

5th Intn'l Conference - Leeds



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Markets, Government and  
Environmental Policy Issues  
for Public Transit

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# Major Themes

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- ♦ 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

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- ♦ 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

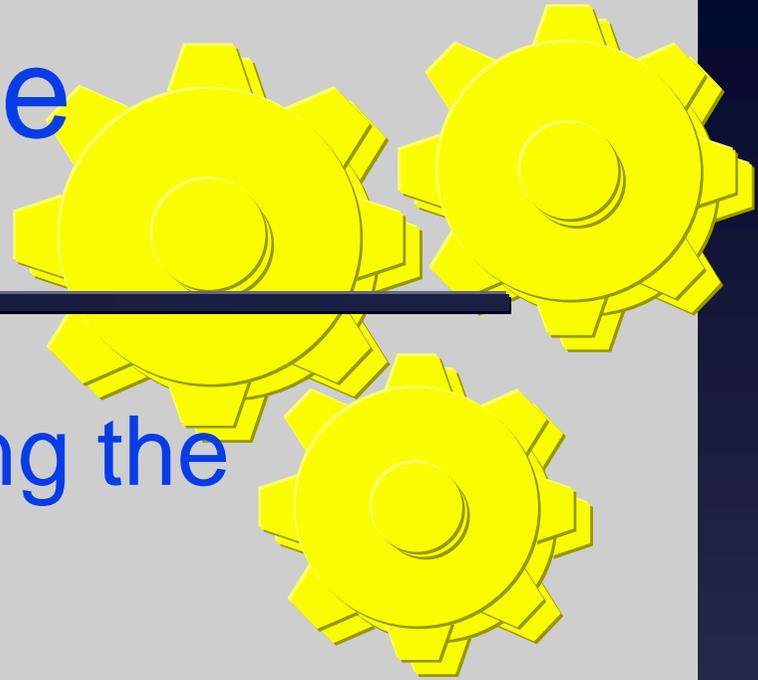
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- ◆ **Common Ground**
  - **Substantial Cost Savings**
- ◆ **Disagreement**
  - **Resulting level and quality of outputs**



# Commentary on the Academic Debate

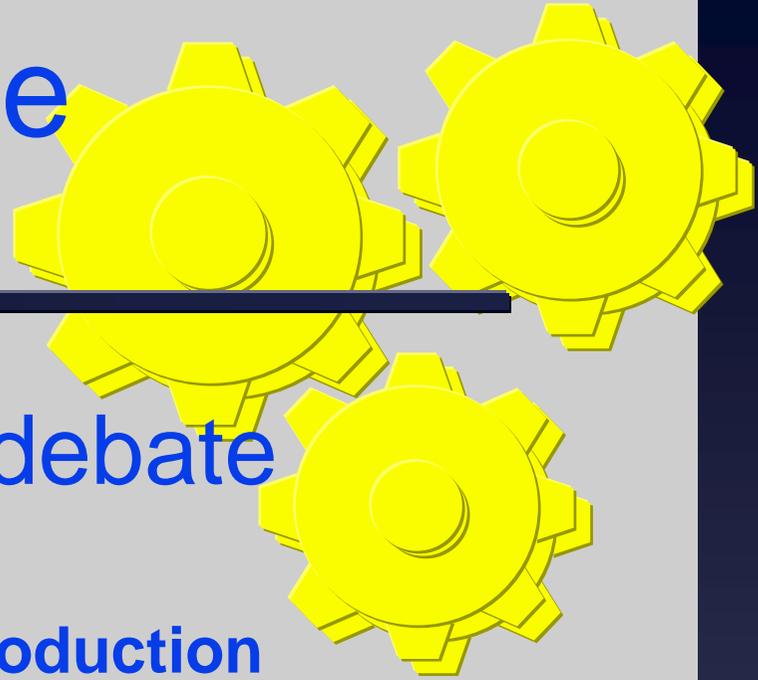
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- ♦ White Paper and shifting the political agenda
- ♦ Deregulation as a necessary instrument
  - removing existing barriers to entry
  - revealing latent barriers to entry

