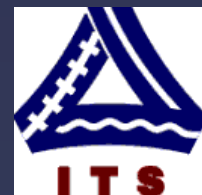


5th Intn'l Conference - Leeds

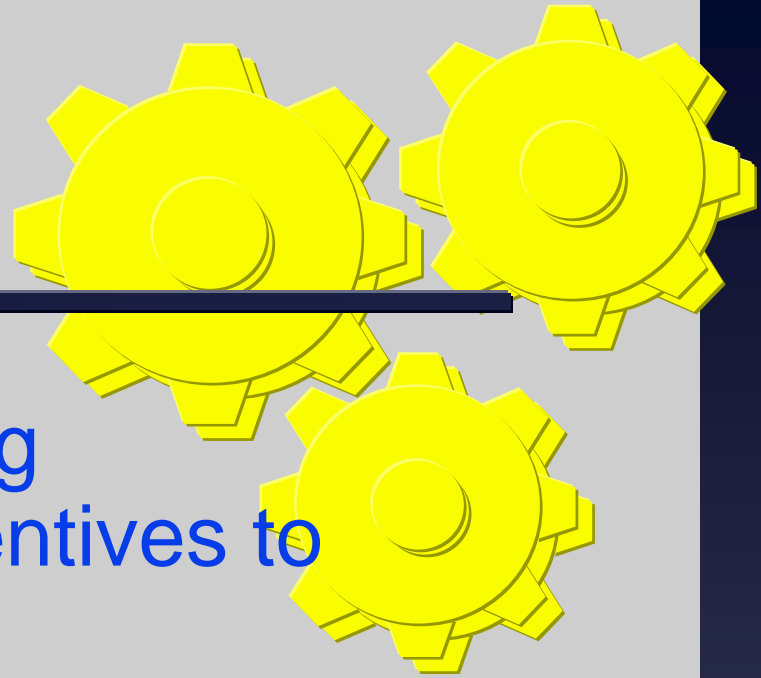
A graphic of three interlocking yellow gears is positioned in the upper right quadrant of the slide. The gears are rendered in a 3D style with shadows, and they are arranged in a cluster that partially overlaps the main title text.

