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Monograph 4

Motorcycle Safety

Australia's international motorcycle safety performance 1987 to 1997

This monograph compares Australia's motorcycle safety record with that of other OECD nations over the decade 1987 to 1997 using ATSB road fatality data and the International Road Traffic Accident Database.

Motorcyclist fatalities in Australia and the OECD, 1997

Comparisons of motorcycle safety between nations need to take into account the relative size of motorcycle fleets in those nations. Comparisons here are therefore made in terms of fatalities per 10 000 registered motorcycles.

Table 1 shows that when adjustment is made for differences in motorcycle fleet sizes, motorcycle safety in Australia compares unfavourably with that of the OECD as a whole.

Table 1
Motorcycle fatalities per 10 000 registered motorcycles, OECD nations, 1987 and 1997

Country	*1987*	*1997*	*% Change*
Australia	10.2	5.7	-44%
Austria	12.4	5.5	-55%
Belgium	9.2	5.6	-39%
Canada	9.0	4.0	-55%
Czech Republic	1.1	1.9	80%
Denmark	10.5	3.4	-68%
Finland	4.6	1.2	-74%
France	10.5	8.9	-15%
Germany	6.0	3.6	-40%
Greece	11.2	8.3(a)	-26%
Hungary	2.6	4.2	64%
Italy	3.0	2.0	-34%
Japan	5.1	2.1	-58%
Korea	18.5(b)	7.3	-61%
Netherlands	4.6	2.6	-44%
Norway	15.6	5.3	-66%
Poland	5.5(c)	2.9	-47%
Portugal	6.6	8.8	33%
Spain	5.1	3.5	-32%
Sweden	5.8	3.0	-49%
Switzerland	6.1	2.0	-67%
UK	9.0	7.6	-16%
USA	8.0	5.5	-32%
OECD median	**6.6**	**4.0**	**-39%**

(a) 1995 data
(b) 1988 data
(c) 1990 data

In 1997, Australia had 5.7 motorcyclist fatalities per 10 000 registered motorcycles compared with a median of 4.0 fatalities for the OECD as a whole. The 1997 comparisons are summarised in Figure 1. This shows that Australia ranked sixth worst amongst 23 nations for which data were reported. Finland had the lowest rate, 1.2 fatalities per 10 000 registered motorcycles. France had the highest rate, 8.9 fatalities per 10 000 registered motorcycles.

Table 1 shows that this is not just a recent phenomenon. In 1987, Australia had 10.2 motorcyclist fatalities per 10 000 registered motorcycles compared with 6.6 fatalities for the OECD as a whole.

This poor result is surprising given Australia's overall road safety record. Australia's fatality rate for all road users per 10 000 registered motor vehicles in 1997 was 1.5. This rate was well below the OECD median of 2.0 and ranked Australia equal sixth best amongst 23 OECD nations.

It might be conjectured that the relatively poor status of motorcycle road safety in Australia stems from differences in the culture of motorcycle use or differences in the road environment but this remains unclear. As discussed below, there is no strong evidence that it stems from more time spent on the road.

Distance travelled by motorcycles

Limited information is available for OECD nations on distances travelled by motorcyclists.

In 1997, Australian motorcycles each travelled an average of 4 300 kilometres. This was equal to the median distance travelled in the nine OECD nations for which data are available. Switzerland had the lowest average distance

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travelled (3 500 kilometres per motorcycle). Greece (14 900 kilometres) and Norway (7 100 kilometres) had the largest average distance travelled. The remaining six countries ranged between 3 900 and 4 700 kilometres per motorcycle.

Australia's relatively high motorcyclist fatality rate is therefore unlikely to be attributable to greater annual distances travelled by Australian riders.

Motorcyclist safety trends in Australia and the OECD, 1987 to 1997

Table 2 shows a substantial improvement in Australia's motorcycle safety record over the decade. Motorcyclist fatalities were more than halved from 359 deaths in 1987 to 177 in 1997. Table 3 shows that these road safety gains were greater than those made for road safety overall. Motorcyclist fatalities represented only 10% of all road fatalities in 1997 compared with 13% in 1987.

Tables 2 and 3 show a similar pattern for the OECD as a whole. Motorcyclist fatalities were reduced from 14 073 to 10 041 and represented only 8% of all road fatalities in 1997 compared with 10% in 1987.

At first glance, Australia's achievement in halving the annual motorcyclist deaths between 1987 and 1997 compares favourably with the overall OECD reduction of 29%. However, a less favourable picture emerges when comparisons are made taking into account the number of motorcycles registered in Australia and other nations in 1987 and 1997.

Table 1 shows that between 1987 and 1997, Australia achieved a 44% reduction in its motorcyclist fatality rate per 10 000 motorcycles (from 10.2 to 5.7) compared with a 39% reduction for the OECD as a whole (from 6.6 to 4.0).