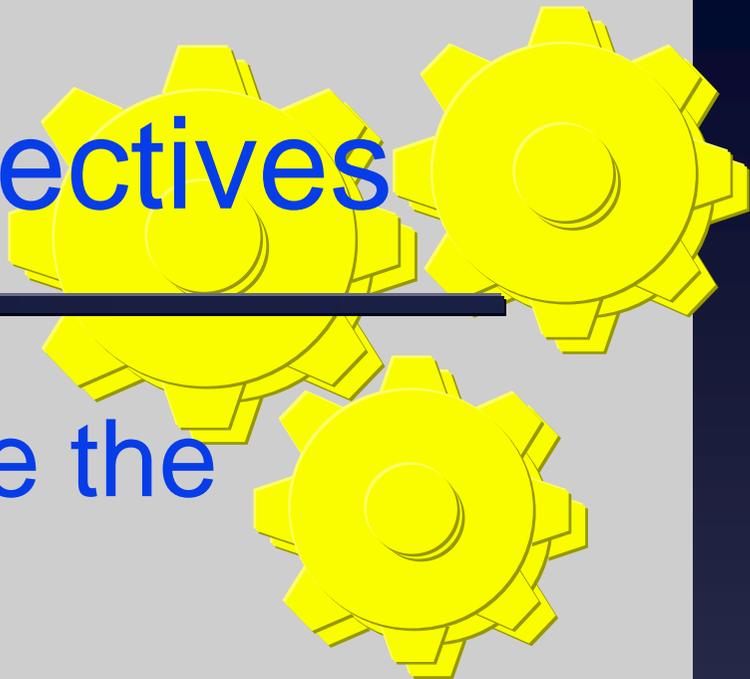
# Commentary on the Academic Debate

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- ◆ 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



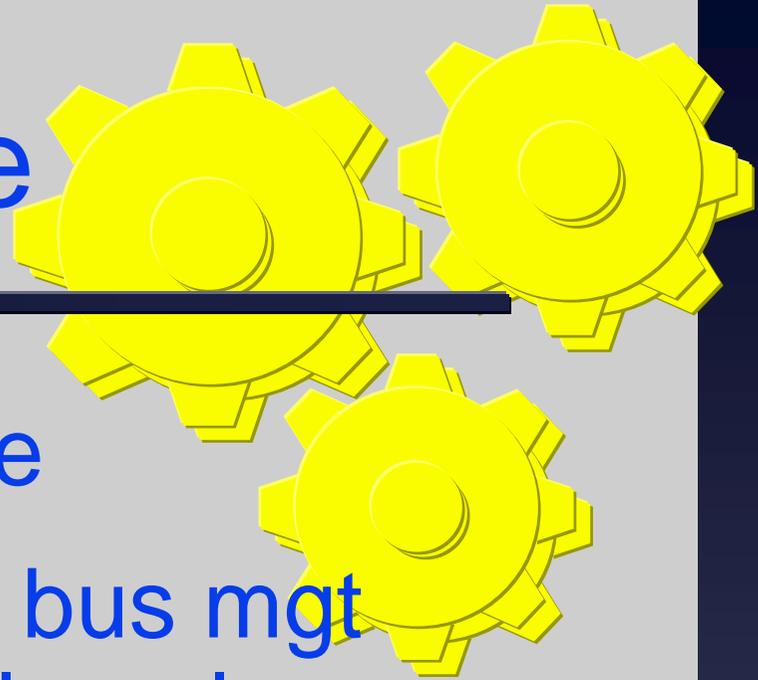
- ◆ What influences have the changes had on the environment

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

# Politically Plausible

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- ◆ 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

