Transport that serves urban and economic development

Transport Knowledge Hub, Economics
Wellington 19 May 2017
Presenter: Chris Parker, Principal Advisor
Objective

- Describe urban development benefits from transport
- Challenges to transport for future urban policy
Context, challenge
“Over the past 25 years New Zealand has gone through extended processes to reform our electricity, telecommunication and financial markets.

In each case it took years to understand the impact of existing rules, and how to change them to achieve a more efficient market.

Now we are addressing housing in the same way.”

Finance Minister Rt Hon Bill English, 25 February, 2016
Our challenge: cities become ‘Type 2’

US housing market. (NZ much worse)

<table>
<thead>
<tr>
<th>Type 1</th>
<th>Type 2</th>
<th>Type 3</th>
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</thead>
<tbody>
<tr>
<td>Price &lt; cost</td>
<td>Price = cost</td>
<td>Price &gt; cost</td>
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<tr>
<td>40% of houses/cities</td>
<td><strong>33% of houses/cities</strong></td>
<td>25% of houses/cities</td>
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Glaeser & Gyourko: fundamental cost for 185m² home including land $280k – $370k (NZD)

Source: Glaeser & Gyourko (draft 2017) The Economic Implications of Housing Supply, *The Journal of Economic Perspectives*

To become a ‘Type 2’ city need to **change the way the market works** — not focus on quantities
Land use/transport appraisal
NZIER public good paper, *Appraising transport strategies that induce land use change*, 2013

- How transport appraisal is done worldwide:
  - Assumption that land use (population, location, economic activity etc) is independent of transport

- Therefore, the sector doesn’t…
  - understand welfare issues of urban development well
  - know how to best affect development
  - know how to best fund and price transport projects
Transport economics in static world
Three insights

1. Demand is a function of land use, which is a function of historic transport accessibility
   \[\Rightarrow \text{Change the earlier network, and get an alternative demand curve in the future}\]

2. Areas under each demand curve represents different measures of total social value
   \[\Rightarrow \text{Can conceive of total change in social value}\]

3. Can tweak the normal formula to capture this
Transport economics in dynamic world

Estimate social surplus with project:
- Plug coordinates C and E into a demand curve formula

Subtract social surplus without project:
- Plug coordinates A and B into a demand curve formula

Formula generalises across the network and all types of interventions
Key implications — more at stake

• Major projects may have **orders of magnitude greater benefits** if they’re not congested
• Major projects have **higher risk of worsening network performance** when highly congested and not priced (Braess’ paradox)
Further extensions

• The Wider Economic Benefits (WEBs) of imperfect competition in urban land markets
• Corridor protections: drive change via expectations, not physical infrastructure
• Types of beneficiaries, for them to pay costs
Urban development policy
Productivity Commission Better Urban Planning inquiry

- **Regional Spatial Strategies**
  - Skeleton to make room for urban expansion and intensification
  - To reduce barriers to entry for land market to enable competitive land markets
  - To enable markets to determine specific land uses, not central planners

- **Infrastructure**
  - Efficient 2-part pricing
  - Access to capital (debt, equity)
  - Regulation of monopoly
  - Development legislation

Three types of roads. False dichotomy?

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<tr>
<th>Growth projects (ignore LOS)</th>
<th>Developer %</th>
<th>Local share %</th>
<th>NLTF %</th>
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<tr>
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Direct beneficiaries

Latecomer developments

Through traffic (general economic development)

Biggest by road length
An organisation to internalise local effects...

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Should shares be: 50 : 50 : 0 ?
Local development from a state highway...

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$\text{Should shares be: } \quad 50 : 0 : 50$
Some shifts needed in transport

- Future proof. Make room for urban expansion and intensification
- Open up land supply
- Integrate land use and transport — land use system should internalises capacity costs
- Flexible corridors: support repurposing different modes without major opportunity cost
- Support dispersed employment needs, by promoting grid networks, rather than radial
- Ensure capital expenditure pricing close as possible to actual marginal costs
- Signal clear credible commitment to ensure costs recovered as close to direct beneficiaries as possible
- Align incentives for transport providers with major development
- Account for future technologies. (Eg, EVs and AVs will predominate in 2030s—additional impetus to provide for urban expansion and grade separation within cities)
Key message recap

- Transport and urban development bed partners
- Transport important key to Type 2 cities
- Need to consider objectives, funding, governance structures, and more