Markets, Government and
Environmental Policy Issues
for Public Transit

David A. Hensher and Michael
E. Beesley



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

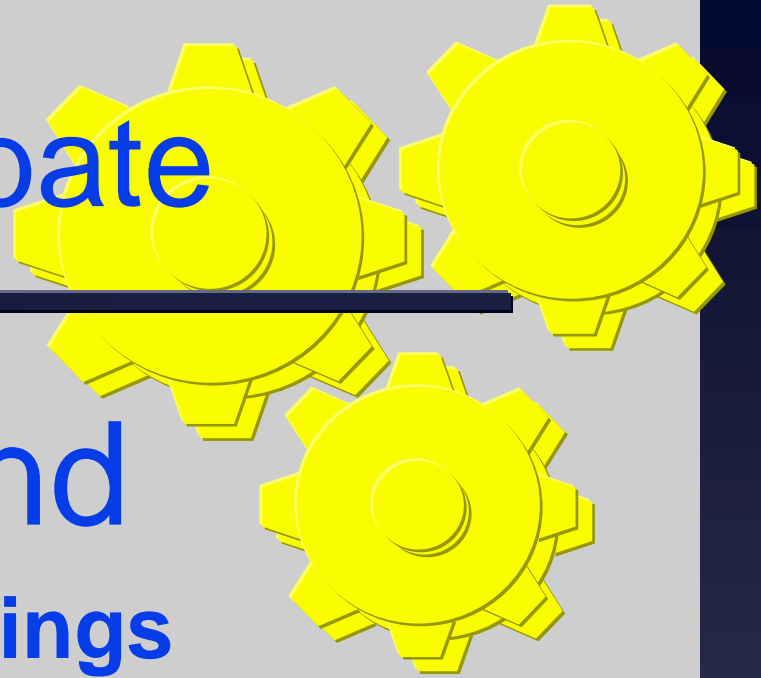
The Academic Debate



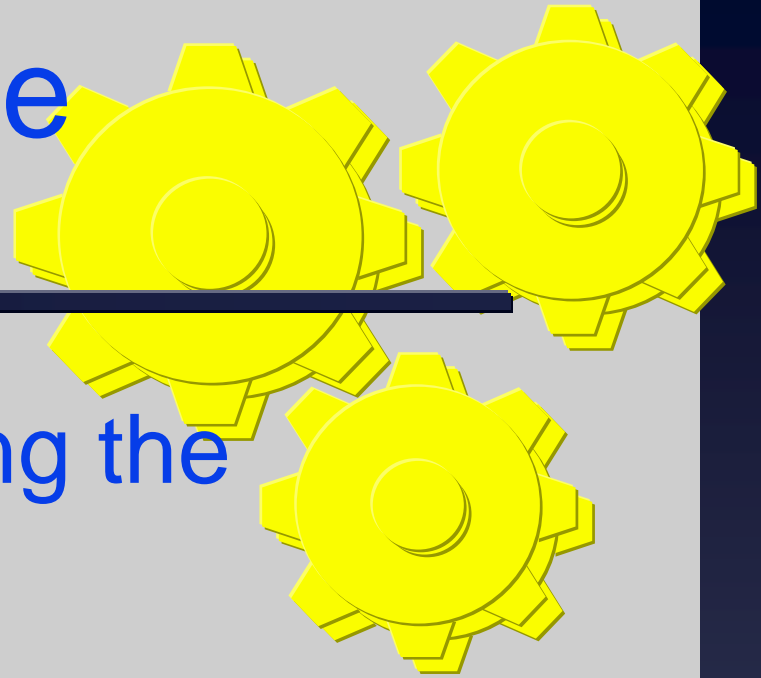
- ♦ Polarised as a Confrontation of 2 views:
 - Let market forces decide on bus outputs and qualities
 - Retain govt definitions of production with market processes providing means via competitive tendering

The Academic Debate

- ◆ **Common Ground**
 - Substantial Cost Savings
- ◆ **Disagreement**
 - Resulting level and quality of outputs