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

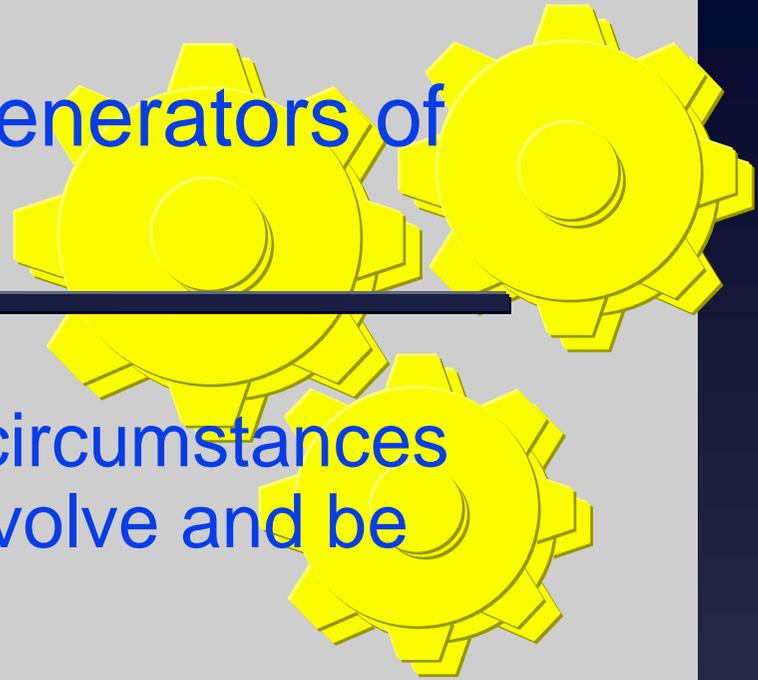
# Market Forces as Natural Generators of Innovative Activity

- ♦ 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

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- ◆ 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”

