

# Passenger Transport and Land Value Drivers and Linkages

Literature review findings

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# Outline

Approach and scope

Key findings

- \* Passenger (but almost solely) public transport drivers
- \* Land value drivers
- \* Linkages between PT and LV.

Questions for the workshop session



**economics**

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# Approach and scope

- Factors affecting (1) passenger transport use  
(2) land values.
- NZ and international literature published in English since 2005 (+ earlier key works)
- A wide-ranging initial search of internet data bases, government agencies, research units
- A supplementary search of bibliographies.



# Search findings

Literature identified in the initial search

- 50% in the last 5 years, 33% 2001-2005, 17%  $\leq 2000$ .
- much of the analytical and empirical research comes from the United States and Canada
- evidence from the UK and Europe, although smaller in volume, includes individual case studies and comprehensive reviews.

Most PT literature is on public transport rather than the broader area of passenger transport.

Much of the LV literature links to the PT literature.

# PT use patterns in NZ

## New Zealand Household Travel Survey (2008)

- Vehicle drivers=55% (+passengers rises to 80%), and they make more trip legs, travel further
- 3.6% of NZers use PT (peaking at 8% for 10-14y.o. females).
- bus use in rural areas (2.9%) is higher than in urban areas
- train use in major urban areas (0.3%) is higher than in secondary urban or rural areas
- bus use was highest amongst younger age groups (5-24 year olds), and particularly amongst high school aged women.
- a greater proportion of trips by bus, train, on foot or by cycle on weekdays than at weekends.



# Further demographic factors

International literature, suggests PT use higher:

- if car ownership rates and active modes (biking or walking) are low
- with influxes of immigrants (many of whom come from countries with a habit of PT use)
- amongst 'empty nesters' and couples without children

# PT use factors: general

- Provider-influenced factors

Most important: fares, frequency and reliability  
+ accessibility, quality of service, travel time

- User-influenced factors

Psychological incentives such as concerns (e.g. safety), habits (e.g. preference to bike to work), and perceptions (e.g. "quality").

Linkages: where people live, work and shop.

# PT use and price

A -ve relationship between price (fares) and PT use.

Some quantification of responsiveness of PT use to the price of alternatives (+ve) with "elasticities".

Those most likely to switch to PT following a petrol price shock are 'on the margin' of switching anyway, due to their economic conditions or easy accessibility

Responses may differ in the short and long run.

No research found on a secular energy price shock

# Land value - fundamentals

There are areas in New Zealand where land prices per standard-sized residential section are high.

This tends to reflect a standard pricing response to higher productivity from that land.

$$\frac{\text{Marginal Physical Product } a}{\text{Price } a} = \frac{\text{Marginal Physical Product } b}{\text{Price } b}$$

# Land value - drivers

The productivity of land depends on a range of factors, which tend to influence its price and its pattern of use (e.g. commercial vs residential).

- Productivity/desirability: agglomeration benefits/access, etc.
- Policy: Urban limits, zoning/availability of land, taxes/levies

Ascari (2007) find that within Auckland's MUL, buildings/dwellings drive property prices rather than section values per se.

The limit forces intensification of usage, which raises land prices rather than simply the decrease in supply.

# Land value drivers - density

“a more compact and higher density city will result in a regional economy that is more productive and where housing is more affordable”

- \* Even though the land value per hectare is higher
- \* ...the land value per resident is lower
- \* ...with higher residential density.

# Land value - house prices

Respond negatively to:

- real interest rates
- expected inflation
- unemployment

Respond positively to:

- unexpected inflation

Amenities (schools, etc) and existing population characteristics can also influence prices (+ve or -ve).

# Linkages between PT and LV

The literature finds:

- greater or better quality public transport increases land values; strongest for residential and commercial, but a weak or negative effect for industrial land
- residential property prices might be depressed immediately around the transport investment or station
- contextual factors (such as land uses/forms/linkages) are important, so that similar transport investments will have different impacts depending on the local economic conditions
- limited evidence that higher land values drive public transport use



# Urban form & transport technology

Dravitzki (2007) finds that over the past century:

- the level of transportation technology available, including public transport technology, has affected how cities grow
- This affects the value of the land within and around cities
- As the technology has improved, people have been able to live further from the city centre

This suggests that as technology lowers the cost of transport, it provides incentives for urban spread where this is permitted

...or in the absence of strategic city planning?

# Questions for the workshop

1. Are there gaps in the review that you can help us fill? E.g. landmark studies/insights
2. What does the international literature mean in a NZ context?

E.g. US: PT, density and urban poverty NZ: 'worker dormitory suburbs' and geographically spread workplaces?

...apologies in advance that I cannot stay and join you for the next session.