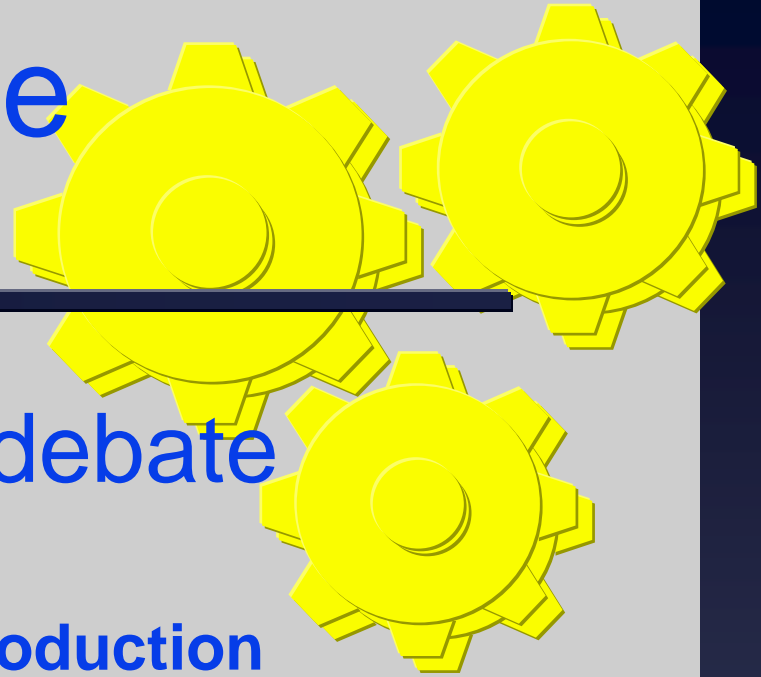


Commentary on the Academic Debate



- ♦ 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

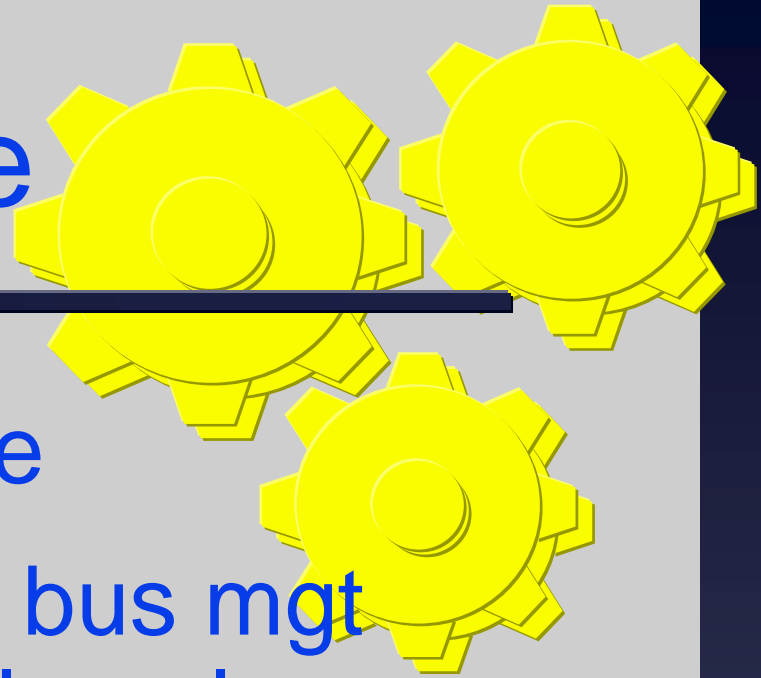
A graphic of three interlocking yellow gears is positioned in the upper right quadrant of the slide. The gears are rendered in a 3D style with shadows, suggesting they are meshing together. They are located to the right of the main title and above the main bullet point.

- ◆ 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



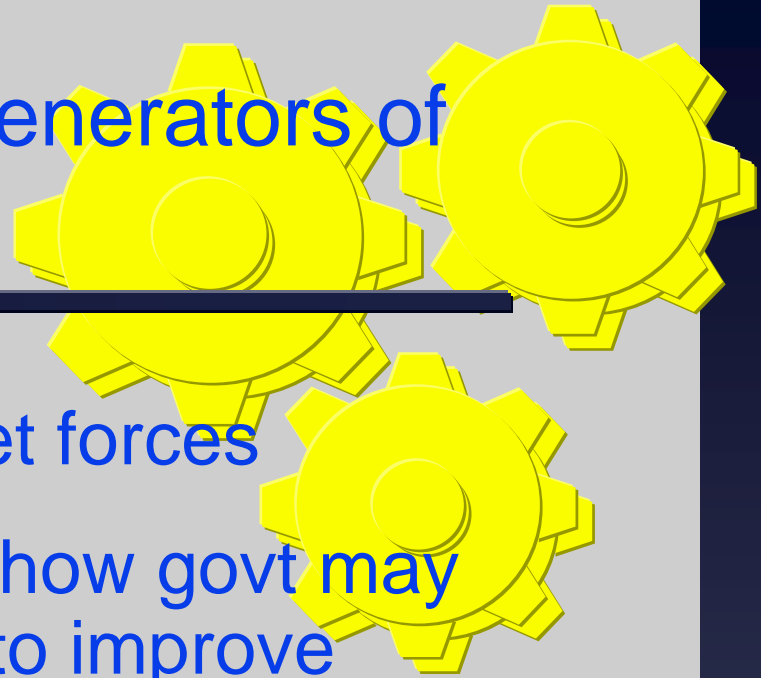
A Warning for Analysts

- ◆ Transport policy and political exchanges
- ◆ Most securely rationalised of all political portfolios
 - benefit-cost analysis
 - reinforcing political initiatives
 - understandable feedback to the power base



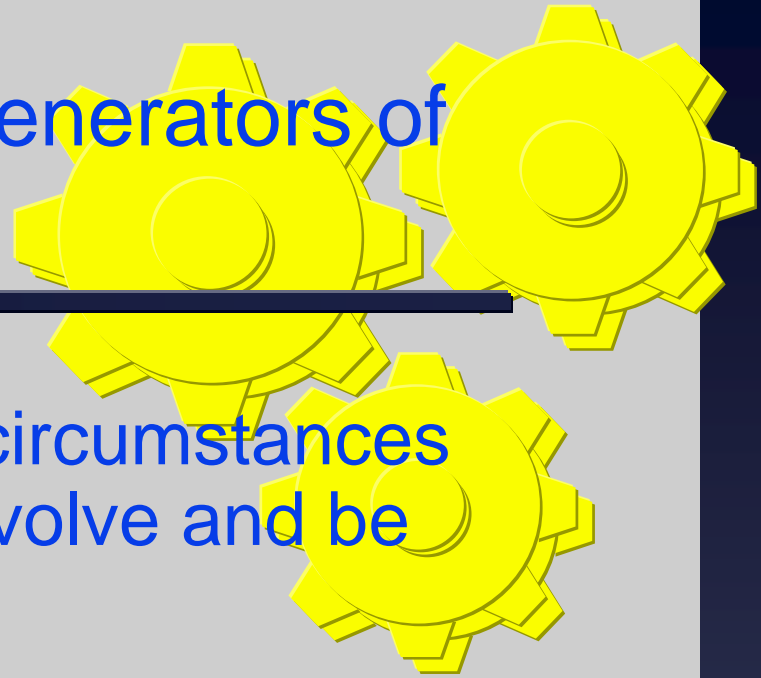
Market Forces as Natural Generators of Innovative Activity

