IS CYCLING A SAFE MODE? COMPARING APPLES WITH APPLES

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Presentation Outline

- Background / New Zealand Context
- Comparison of Travel Modes
  - Safety Metric Used
  - Age Distributions
  - Road Environments
- Safety in Numbers


Ben Wong
So you're from Australia, right?
The great New Zealand Image...
The great New Zealand Reality...
New Zealand

- 4.5 million people
  - Low population density
  - Very urbanised
- Typical Western Development
  - Automobiles
- ~1.4% of Trips by Bike
  - ~3% commuting
Cycling Safety in New Zealand

- ~10 Cycling Fatalities/yr
- ~1000 Reported Injuries/yr

Widespread perception about "danger" of cycling

Sporadic cycling facilities
Isn't Cycling Unsafe?

"Peak hour urban traffic is dangerous for cyclists… The best protection for cyclists is prohibition from peak hour urban roads"

"Really, you must have a screw loose to want to ride a bike on today's roads, you just don't know what nutter is behind the wheel."

Onlooker saves cyclist dragged under truck

CRASH: Christchurch roofer Richard Mitchell says the truck dragged the cyclist up to 30 metres. The cyclist, in his 30s, is in an induced coma in Christchurch Hospital.
Risk of Cycle Crashes

- **Perceived** Risk influenced by:
  - Regular Negative Media
  - Lack of Familiarity with Cycling by many
  - Can't Control Behaviour of Other Road Users
  - Immediacy of Injury/Death

- **Actual** Calculated Risks in NZ:
  - 1 Cycling Death per **2.5 million hrs** cycled
  - 1 Serious Injury for every **20,000 hrs** cycled
  - Health benefits of cycling outweigh risks **20:1**
Comparisons with Other Modes

- In many countries, one of the barriers to acceptance and encouragement of cycling is the **perceived danger** of the mode
  - By politicians, policymakers, and the public

- Not helped by "official" comparisons of different travel modes
  - Typically show cycling as having a far greater crash rate than other modes (driving, walking)

*Not really "comparing apples with apples"...*
Safety of Travel Modes from 2007-11 NZ Travel Survey

Cycling ~9x "riskier" than Driving
Research Context

- Study how different factors affect the relative safety of different travel modes
  - Used 2003-09 data from NZ road crash database & Household Travel Survey
  - Compared relative crash rates for travel modes

- Aim to address the key question for a person considering their travel options:

  "What is the risk to me in making the same type of trip on the same types of facility by bike instead of driving?"
Safety per Hour Travelled

Cycling ~3x "riskier" than Driving
The Same Trip Made?

- Car (Ave Trip Distance 9km)
- Cyclist (Ave Trip Distance 3km)
Age Distribution of Travellers

- **Light Veh Driver (Ave. Age 44 yrs)**
- **Light Veh Pass'gr (Ave Age 27 Yrs)**
- **Cyclist (Ave Age 33 Yrs)**

![Bar chart showing age distribution of travellers with different categories and average ages indicated in the legend.](chart.png)
Where are we Driving?

Crash Risk: 39.3 Ax/MVKT

Crash Risk: 23.2 Ax/MVKT

Crash Risk: 41.3 Ax/MVKT

Crash Risk: 35.6 Ax/MVKT

Crash Risk: 11.8 Ax/MVKT
Where are we Biking?

But where are the “cycle motorways”?
"Safe", Segregated Cycle Facilities...

But off-road trips and crashes aren't recorded!
Minor Urban Road Risk

Minor Urban Roads

- Light M.Veh Driver
- Light M.Veh Pass'gr
- Pedestrian
- Cyclist

Deaths/Injuries per 100 million km travelled

Age Bracket

00-04  05-14  15-24  25-34  35-44  45-54  55-64  65-74  75+
On a per-hour basis, crash rates are very similar.
Example: signalised crossroads
People cycling would strongly benefit by protection from traffic in busy road environments, e.g. segregated facilities.
To Put Things in Perspective...

- ~10 cyclist deaths on roads per year in NZ
- Average of ~360 motor vehicle occupants killed / year in NZ
- ~300-500 premature deaths / year in NZ due to motor vehicle emissions
- ~2500 deaths / year due to physical inactivity in NZ

20:1 benefit of life-years gained from cycling vs life-years lost (BMA, 1992)
Conclusions

- Safety comparisons may not always be “comparing apples with apples”
  - Relative amount of time taken by each mode
  - Average distance travelled by different modes
  - Age distributions / "road experience" of travellers
  - Types of road environments/facilities travelled
  - Different crash reporting rates by mode
  - Cumulative "safety in numbers" effect
  - Relative health costs other than road crashes

*Sometimes cycling not really more dangerous*
Thank You!

Any Questions?

"Looking on the bright side, when he was hit by the car, he was in great shape. I’d never seen him looking so fit and healthy."

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