

## *Influencing Transport Choices Through Pricing Mechanisms*



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### *Context*

- BIC is concerned about the un-sustainability of present road transport systems in Australia
- Our National Policy Statement (March 2001) presents policies to improve the sustainability of road transport
- The Australian Government is currently reviewing fuel taxation systems This review provides an opportunity to improve road pricing systems
- The presentation outlines BIC's analysis of external costs and discusses improved pricing systems to deal with these costs

## *Total External Costs/Revenues of Road Use in Australia*

Cost/Revenue Item	~\$b
<b>Costs</b>	
Road expenditure	4.6
Congestion	12.8
Air pollution	4.3
Climate change	2.4
Noise	1.2
Accidents	5.0
<b>TOTAL</b>	<b>30.3</b>
<b>Revenues</b>	
Commonwealth excise (net)	9.3
Registration fees	2.2
<b>TOTAL</b>	<b>11.5</b>

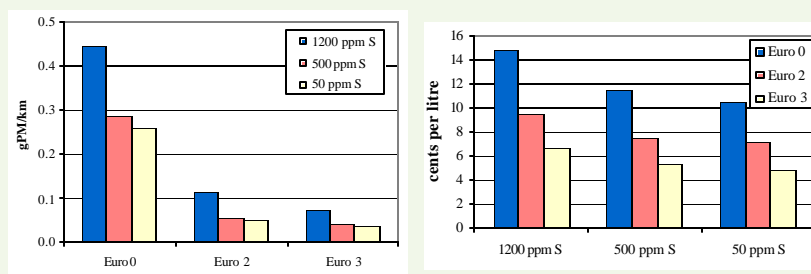
## *Summary of valuation methods*

- Road costs - valued by road expenditure (NRTC)
- Congestion - Commonwealth BTE analysis
- Air pollution - based on ExternE EC work
- Climate change - based on \$A40tonne/CO2 from ExternE
- Noise - based on US research
- Accidents - assumed 1/3 of total accident costs are external, based on BTE costing

## *Air Pollution Example*

- Pollution emissions and their costs as a function of many factors, such as
  - location (e.g. large city, small city, rural)
  - vehicle type (e.g. car; heavy truck)
  - fuel type (e.g. diesel; ethanol)
- Major variations should be reflected in pricing systems if possible

## *Air pollution example (BIC test results)*



## ***Air Pollution Example (cont)***

- Set base duty level for diesel and petrol, e.g. 5-10 c/litre for urban baseline for heavy.
- Incentive (differential) for low S diesel .
- Incentive (differential) for alternative fuels
- Rebates for rural areas
- Set on basis of modern vehicle damage e.g. Euro II
- Additional incentives for fleet operators to renew fleet. Scrappage subsidies for older vehicles (or retrofit incentive)
- Mechanism to address capital city centre use (congestion charging/low emission zones)

## ***Two approaches to measuring externalities and aligning costs and revenues***

- Cost recovery approach
  - financial focus
  - how most markets operate
  - excludes congestion costs (which remain as a huge cost!)
- Marginal Social Cost pricing
  - for efficient resource allocation

## *Fuel taxation in Australia*

- The Commonwealth Government levies excise on fuel in Australia
  - essentially as a revenue raising device, rather than as a price for road costs
  - \$A12.2 billion will be raised in 2001-02, 7.5% of Commonwealth revenue from all sources
- The excise rate (Aug. 2001) was 38.143c/L for road uses, in total pump prices varying between about 75c/L and \$1.00c/L

## *Road use cost recovery perspective, if applied through fuel charges (c/L)*

Cost Component	Cars		Artic. Trucks	
	Urban	Rural	Urban	Rural
Road cost	8	8	20	20
Congestion	0	0	0	0
Air pollution	2-10	0	7-31	0
Climate change	9	9	10	11
Noise	7	0	7	0
Accidents	8	8	4	4
Totals	34-42	25	49-73	35

*Marginal social cost pricing approach,  
if applied through fuel (cars only)*

Cost Component	Urban Cars	Rural Cars
Road damage	2	3
Congestion	60	minimal
Air pollution	2-10	minimal
Climate change	9	9
Noise	3	minimal
Accidents	8	8
Total	84-92	20

*Main findings*

- Cost recovery perspective
  - road transport under-recovers
  - even treating congestion as an internal cost
  - trucks are major under-recoverers
  - rural cars pay too much, urban about right
- MSC perspective similar findings BUT
  - urban cars also substantially under-recover (because of congestion costs)
- Something must be done about congestion

## *Conclusions (1)*

- Improved vehicle/fuel standards are generally leading to better urban air quality in Australian cities and remain vital
  - but external costs still remain significant
- Climate change ignored in Australian transport pricing
- Noise has been given little attention, mainly by noise barrier treatments on freeways
- Congestion costs loom large over all
- Pricing should play a stronger role
  - current prices provide poor resource allocation signals
  - fuel tax reform can provide a beginning to better pricing

## *Conclusions (2)*

- Excise should be replaced by a series of externality charges for road damage, climate change, air pollution, accidents and noise
  - with complementary measures (e.g. funding transit improvements; registration discounts for cleaner vehicles; lower prices/taxes on cleaner fuels; traffic management measures)
- A practical challenge is varying urban/rural fuel charges to better reflect costs (rebates?)

## ***Policy Instruments for Internalising External Costs of Road Transport***

External Cost	Policy Instrument
Infrastructure	Use charges; fixed charges
Congestion	Congestion charges; traffic management, inc. PT priority
Accidents	Road safety policy; risk-related insurance premiums or charges; use charges
Climate change	Carbon tax levied as fuel charge
Air pollution	Standards (vehicles; fuel); specific urban policy (eg parking, restricted access); traffic management; use charges
Noise nuisance	Standards; specific urban policy; use charges