5th Int’l Conference - Leeds

Markets, Government and Environmental Policy Issues for Public Transit

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Major Themes

- **Role of markets in creating opportunities through incentives to innovate**
- **A successful environmental innovation - the mini-bus**
- **Environmental positives but consumer negatives**
- **The role of government**
The Academic Debate

- Polarised as a Confrontation of 2 views:
  - Let market forces decide on bus outputs and qualities
  - Retain govt definitions of production with market processes providing means via competitive tendering
The Academic Debate

- **Common Ground**
  - Substantial Cost Savings

- **Disagreement**
  - Resulting level and quality of outputs
Commentary on the Academic Debate

- White Paper and shifting the political agenda
- Deregulation as a necessary instrument
  - removing existing barriers to entry
  - revealing latent barriers to entry
Commentary on the Academic Debate

- Counterfactuals in the debate
  - Reducing subsidy
  - Innovation in bus service production

- Market and Govt Failure
  - Revelation of information via market transactions
  - The process of generating profits through enlisting market processes
Environmental Objectives

What influences have the changes had on the environment

- greenhouse gas emissions
- air quality
- noise
- congestion
- etc etc
Politically Plausible

- Means must be credible
- Link accountability and bus mgt practices to incentives largely driven by market conditions
- A necessary part of shifting political agendas
A Warning for Analysts

- Transport policy and political exchanges
- Most securely rationalised of all political portfolios
  - benefit-cost analysis
  - reinforcing political initiatives
  - understandable feedback to the power base
Market Forces as Natural Generators of Innovative Activity

- Innovations initiated by market forces
- Mini-buses as an example of how govt may have restricted opportunities to improve public transport
- Possible failure of incentive structures to deliver gains which are inherent in a less constrained market
Market Forces as Natural Generators of Innovative Activity

- Key Question - what are the circumstances under which incentives can evolve and be effective?

- Porter and Linde: “We are currently in a transitional phase of industrial history where companies are still inexperienced in dealing creatively with environmental issues”
Market Forces as Natural Generators of Innovative Activity

- The timetable as an example of a constraint imposed on innovation
  - by govt regulation - questionable rationale
  - by commercial criteria - accepted rationale

- Operators in a deregulated market can choose to impose constraints on their own practice if they carry commercial weight
  - The mini-bus is one such example
The Mini-Bus and the Environment

- Increased frequencies
- Greater vehicle kilometres
- More fuel-efficient vehicles
- Environmental gains
  - savings in carbon dioxide emissions
The Mini-Bus and the Environment

- Systems approach to evaluating environmental potentials
- Deregulation created market for innovative mini-bus services
- Later mimicked in competitively tendered markets
- Case study in Perth, Western Australia, 1993-2003
The Mini-Bus and the Environment

- System-wide approach driven by a set of behavioural choice models:
  - computer choices
  - automobile choices
  - residential location choices
  - automobile use

- Set of Linked behavioural choices

- Equilibration in travel, location and automobile markets
The Mini-Bus and the Environment

- Deregulation creating increased service frequency via mini-buses
- This impacts throughout the behavioural model system
- New equilibrium levels of traffic congestion, residential densities, VKT of car & PT use, fuel consumed & emissions
## Impact of Mini-Bus Substitution, Perth 1993-03

**Notes:** i = increase, d = decrease

### Outputs

<table>
<thead>
<tr>
<th>Change in:</th>
<th>10% Increase (i)</th>
<th>20% Increase (i)</th>
<th>10% Decrease (d)</th>
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</thead>
<tbody>
<tr>
<td>CO2 (mean % pa)</td>
<td>-0.16</td>
<td>-0.34</td>
<td>0.18</td>
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<tr>
<td>End user cost ($mpa)</td>
<td>-3.0</td>
<td>4.8</td>
<td>3.1</td>
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<tr>
<td>Car vkm (mean%pa)</td>
<td>-0.23</td>
<td>-0.51</td>
<td>0.20</td>
</tr>
<tr>
<td>Auto Energy (mean%pa)</td>
<td>-0.24</td>
<td>-0.56</td>
<td>0.22</td>
</tr>
<tr>
<td>Govt auto rev (%pa)</td>
<td>-0.21</td>
<td>-0.47</td>
<td>0.20</td>
</tr>
<tr>
<td>Car commuting share (%)</td>
<td>-1.0</td>
<td>-1.8</td>
<td>0.85</td>
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</table>
## Fuel Excise & The Environment

The impact of Fuel Excise in Perth, West Australia 1993-2003

notes: FEX = fuel excise on cars and buses

<table>
<thead>
<tr>
<th>Fuel Excise</th>
<th>Outputs Change in:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Fex 60c/l Fex 80c/l</td>
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<tr>
<td>CO2 (mean % pa)</td>
<td>-9.0</td>
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<tr>
<td>End user cost ($mpa)</td>
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<tr>
<td>Car vkm (mean%pa)</td>
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<tr>
<td>Auto Energy (mean%pa)</td>
<td>-8.80</td>
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<tr>
<td>Govt auto rev (%pa)</td>
<td>18.3</td>
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<tr>
<td>Car commuting share (%)</td>
<td>-0.61</td>
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</table>
Innovative Evidence from the Deregulated Market

- Survey of operators in UK, NZ and Australia
- In absence of counterfactuals
- Mini-buses
- Marketing
- Fuel efficient buses
- Flexible route design
Innovative Evidence from the Deregulated Market

- Relaxing constraints on market operations appears to
  - have direct innovative effect on operators in a deregulated market
  - and creates spillover effects into restricted markets
    - competitively tendered routes
    - protected anti-competitive area franchises
Concern for the Environment

- A large number of modal opportunities
- Less reliance on mode outputs as proxies for the greater good
- More reliance on market driven means
- Shift towards indirect instruments such as indirect taxes and competitive rules
- Shift away from protection or enhancement of particular modes
Charitable Activity

- Markets as generators of fresh opportunities for profit making
- Means to encourage charitable activities
- Source of outstanding innovations
- Environmental innovation beyond 2000 no exception
- Promoting the public interest while preserving and building profits
Getting Political Support

- Political markets and Economic markets
- Political credits from innovations supportive of broad environmental objectives of govt
- Gets political attention
- Refining benefit-cost analysis?
Concluding Comments

- Partial equilibrium settings
- Gains from more environmentally friendly services
- Broadening of the debate
- Deregulation as an opportunity for environmentally friendly innovation not entirely confined to profit making
Concluding Comments

♦ Role of government to:
  ♦ encourage efficient markets
  ♦ define clear and precise goals of societal management and associated performance indicators