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Workshop 3 report: Sustainable funding sources and related cost benefit measurements

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ABSTRACT

Recognising that public transport services generally deliver substantial benefits for society but frequently require operating and capital funding support, this Workshop sought to find ways to bridge this benefit/funding gap, particularly through benefit monetization. It elaborated a wide range of benefits from public transport services, to both users and non-users. In regard to non-users, there was a particular focus on the role of public transport in promoting positive external benefits, such as agglomeration economies, and reducing the negative external costs of car use. A number of ways in which the service funding requirement might be reduced by improved system management were considered, such as better fare evasion practices and more effective public private partnerships. A range of funding opportunities was then reviewed, from which two preferred bundles were developed. Value capture was seen as a vital funding opportunity, both for supporting operating funding and capital funding requirements. Funding circumstances that were seen as more properly a governmental responsibility were identified.

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1. Context

Recent Thredbo Conferences have broadened their public transport discussion agenda beyond ownership, contracting and privatisation into wider contemporary public transport policy issues. Workshop 3 at Thredbo 14 continued that trend, partly building on discussions from Workshop 6 at Thredbo 13 on 'Delivering Sustainable Public Transport' (Stanley & Lucas, 2014). That workshop underlined the importance of sustainable funding streams for sustainable public transport, emphasising that sustainable funding depends, in turn, on a clear understanding of the fundamental public transport value creation proposition, but that Workshop did not explore the value creation-funding link in any detail. Workshop 3 at Thredbo 14 built on this foundation by seeking to comprehensively identify the benefits and costs of public

transport and then link this to possible means of funding services and service improvements. Such funding will ultimately come from either government, at some level, users or others who benefit in some way from public transport services. A fundamental underlying proposition for Workshop 3 participants was that if public transport delivers significant community benefits, as participants accepted, then improved identification, measurement and monetization of those benefits should be of considerable assistance for sourcing the scarce funding needed for system and service operation and improvement. Public transport benefit analysis thus provides a foundation for a sustainable funding proposition.

The Workshop had 22 participants from eight countries (Australia, Brazil, Chile, Mexico, Norway, South Africa, Sweden and the US), coming from government, academic, NGO and industry backgrounds. Fourteen papers informed Workshop discussion, covering theory, policy analysis, case studies and/or evaluation. Workshop discussions were structured around groups of papers on fare policy and fare evasion (discussed in section 2), scoping and valuing public transport benefits and costs (Section 3), some aspects of service delivery to ensure efficient outcomes and hence

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reduce funding requirements, including some aspects of Public Private Partnerships (Section 4), and on funding mechanisms (section 5). The current paper is organized around these themes. In subject areas where the workshop lacked papers, comprehensive discussion provided the basis for Workshop findings. The Workshop concluded by forming proposals for policy, research and for future Thredbo Conference agendas (Section 6).

2. Fare policy and fare evasion

A fundamental welfare economic proposition underlying efficient resource allocation is that users of some particular service should meet the marginal social costs attributable to their use of that service, including net external costs imposed on others, unless there are particular identifiable policy reasons for doing otherwise. Exceptions usually involve concerns about the adverse distributional consequences (regressive outcomes) from applying this marginal social cost pricing rule.

In public transport terms, user pays is largely about fare setting. The Workshop paper by Pillay and Ngcobo (2015) discussed a number of the key policy issues involved in fare setting, using South African examples. They argue that a desirable transport subsidy framework for South Africa (part of which reflects the costs of fare concessions) must: (1) address social equity associated with structural poverty (where they observe that many low income households spend more than 20% of their household budget on public transport, including minibuses); (2) encourage the productivity of public transport operations (where they outline how off-peak fare concessions have been used in Cape Town to shift some users from the congested peaks); and (3) incentivise a modal shift from private to public transport (to reduce external costs of car use, such as GHG emissions).

