that economists are afraid of public opinion or are there too few of them with time to spare to write publicly on such issues?' (*ibid.*, p. 6).

In a later paper, Crawford (1960, p. 41) wrote that bureaucratic economists have 'the obligation of the security [they enjoy] to maintain [their] intellectual integrity and to make sure that [their] Minister's policy views are subjected to critical but friendly and constructive analysis. On the other hand, having done [their] best to persuade [their] Minister that a proposed line of action is wrong,' bureaucratic economists' next obligation is loyalty.

Roger Beale (1992) said that the role of research 'is not a *prima donna* role. The voice of the researcher is not always listened to and that's the way it should be'. Research need not have immediate benefits, but it should 'develop our vision of future directions'. It's not easy to distinguish good researchers from bad ones 'who dress up dogma with fancy modelling' because the 'good ones will often sound bad'.

Ken Matthews (pers. comm. 24 October 2001) said that while economists can often be criticised for putting up unrealistic models that are too elaborate for policy-making, the best contribution the BTRE can make is to have thought about and have conducted research ready for when it becomes an issue.

The relationship between economists and policy-makers might have changed over the years, but the comments above show that two themes have survived. First, economists need to communicate better. This means not only explaining their views more intelligibly, but listening. Joining the policy conversation, in other words. Second, economists should anticipate policy. They might not lead policy, and they ought not to be surprised to find policy going in other directions, but economists need to be prepared to offer an opinion on where to head.

As a science, the point of transport economics is not to win every policy debate, or any. The point is to understand transport from an economic point of view. If that understanding informs and influences policy, then the economist and policy-maker are better off if they are aware of the strengths, shortcomings and potential of transport economics, along with its place in the dynamics of the policy community.

⁴ Crawford was himself later to make a significant economic contribution to transport policy in the form of *Revitalising Australian Shipping: An Overview* (Crawford 1982).

REFERENCES

- Abelson, P. 1980, *Transport Economics and Urban Transport Planning*, Research Paper no. 209, School of Economic and Financial Studies, Macquarie University, Sydney.
- Beale, R. 1992, The role of research in transport policy development, Paper presented to the 17th ATRF, 7–9 October.
- BTCE 1996, *Transport and Greenhouse: Costs and Options for Reducing Emissions*, Report 94, AGPS, Canberra.
- BTE 1999, *Facts and Furfphies in Benefit–Cost Analysis*, Report 100, Bureau of Transport Economics, Canberra.
- Commonwealth of Australia 1970, Cabinet Minute—Establishment of Bureau of Transport Economics—Submission No. 156, Decision no. 202, 5 March, National Archives of Australia: A5873, 202.
- Crawford, J. 1957, Do administrators take any notice of economics?, National Archives of Australia: A4112/1, Box 1—Vol. 1949/1963.
- Crawford, J. 1960, 'Relations between civil servants and Ministers in policy making', *Economic Record*, vol. XXXVI, no. 73, pp. 36–50.
- Crawford, J. 1982, *Revitalisation of Australian Shipping: An Overview*, AGPS, Canberra.
- Daughety, A. (ed.) 1985, *Analytical Studies in Transport Economics*, Cambridge University Press, Cambridge.
- De Long, J. 2000, 'Overstrong against thyself: War, the state and growth in Europe on the eve of the Industrial Revolution', in *A Not-So-Dismal Science: A Broader View of Economies and Societies*, eds. M. Olson & S. Käkönen, Oxford University Press, pp. 138–67.
- Dollery, B. 1994, 'The timing of microeconomic reform in Australia', *Economic Papers*, vol. 13, no. 3, pp. 84–90.
- ECMT 1975, *Impact of Infrastructural Investment on Industrial Development*, European Conference of Ministers of Transport, Paris.
- Ekelund, R. & Hébert, R. 1999, *The Secret Origins of Modern Microeconomics: Dupuit and the Engineers*, University of Chicago Press, Chicago.
- Ekstrom, A. 1995, 'Past trends—the need for a break with these so that, while maintaining the prime importance of “policy”, the ethical dimension of the problems is addressed' in ECMT 1995, *Transport Economics: Past Trends and Future Prospects*, European Conference of Ministers of Transport, Paris, pp. 24–27.
- Frybourg, M. 1978, 'Summary of the conclusions', *The Contribution of Economic Research to Transport Policy Decisions*, Seventh International Symposium on Theory and Practice in Transport Economics, September 1977, London.

- Gerristen, R. 1992, 'The politics of microeconomic reform: A bear's-eye view', in *Microeconomic Reform in Australia*, ed. P. Forsyth, Allen & Unwin, St Leonard's, pp. 24–41.
- Gregory, R. 1992, 'An overview of microeconomic reform', in *Microeconomic Reform in Australia*, ed. P. Forsyth, Allen & Unwin, St Leonard's, pp. 305–14.
- Gustafsson, M., Johansson, L., Falkemark, G., Garling, T. & Johansson-Stenman, O. 2000, *Goal conflicts in political decision making*, Goteborg University, Goteburg.
- Hensher, D. 1981, *Transport Economics and Urban Transport Planning: A Reply and Comment to Research Paper No. 209*, Research Paper no. 230, School of Economic and Financial Studies, Macquarie University, Sydney.
- Hensher, D. 2001, 'Transport economics and markets: A personal view', *Economic Papers*, vol. 20, no. 2, pp. 46–56.
- Hilmer, F. 1993, *National Competition Policy*, Report by the Independent Committee of Inquiry into Competition Policy in Australia, AGPS, Canberra.
- Keeler, T. 1984, 'Theories of regulation and the deregulation movement', *Public Choice*, vol. 44, no. 1, pp. 103–145.
- Mohring, H. 1976, *Transportation Economics*, Ballinger, Cambridge (Mass.).
- Mohring, H. (ed.) 1994, *The Economics of Transport* (2 vols.), International Library of Critical Writings in Economics 34, Edward Elgar, Hants.
- Nelson, R. 1987, 'The economics profession and the making of public policy', *Journal of Economic Literature*, vol. 25, no. 1, pp. 49–91.
- Panayides, P. 2001, The economics of organisation in intermodal transport: A transaction cost approach, Paper presented to the 9th World Conference of Transport Research, Seoul, 22–27 July 2001.
- Ponti, M. 2001, The European transport policy in a 'public choice' perspective, Paper presented to the 9th World Conference of Transport Research, Seoul, 22–27 July.
- Rostow, W. 1990, *Theories of Economic Growth from David Hume to the Present*, Oxford, New York.
- Sinclair, I. 1970, Submission 156, National Archives of Australia: A5869/1, Vol. 8.
- Smith, A. 1981 [1776], *An Inquiry into the Nature and Causes of the Wealth of Nations* (2 vols.), ed. R. Campbell, A. Skinner & W. Todd, LibertyPress, Indianapolis.
- Stubbs, P., Tyson, W. & Dalvi, M. 1984, *Transport Economics* (revised ed.), Studies in Economics 15, George Allen & Unwin, London.
- Walters, A. 1987, 'Transport', in *The New Palgrave: A Dictionary of Economics* vol. 4, eds. J. Eatwell, M. Milgate & P. Newman, Macmillan, London, pp. 695–701.
- Williams, A. 1995, 'Should the user pay? Lessons from Anglo-Australian history', *Transportation*, vol. 22, no. 2, pp. 115–34.

Winston, C. 1985, 'Conceptual developments in the economics of transportation: An interpretive survey', *Journal of Economic Literature*, vol. XXIII, no. 1, pp. 57–94.