Table 2
Number of motorcycle fataliites in OECD nations, 1987 and 1997

Country	*1987*	*1997*	*% Change*
Australia	359	177	-51%
Austria	133	112	-16%
Belgium	120	125	4%
Canada	371	120	-68%
Czech Republic	49	84	71%
Denmark	44	19	-57%
Finland	22	8	-64%
France	864	878	2%
Germany	1130	974	-14%
Greece	204	396[a]	94%
Hungary	103	64	-38%
Italy	665	521	-22%
Japan	1982	954	-52%
Korea	1705[b]	1777	4%
Netherlands	58	92	59%
New Zealand	146	55	-62%
Norway	39	27	-31%
Poland	749[c]	247	-67%
Portugal	75	240	220%
Spain	417	460	10%
Sweden	59	36	-39%
Switzerland	146	83	-43%
UK	683	508	-26%
USA	3950	2084	-47%
Total	**14073**	**10041**	**-29%**

refer to notes below table1

Table 3
Motorcyclist fatalities as a percentage of the total road toll, OECD nations 1987 and 1997

Country	*1987*	*1997*
Australia	13%	10%
Austria	9%	10%
Belgium	6%	9%
Canada	9%	4%
Czech Republic	5%	5%
Denmark	6%	4%
Finland	4%	2%
France	8%	10%
Germany	12%	11%
Greece	12%	18%[a]
Hungary	7%	5%
Italy	9%	8%
Japan	16%	8%
Korea	21%[b]	13%
Netherlands	4%	8%
New Zealand	18%	10%
Norway	10%	9%
Poland	10%[c]	3%
Portugal	3%	10%
Spain	5%	8%
Sweden	7%	7%
Switzerland	16%	14%
UK	13%	14%
USA	9%	5%
Total	**10%**	**8%**

refer to notes below table1

Further research is warranted on the cultural, demographic, environmental (congestion, cost) and other factors that may be contributing to these trends and their implications for motorcycle road safety.

Age of motorcyclist fatalities

The age profile of motorcyclist fatalities is an important input to an understanding of the factors involved in these crashes. In 1997, people aged 25 and over made up 63% of all Australian motorcycle fatalities.

A similar age profile existed amongst motorcyclist fatalities for the OECD as a whole. In 1997, people aged 25 and over made up 70% of all OECD motorcyclist fatalities.

The age profile of motorcyclist fatalities has been increasing in both Australia and the OECD as a whole. In 1989, only 41% of Australia motorcycle fatalities and 48% of OECD motorcyclist fatalities were aged 25 and over.

This shift may reflect a change in the demographics of motorcycle ownership. It might also stem from the implementation of road safety measures directed at high-risk road behaviour more commonly associated with the young.

Summary

Australia's motorcycle safety record in 1997 compared poorly with that of other OECD nations. There were 5.7 motorcycle fatalities per 10 000 registered motorcycles in Australia compared with the OECD median of 4.0. Australia ranked sixth worst amongst 23 OECD nations for which data were available.

Motorcyclist fatalities also represented a larger proportion of the total Australian road toll (10%) than was the case for the OECD as a whole (8%).

Australia's relatively high rate of motorcyclist road deaths is unlikely to be attributable to greater annual distances travelled by Australians.

These results are in contrast to Australia's overall road safety performance in 1997. Australia ranked equal sixth best of 23 OECD nations in terms of fatalities of all road users per 10 000 registered motor vehicles.

Australia's motorcycle safety record nevertheless improved substantially between 1987 and 1997. Total motorcyclist fatalities decreased from 359 in 1987 to 177 in 1997. Motorcycle fatalities per 10 000 registered motorcycles decreased from 10.2 fatalities in