Pillay and Ngcobo (2015) focus, in particular, on ways of implementing a more effective pro-poor fare policy on Johannesburg's Rea Vaya Bus Rapid Transit system. Their analysis considers three groups of fare structures: distance-based options; flat fare options; and hybrid options. The hybrid options involve specific targeting of fare discounts to poor areas, one option applying a fixed lower flat fare for all travel from poor areas and the other applying fare discounts that increase as the level of poverty in an area increases. These two hybrid options produced the best results, in terms of household savings accruing most effectively to the intended poor households, with the lower flat fare option having the benefit of simplicity to implement. The authors argue that, in a context of tight government funds, the increased subsidy payments required for such a pro-poor fare policy should be met by levying a transport tax on higher income households or a property tax, a matter to which we return in section 5. They note, too, that applying any such pro-poor fare discounts to the formal public transport sector leaves untouched the minibus (taxi) sector, which plays a larger transport role for the poor in South Africa. As a consequence, fare policy needs to be framed more broadly.

Two Workshop papers discussed fare evasion as a public transport policy issue. If fare evasion can be cost-effectively reduced, whatever the ruling fare policy, then the sustainable funding challenge is made somewhat easier. Guarda et al. (2015) identified a number of factors that help to explain the level of fare evasion on Santiago public transport. The explanatory variables that were found to be statistically significant included the level of inspection, the proximity to a metro or intermodal station, the level of bus occupancy, period of the day, geographical location and the number of passengers boarding and alighting at a bus stop. The authors develop an optimizing (revenue-cost) model to help improve the effectiveness of ticket inspection strategies, showing that these strategies can be net revenue positive without

necessarily having to fine fare evaders. They find, for example, that effectiveness can be improved by better targeting of inspection regimes to take account of area income and time of day, fare evasion varying with these two factors.

Bucknell, Muñoz, Schmidt, and Navarro (2015) examine the 'emergency trip' feature of the credit-based fare system that exists in Transantiago. This system gives credit to users with insufficient funds on their smartcards, from 9pm to 9am. The paper evaluates a methodology to infer involuntary fare evasion (those who want to pay but have insufficient funds on their card), through analysis of smartcard system data. This methodology is applied in a pilot evaluation to assess the impact of extending the benefit availability period from 9am to 11am (with no change to the start time of 9pm). The analysis showed that an unannounced extension could effectively reduce fare evasion but that evasion increased if the extension was announced. The authors suggest some ways in which the latter effect might be mitigated, such as requiring higher minimum card balances.

Analyses of the type reported in these two fare evasion case studies are useful ways to increase net revenue flows to public transport operation, contributing to a more sustainable funding outlook.

3. Public transport benefits

Identifying and valuing the various benefits and costs associated with public transport service provision was the most substantial discussion topic of Workshop 3. Participants identified the following benefits:

- user benefits
- non-user benefit (option value/existence value)
- agency benefits (including changes in costs of competing modes)
- positive externalities from public transport (such as 'wider economic benefits')
- reduction in negative externalities (particularly from use of competing modes)
- safety and security
- brand value
- fostering stronger communities, building social capital and supporting livability.

Some other 'benefits' were also considered but these can largely be subsumed in the above generic list. In discussion it was noted that some of the listed benefits might be capitalized into land values, an area of increasing focus for funding service improvements (discussed in section 5).

User benefits from public transport are associated with the value of the opportunities that can be accessed by public transport, compared to the generalized travel costs (especially time, money and accident risk) of accessing those opportunities by available alternatives. How travel time is used affects this value: thus, if public transport allows passengers to use time-in-motion effectively, this contributes to the value of the service. Non-residents (visitors) who can travel about because of the presence of public transport also receive user benefits.

Net user benefits of a public transport service are often measured as the consumers' surplus accruing to users of the service, which represents the difference between total willingness-to-pay and the amounts actually paid by users.¹ If a change in service level is being evaluated, then the relevant user benefit measure is

¹ Or by a similar measure such as compensating variation.

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