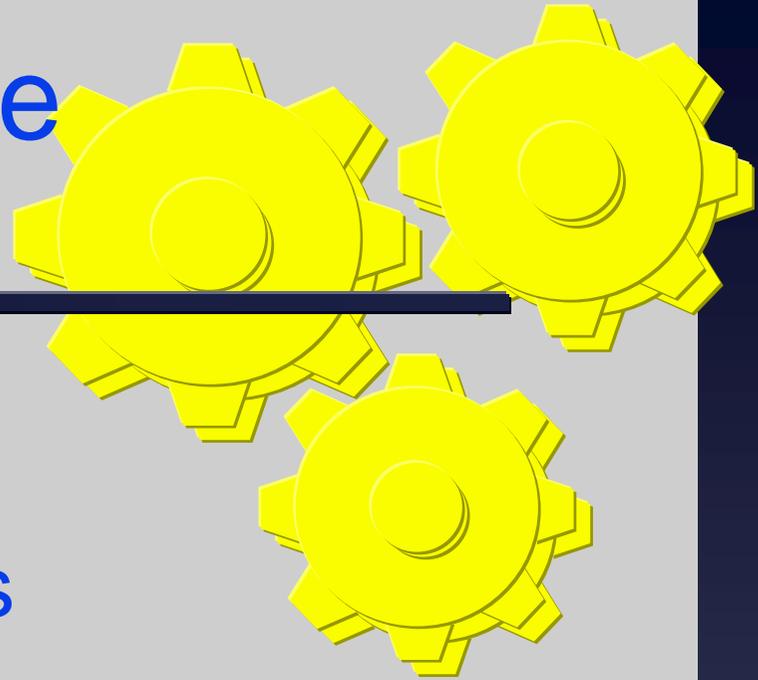


# Market Forces as Natural Generators of Innovative Activity

- ♦ 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

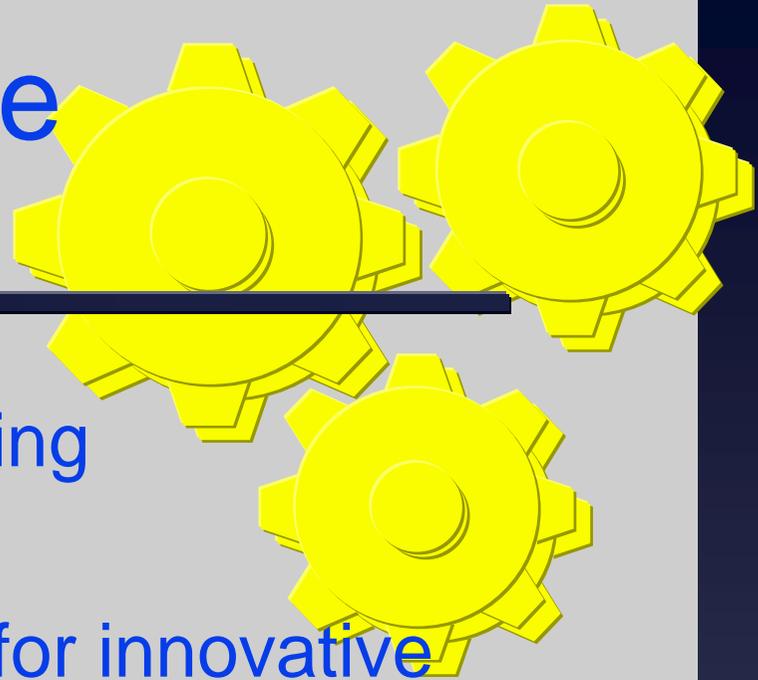
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- ◆ Increased frequencies
- ◆ Greater vehicle kilometres
- ◆ More fuel-efficient vehicles
- ◆ Environmental gains
  - savings in carbon dioxide emissions

# The Mini-Bus and the Environment

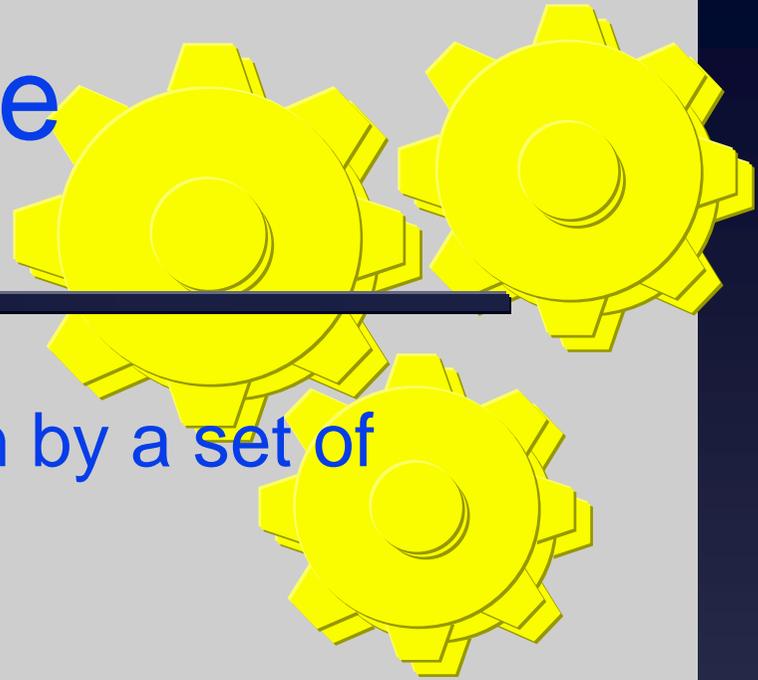
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- ♦ Systems approach to evaluating environmental potentials
- ♦ Deregulation created market for innovative mini-bus services
- ♦ Later mimicked in competitively tendered markets
- ♦ Case study in Perth, Western Australia, 1993-2003