- ♦ 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

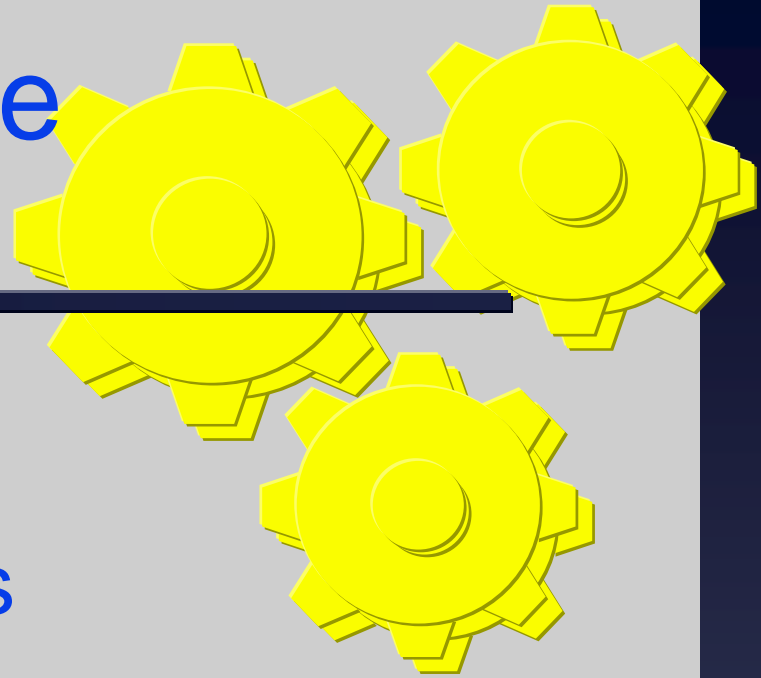
- ◆ Key Question - what are the circumstances under which incentives can evolve and be effective?
- ◆ Porter and Linde: “We are currently in a transitional phase of industrial history where companies are still inexperienced in dealing creatively with environmental issues”



Market Forces as Natural Generators of Innovative Activity

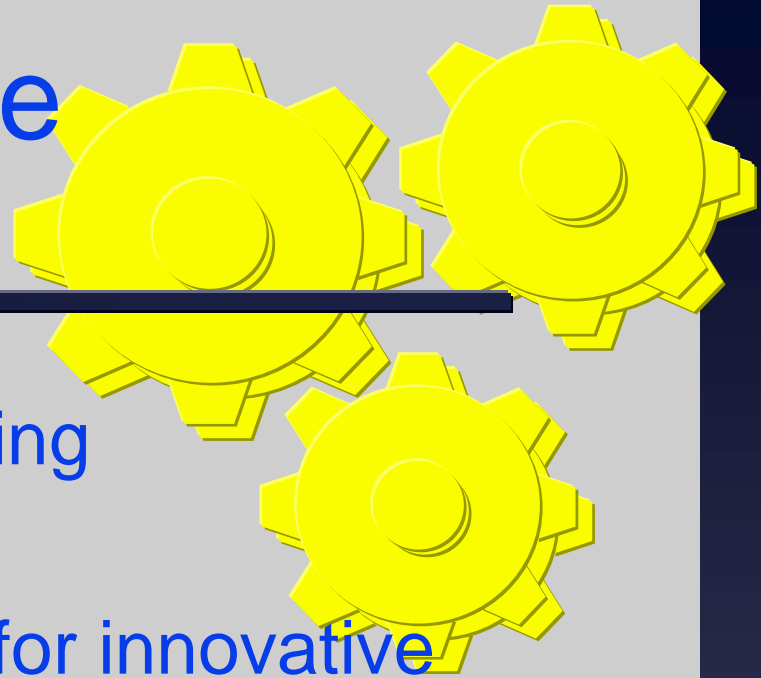
- ♦ The timetable as an example of a constraint imposed on innovation
 - **by govt regulation - questionable rationale**
 - **by commercial criteria - accepted rationale**
- ♦ Operators in a deregulated market can choose to impose constraints on their own practice if they carry commercial weight
 - **The mini-bus is one such example**

