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The Entrepreneur Rail Model: Funding urban rail through majority private investment in urban regeneration

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ABSTRACT

The 21st century has seen an unprecedented expansion of urban rail as a response to urban congestion, low carbon mobility and as a seed for urban regeneration. Many cities would like to do much more rail in their futures to create knowledge economy centres but cannot find the funding, including Australian cities that are the focus for this paper. Four approaches to funding are outlined from fully government to fully private with two in between. The Entrepreneur Rail Model suggests a majority private sector funding can facilitate the new markets for urban regeneration as well as providing integrated rail that government's usually find difficult to fund. The process requires transit planning to be seen primarily as a land development tool rather than a transport system. This was the historical function of urban rail in the nineteenth and early twentieth century and signals a significant new 21st century rail market as well as the need for new procurement and governance systems for land assembly and transport planning that can ensure network integration, new assessment models and public good outcomes.

1. Introduction

The 21st century has seen a simultaneous decline in automobile dependence, growth in urban rail and a rapid increase in urban regeneration with positive economic, social and environmental outcomes (Newman & Kenworthy, 1989, 1999 and 2015). However, the process has mostly been funded by governments and now the demand is far outstripping their ability to provide the capital and the on-going operations to fund the required expansion. Many governments across the world, particularly in rapidly growing cities in Asia, are seeking ways of bringing private sector funding into the provision of urban rail. A new model for funding urban rail using majority private investment has been adopted by the Federal Government in Australia. The Minister for Cities echoed the sentiments of many cities when he stated the new policy approach:

> *"It is clear that rapid growth in major capital cities can't be accommodated with existing public funding models. All levels of Government in Australia are facing budget constraints. While there are a number of major infrastructure projects underway or in planning, we are unlikely to be able to sustain this rate of investment in the long-term. If we are to provide the transport infrastructure that Australia's cities will need in the future, we will have to find new ways of paying for its construction. One of the fairest ways to fund new infrastructure investment is for the beneficiaries of that infrastructure to contribute to the cost"* (Hunt, 2016, sec 3.2).

Many other cities are going through a similar transition. This paper will set out the basis for such a new funding approach as proposed for Australian cities, and the potential for it to be applied to any city as well as the way to achieve the best land development, network integration and other public good outcomes.

2. Why cities want urban rail?

The dramatic decline in car use per capita that we have begun to see in the 21st century (Newman & Kenworthy, 2011) is paralleled by an unpredicted and unprecedented expansion in urban rail (Newman, Glazebrook, & Kenworthy, 2013). The reasons for these changes are still being discussed but are now seen to be mainstream urban economics. The value of urban rail to economic activity is based on a number of key overlapping factors. These are outlined in Newman and Kenworthy (2015) but are summarized in five key factors:

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2.1. Time savings

Urban rail can now go faster than urban traffic and thus saves travel time (see Table 1). Traffic has been getting slower and slower as road capacity fills very quickly and most cities have now recognised that it is uneconomic in time and space to try to satisfy this. Urban rail can go around traffic and so the ratio of rail to traffic speeds everywhere (since the 1990s in Australia) have been increasing, and are now greater than 1 in all but North America.

2.2. Increased land values

As urban rail has been built, densities have begun to increase around such systems, as they provide the amenity that creates urban development opportunities. Land value increases around rail are universal. See Table 2 for some examples as well as the data from McIntosh's studies in Perth which showed 42% increase in land value along the new Southern Rail above the other suburbs without rail (McIntosh, Newman, & Glazebrook, 2013).

Land value increases around rail occur because people want to live or work near them so they can have no car or one less car and because they want easy access to the jobs and services attracted to the area. Thus, there is a private value in rail projects that is not usually turned to advantage in building the rail system; those who own the land just receive wind-fall profits. However, governments do get some value flowing back to them through increased land-related taxation (see McIntosh, Trubka, & Newman, 2013, 2014).