# The Mini-Bus and the Environment

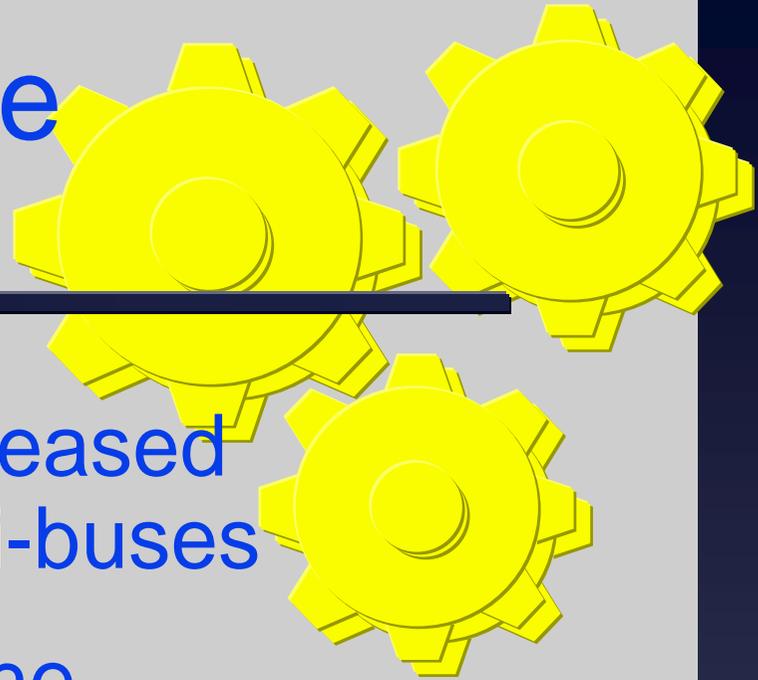
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- ◆ System-wide approach driven by a set of behavioural choice models:
  - **comuter choices**
  - **automobile choices**
  - **residential location choices**
  - **automobile use**
- ◆ Set of Linked behavioural choices
- ◆ Equilibration in travel,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

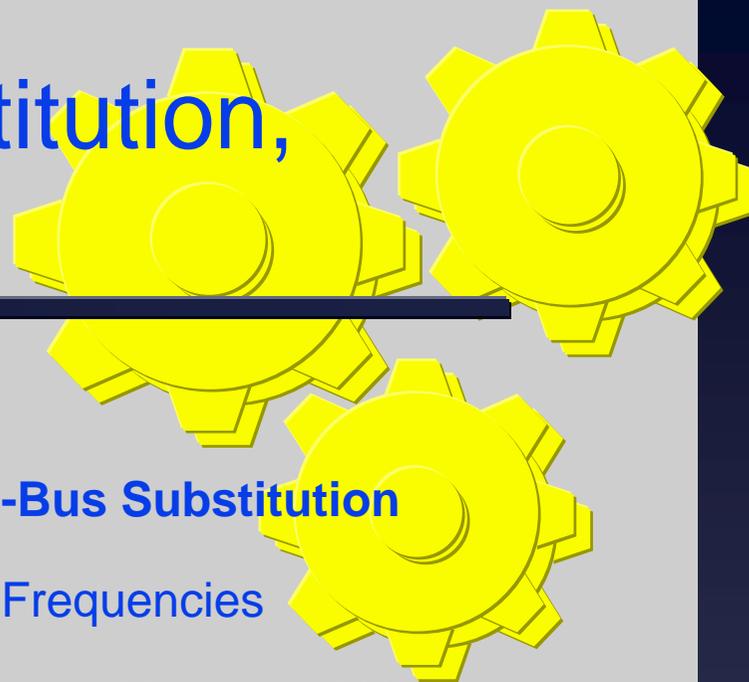
# The Mini-Bus and the Environment

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- ♦ 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