The Mini-Bus and the Environment



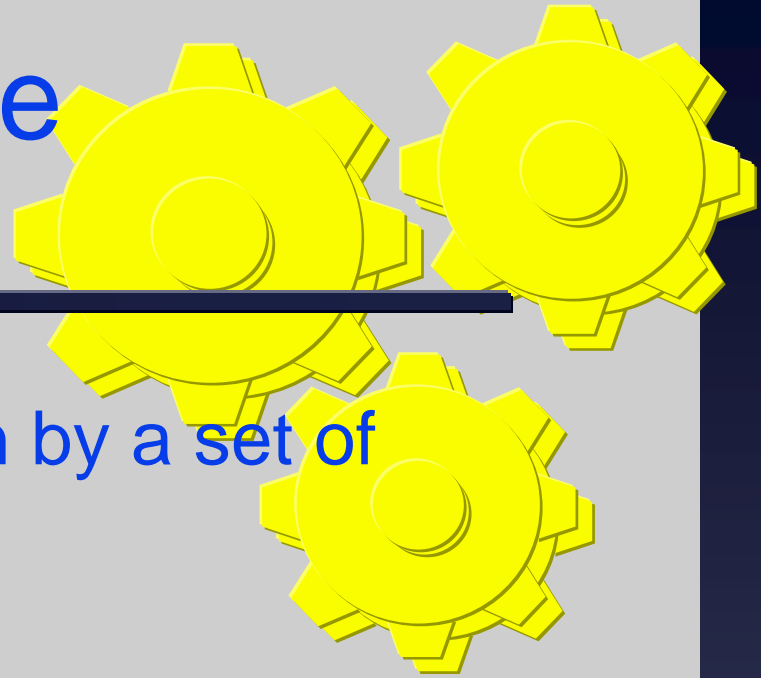
- ◆ Increased frequencies
- ◆ Greater vehicle kilometres
- ◆ More fuel-efficient vehicles
- ◆ Environmental gains
 - savings in carbon dioxide emissions

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



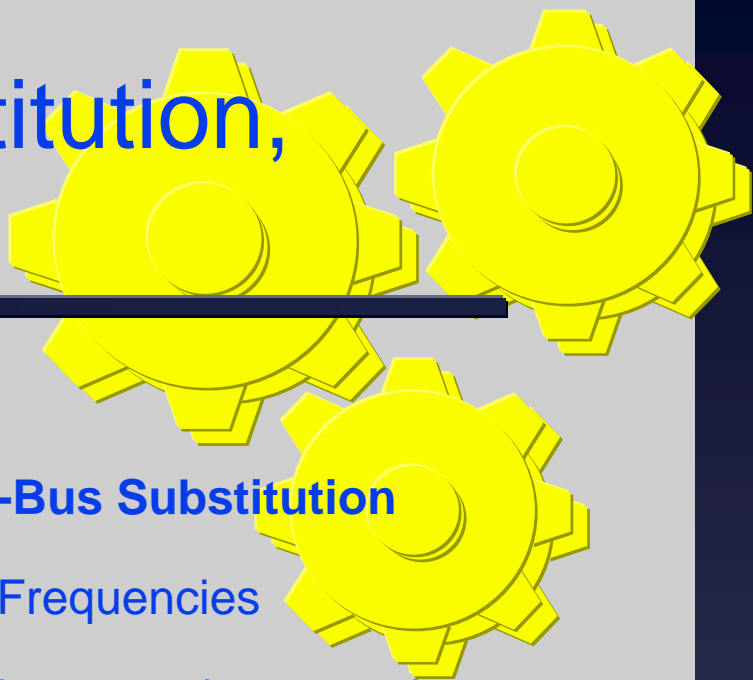
- ◆ System-wide approach driven by a set of behavioural choice models:
 - **comuter choices**
 - **automobile choices**
 - **residential location choices**
 - **automobile use**
- ◆ Set of Linked behavioural choices
- ◆ Equilibration in travel, location and automobile markets

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

Mini-Bus Substitution

Bus Frequencies

Change in:

10%i 20%i 10%d

CO2 (mean % pa)

-0.16 -0.34 0.18

End user cost (\$mpa)

-3.0 -4.8 3.1

Car vkm (mean%pa)

-0.23 -0.51 0.20

Auto Energy (mean%pa)

