Visit by the Governor of Western Australia

Curtin - Monash Accident Research Centre
Curtin University

September 2010

Curtin University

Professor Linda Kristjanson
Deputy Vice-Chancellor
Research and Development
C-MARC Welcome

- Curtin University
- C-MARC
- Safety Research
  - Peter Palamara
  - Delia Hendrie
  - Professor Torbjorn Falkmer
- Discussion
- Close

Curtin – Monash Accident Research Centre

Vision and objectives

To be a centre of excellence in accident research and research translation that reduces accidents and injuries (especially in relation to road safety), and advocates for accident prevention in government, industry and the wider community.

- Scope
- Operating style

Curtin – Monash Accident Research Centre
Towards Zero deaths
Towards Zero injuries
Towards Zero crashes?
Towards Zero trauma?

Towards Zero V8’s?
Towards Zero large SUV’s?
Towards Zero lawyers?
Towards Zero enforcement?
Towards Zero blame shifting?

Towards Zero budget?

Non-use of seat belts by Indigenous West Australians involved in a serious road crash

Peter Palamara
Background

➢ Australian seat belt laws introduced 1970 to 1972
➢ Seat belts known to be highly effective against injury:
  ▪ 25-50% reduction in the risk of fatal and serious injury
➢ Estimates of usage in Australia varies with data source:
  ▪ ~70% for those involved in fatal crashes
  ▪ ~95-98% self-report measures
  ▪ Majority of non-wearers are inconsistent wearers

Austroads Study

➢ How can we increase seat belt wearing in Australia?
  ▪ Characteristics of wearers and non-wearers
  ▪ Efficacy of initiatives to increase belt use
  ▪ Variation in seat belt use by adults involved in a serious injury crash across Australia
  ▪ The use of linked crash, hospital and death data to ‘profile’ non-wearers
Profile of Western Australian non-wearers

- Analysed linked records for n=8,118 West Australians aged 16+ years killed or hospitalised between 2001-2006

- Demographic and crash information
  - Age, Gender, Indigenous status, Place of Residence and Birth; Crash Location; Vehicle Type; Police Attendance; Seat Belt Use

- Percentage of non-wearers
  - Hospitalisation 10.3%; Death 29.5%

Occupants most at risk of being unbelted when seriously injured

- Males [2.3]
- Occupants aged 16-25 and 26-40 (~2.5)
- Rural residents [1.6]
- Indigenous persons [6.0]
- Passengers [2.5]
Profile of Western Australian non-wearers

- Indigenous (n=505)
  - Males [1.6]
  - Occupants aged 26-40 [2.3]
  - Passengers [6.3]

- Non-Indigenous (n=7,613)
  - Males [2.4]
  - Occupants aged 16-25 and 26-40 [~2.5]
  - Rural residents [1.3]
  - Passengers [2.0]

Directions for Western Australia

- Targeted educational and enforcement programs
- Initiatives to promote use of appropriate vehicles to ensure belts for all occupants
- Promotion of belt use technologies, including enhanced seat belt reminders and engine-belt interlocks
Willingness to Pay to Avoid the Risk of Road Crashes

Delia Hendrie

The context

➢ Government agencies operate in an environment of
  ▪ Limited budgets
  ▪ Competing demands

➢ Performance assessed based on indicators measuring –
  ▪ Equity, effectiveness and efficiency

➢ Efficiency
  ▪ Value for money
Choices and resource allocation

- Project A versus Project B
  - Project A –
    - Save 1 fatality, 4 serious injuries, 10 minor injuries, 50 property damage incidents
  - Project B -
    - Save 0 fatalities, 12 serious injuries, 15 minor injuries, 20 property damage incidents

- How do we place a dollar value on a –
  - Fatalities
  - Serious injury
  - Minor injury
  - Property damage

- Project brief – Review approaches to valuing road fatalities and injuries, in particular the methodology used in NSW

Traditional approach

- Human capital approach
- Calculate identifiable costs associated with road fatalities and injuries
  - Loss of work income
  - Medical and related expenses
  - Property damage costs
  - General costs such as police, travel delays, etc
  - Loss of quality of life
- Focuses on the value of lives and quality of life after the event
Willingness to pay (WTP) approach

- Capture the amount individuals are WTP to reduce risk of premature death and injury
- Used for policy analysis in the UK, Europe, the US, Canada, NZ, Malaysia...

Main advantage –
- Theoretically sound measure of the value of risk reduction

Main disadvantage
- Difficulties in obtaining reliable WTP estimates

How is WTP calculated?

- Revealed preferences
  - Observe the choices that people make in markets when faced with trade-offs of risk and safety

- Stated preferences
  - Contingent valuation
    - Elicit preferences for risk reduction by finding out WTP using surveys
  - Stated choice technique
    - Respondents must choose between routes with different levels of service
Comparison of Current WA Crash-based Costs and the Individual-based WTP Values Used in NSW

<table>
<thead>
<tr>
<th>Casualty class</th>
<th>Crash-based Costs of Road Crash Casualties</th>
<th>Individual-based Values of Risk Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WA Human Capital (A$)</td>
<td>NSW Willingness to Pay (A$)</td>
</tr>
<tr>
<td></td>
<td>Fatalities</td>
<td>Urban</td>
</tr>
<tr>
<td></td>
<td>2,430,505</td>
<td>5,582,000</td>
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<tr>
<td></td>
<td>Serious injuries</td>
<td>599,000</td>
</tr>
<tr>
<td></td>
<td>Other injuries</td>
<td>20,241</td>
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<tr>
<td></td>
<td>Property damage</td>
<td>8,540</td>
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</tbody>
</table>
Conclusions of review

- WTP approach is the better method to use in economic evaluations of road safety initiatives
- Methodology underlying the derivation of the WTP values in NSW is an appropriate method
- NSW values of risk reduction are suitable for use in WA
- Benefit-cost ratios will be higher and the priority rankings of projects will change

Which is the better project – A or B?

- WTP approach
  - Cost savings
    - Project A = $8.3m
    - Project B = $6.1m

- Human capital approach
  - Cost savings
    - Project A = $5.5m
    - Project B = $7.7m
Safe road journeys for all children through innovative technology and handbooks

Prof. Torbjorn Falkmer

Safe riding - an utopia?

Professor Torbjörn Falkmer
Proportions of the human body
new-born infant, 2-year-old child, 6-year-old child,
12-year-old child and 25-year-old adult. Length ratio 1/4 - 1/7.

Weight proportion 25%-6% of the body weight

G-forces in a head-on collision between two similar vans at 32 km/h.
1,816 kilograms
Mobile school transportation bus stop
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