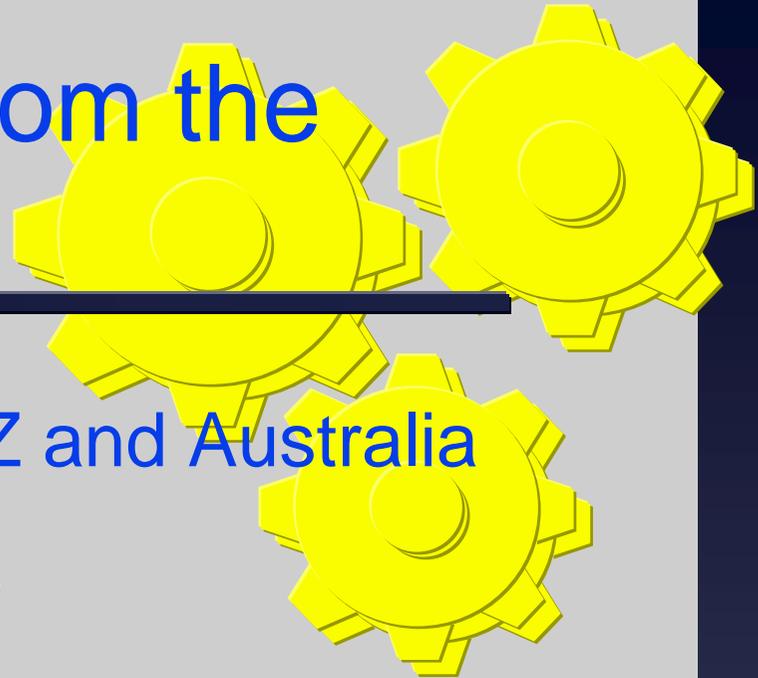
Outputs Change in:	Fex 60c/l	Fex 80c/l
CO2 (mean % pa)	-9.0	-17.4
End user cost (\$mpa)	68.9	125
Car vkm (mean%pa)	-9.07	-17.4
Auto Energy (mean%pa)	-8.80	-17.3
Govt auto rev (%pa)	18.3	32.4
Car commuting share (%)	-0.61	-1.23



# Innovative Evidence from the Deregulated Market

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- ◆ 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

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- ◆ 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 of points.

- ♦ 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

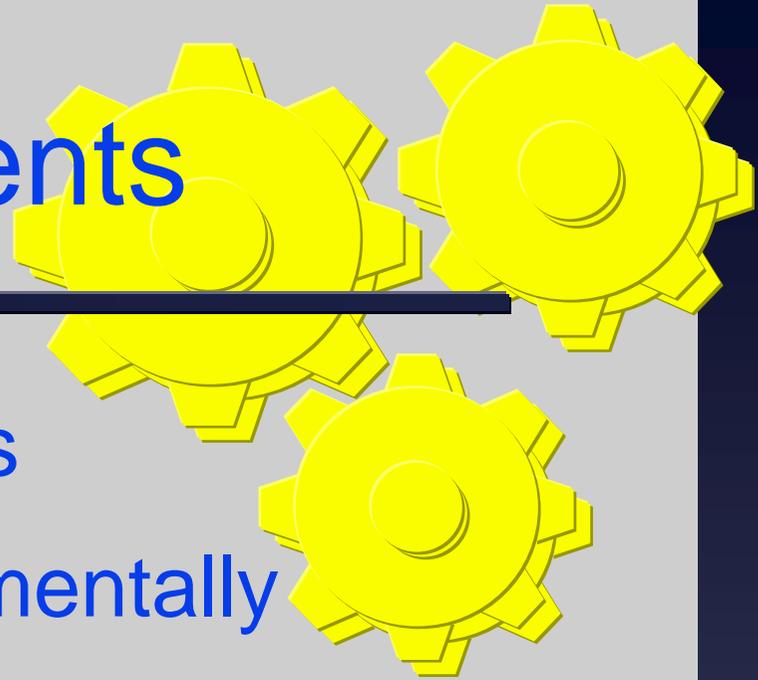
- ♦ Political markets and Economic markets
- ♦ Political credits from innovations supportive of broad environmental objectives of govt
- ♦ Gets political attention
- ♦ Refining benefit-cost analysis?



# Concluding Comments

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- ◆ 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

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