-0.24 -0.56 0.22

Govt auto rev (%pa)

-0.21 -0.47 0.20

Car commuting share (%)

-1.0 -1.8 0.85



Fuel Excise & The Environment



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

notes: FEX = fuel excise on cars and buses

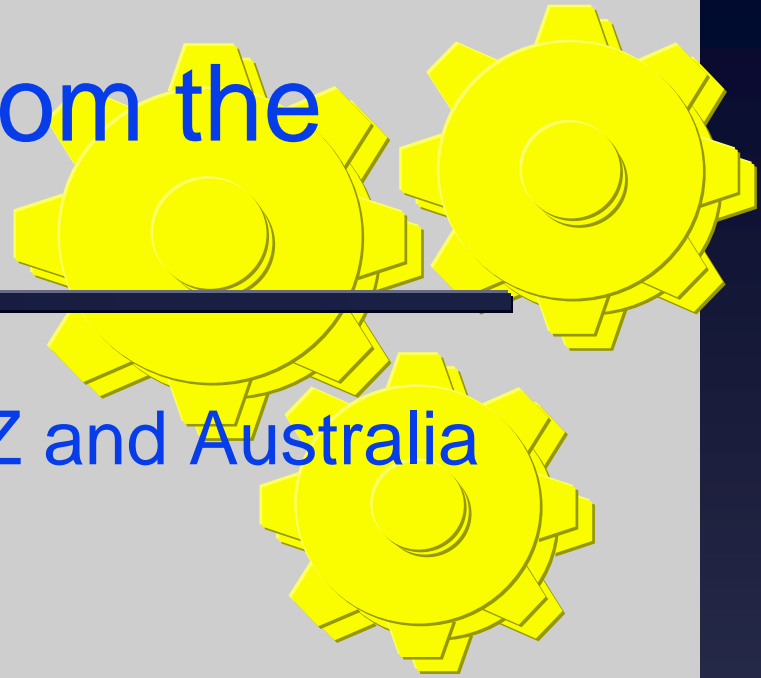
Fuel Excise

Outputs Change in:	Fex 60c/l	Fex 80c/l
CO2 (mean % pa)	-9.0	-17.4
End user cost (\$mpa)	68.9	125
Car vkm (mean%pa)	-9.07	-17.4
Auto Energy (mean%pa)	-8.80	-17.3
Govt auto rev (%pa)	18.3	32.4
Car commuting share (%)	-0.61	-1.23



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

Three interlocking yellow gears are positioned in the upper right quadrant of the slide, partially overlapping the title and the list. The gears are arranged in a cluster, with one at the top left, one at the top right, and one at the bottom center of the cluster.

- ♦ 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

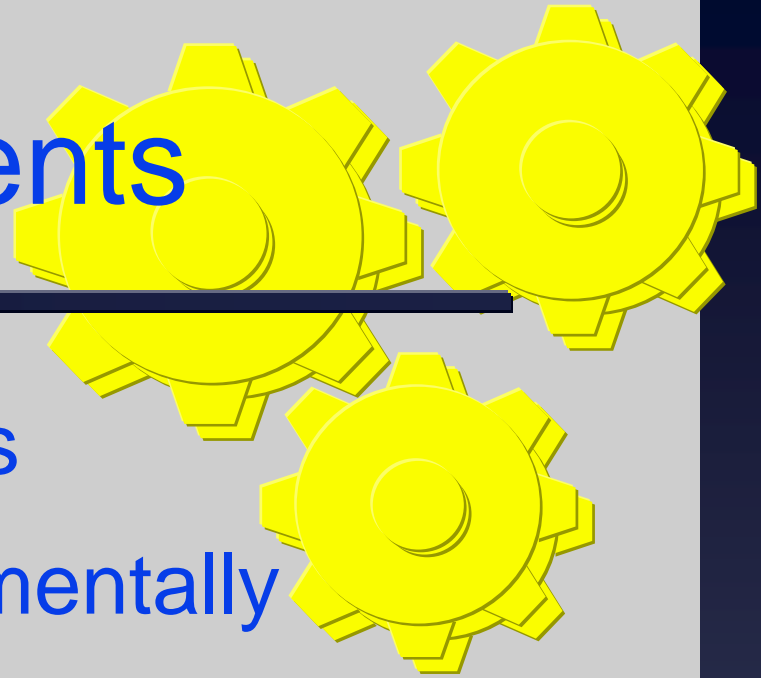
Getting Political Support

- ♦ 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