2.3. Agglomeration economies in activity centres

Density in activity centres is strongly related to urban productivity. This case is strongly made by Harvard Professor Ed Glaeser (2011) in 'The Triumph of the City', and has been measured in many cities, including Melbourne (See Fig. 1). This phenomenon of agglomeration economies is caused by the clustering of urban activities and jobs that require face-to-face interactions for the creativity and innovation related to urban productivity gains, particularly in the knowledge economy sector.

2.4. Land development efficiencies

By focussing urban activity rather than scattering it, there are significant economic efficiency gains (Newton, Newman, Glackin, & Trubka, 2012). Urban infrastructure is saved for energy, water and transport; around $100,000 per block in Australian cities is saved whenever a residence in the suburban fringe is not built in favour of redevelopment. Urban services are more efficiently provided for health, education, and other social services. Health productivity is increased due to greater walkability and activity when people drive less, and an increase in productivity due to healthy workers of some 6% has been estimated (Trubka, Newman, & Bilsborough, 2010c). As a result of such transit-oriented development there are household cost savings and affordability particularly because TOD residents can reduce their vehicle ownership and associated costs (see Arrington & Sloop, 2009), large reductions in per capita traffic fatality rates, parking facility cost savings, and improved mobility for non-drivers, which reduces drivers' chauffeuring burdens, increased economic opportunity for disadvantaged groups, and increased tax revenue per hectare (see Litman, 2017; TOD, 2016).

Table 1
Rail outstripping traffic speeds.

Comparative speeds in global cities	1960	1970	1980	1990	1995	2005
Ratio of overall transit system speed to road speed						
American cities	0.46	0.48	0.55	0.50	0.55	0.54
Canadian cities	0.54	0.54	0.52	0.58	0.56	0.55
Australian cities	0.56	0.56	0.63	0.64	0.75	0.75
European cities	0.72	0.70	0.82	0.91	0.81	0.90
Asian cities	–	0.77	0.84	0.79	0.86	0.86
Global average for all cities						
Ratio of metro/suburban rail speed to road speed						
American cities	–	0.93	0.99	0.89	0.96	0.95
Canadian cities	–	–	0.73	0.92	0.85	0.89
Australian cities	0.72	0.68	0.89	0.81	1.06	1.08
European cities	1.07	0.80	1.22	1.25	1.15	1.28
Asian cities	–	1.40	1.53	1.60	1.54	1.52
Global average for all cities	**0.88**	**1.05**	**1.07**	**1.11**	**1.12**	**1.13**

Source: Newman and Kenworthy (2015).

2.5. Environmental gains due to reduced automobile dependence

There are many environmental issues exacerbated by low density urban development and improved by increasing density in activity centres around rail stations. Fig. 2 shows how transport fuel decreases exponentially with increasing density and thus reducing all the other issues connected to high automobile dependence such as greenhouse gases, air pollution, and traffic-related accidents.

There is therefore a multi-pronged rationale for why planners want a more polycentric city, where urban activity is better focused and linked into a quality transit system. Whatever the reasons there is a new policy interest in finding ways to facilitate urban regeneration as well as urban rail. This paper proposes a new model for how to do the two policies *together* through a new approach to funding urban rail.

3. Approaches to funding urban rail

There are a range of potential options for funding and delivering public transport infrastructure, with differing degrees of private sector involvement:

- Full public sector capital;
- Some private and substantial public capital;
- Substantial private and some public capital; and
- Totally private capital

Most transport infrastructure (both road and rail) in the latter half of the 20th century and still today is delivered under the first model – full public sector capital – although detailed design and construction work is contracted out under public oversight. All four mechanisms are likely to be used in 21st century transport infrastructure but the latter two seem best able to deliver urban regeneration as well as urban rail in a world where government capital for transport is constrained. The reason for this is explained in terms of land value creation.

3.1. Full public sector capital

In this model, public transport infrastructure is delivered wholly by public sector funding as a largely welfare-based approach though with productivity benefits as the justification. The public sector performs all network and regional planning and oversees the detailed design work that is performed by private sector engineers. The public sector also oversees construction that is usually contracted out.

As most national, state and city governments' finances are constrained and there are other growing demands on public budgets especially health and education, it is likely that new sources of funding will be required to deliver significantly more new transit

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