

Cycling Research

THEORY OF RELATIVITY

New Zealand's road crash numbers have dropped significantly in the past 15 years. Initiatives such as random breath testing, speed cameras, and a stricter driver licensing regime have all contributed to a much-lauded decline in crashes, injuries and deaths. A question of interest to cyclists and pedestrians though is whether the same overall gains are being seen for these road users, i.e. *has walking/cycling safety also improved?*

When considering this issue, account needs to be taken of any changes in travel use or "exposure" over time. Broadly speaking, if we saw an increase in travel then (all other things being equal) we would probably expect an increase in the number of crashes too, and vice versa.

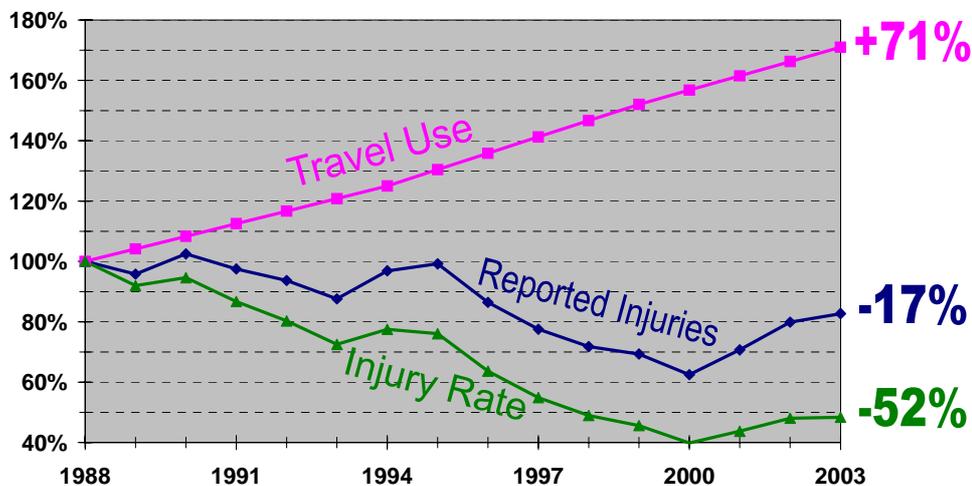
An analysis was done looking at all the reported road injuries in NZ between 1988 (when crash numbers were at a peak) and 2003 (the latest annual figures). Crashes were split into whether a cyclist or pedestrian was involved, or whether it was a motor-vehicle-only crash.

At the same time, data were obtained on relative changes in use by each mode over this period, in terms of volumes or trip numbers. While that's easy for motor vehicles, data was exceptionally limited for cyclists and pedestrians, mainly being just Census and LTSA Travel Survey data. So, as far as I can get, the relative figures shown are at least "in the ballpark".

From injury numbers and travel use, we can estimate a relative "injury rate", i.e. injuries per travel use. This implies a linear relationship between the two, which isn't necessarily valid, but at least gives an idea of whether the injury rates are heading up or down.

Figure 1 shows the relative figures for motor-vehicle only crashes (with everything starting from a 100% base):

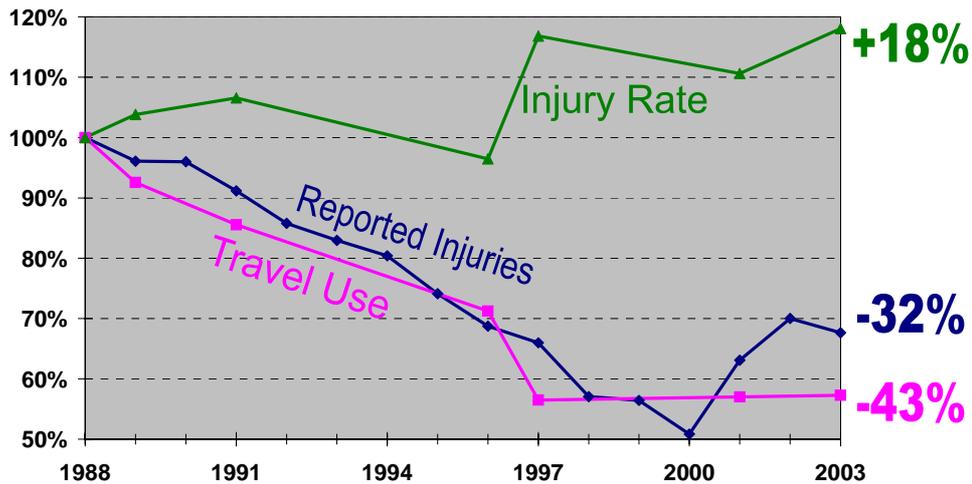
Figure 1: Motor-vehicle-only Crashes 1988-2003



Despite the significant growth in motor vehicle traffic over the past 15 years, the numbers of injuries have fallen by 17% (more until recently), and hence the injury rate has been halved.

If we look at cyclist crashes instead (Figure 2), while the reported injuries have fallen by 32%, the relative amount of cycling travel has fallen even further. This implies an actual increase in the injury rate of 18%; certainly, even given the vagaries of the data sources, it hasn't improved.

Figure 2: Cyclist Crashes 1988-2003



A similar plot for pedestrian crashes shows the same unfortunate pattern. In this case, both pedestrian injuries and travel have only dropped slightly, leading to no significant change in injury rate.

The findings should be a wake-up call to anyone involved in road safety in New Zealand. Even though we have done some wonderful things to improve motor vehicle safety, cycling and walking have not seen the same relative safety benefits from the past 15 years. Some different ways of tackling road safety (e.g. “road danger reduction”) may also be necessary to address these travel modes.

References

- To find information on current NZ cycling-related research, go to: www.can.org.nz/research/
- The latest NZ travel survey data should be available soon at: www.ltsa.govt.nz/research/travel-survey-ongoing/ 🚲

Glen Koorey (koorey@paradise.net.nz, 03-3317504)