Figure 2
Registered motorcycles per 1 000 population, OECD nations 1987-1997

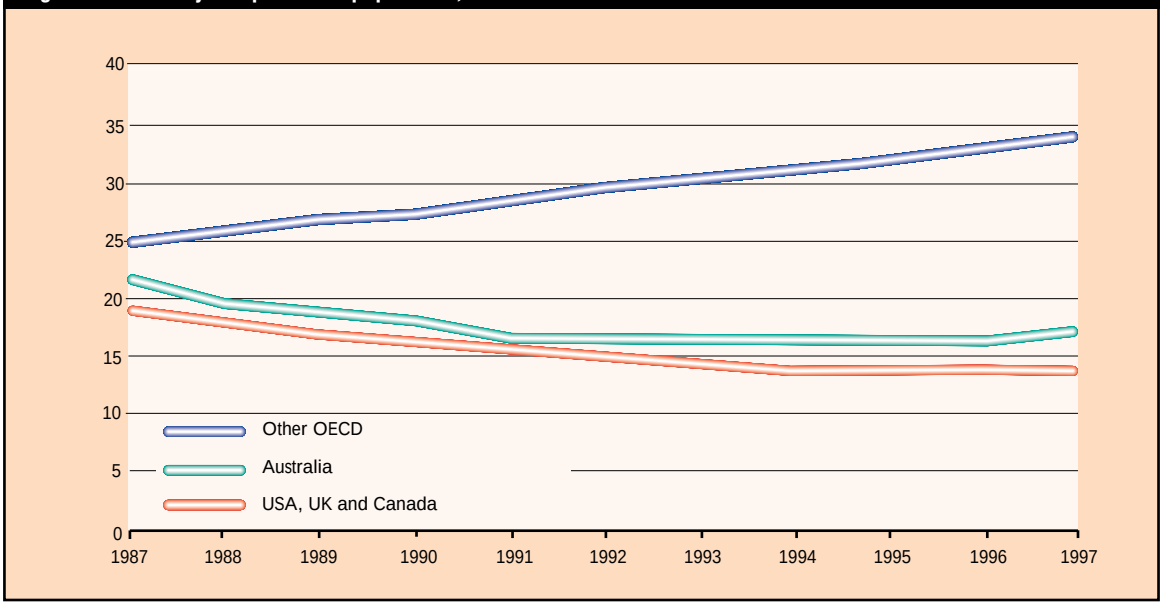
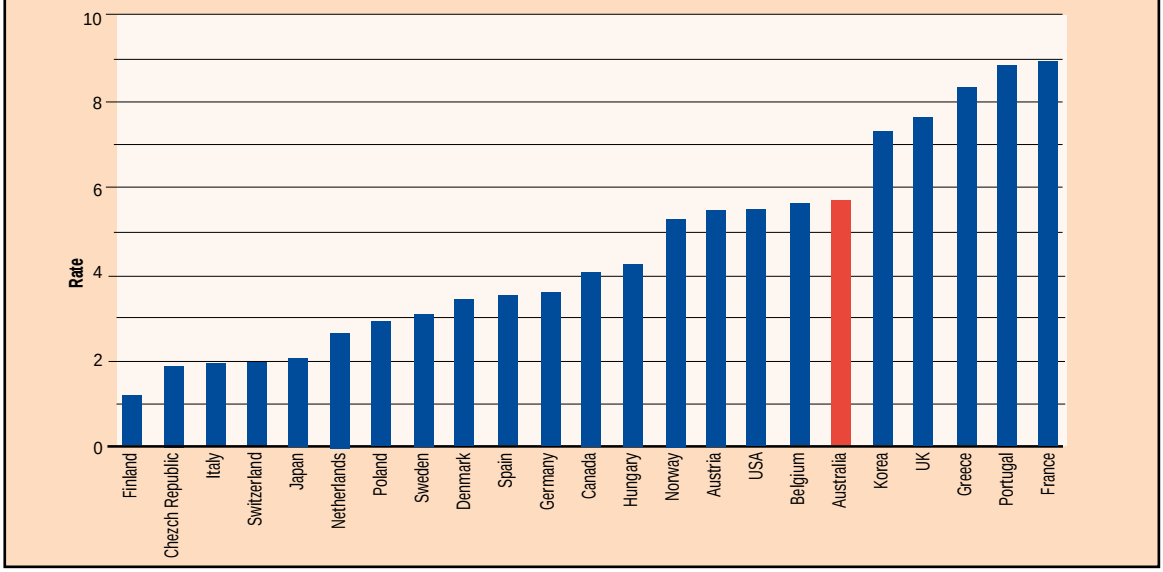


Figure 1
Motorcyclist fatalities per 10 000 registered vehicles, OECD nations 1997



Australia's more favourable comparison in terms of motorcyclist deaths unadjusted for levels of motorcycle ownership (Table 2) can be explained by a reduction in per capita motorcycle ownership in Australia compared with increasing ownership in much of the OECD, as discussed below.

Motorcycle ownership patterns in Australia and the OECD

The number of registered motorcycles per 1 000 population is a measure for assessing the level of motorcycle ownership in a country taking into account its population.

Table 4 shows that motorcycle ownership in Australia decreased from 21.6 registered motorcycles per 1 000 population in 1987 to 16.9 in 1997. This contrasted with increasing motorcycle ownership in the OECD as a whole (from 18.3 registered motorcycles per 1 000 population in 1987 to 22.1 in 1997).

In 1997, per capita motorcycle ownership in Australia ranked equal fourteenth highest amongst 23 OECD nations. Switzerland had the highest rate of 58.0 registered motorcycles per 1 000 population while Canada had the lowest rate of 9.9. See Table 4.

Table 4 indicates a decline in motorcycle popularity between 1987 and 1997 in all English speaking OECD countries compared with a steady increase in motorcycle ownership rates in all but three of the remaining OECD countries. These trends are presented in Figure 2.

Table 4
Number of motorcycles per 1 000 population, OECD nations, 1987 and 1997

Country	*1987*	*1997*	*% Change*
Australia	21.6	16.9	-22%
Austria	14.1	25.0	78%
Belgium	13.3	22.1	67%
Canada	16.2	9.9	-39%
Czech Republic	44.9	42.6	-5%
Denmark	8.2	10.6	30%
Finland	9.7	12.8	32%
France	14.9	16.9	14%
Germany	24.2	33.1	37%
Greece	18.3	54.4	197%
Hungary	37.6	14.8	-60%
Italy	38.5	45.5	18%
Japan	32.0	35.6	11%
Korea	19.7	53.5	171%
Netherlands	8.6	23.1	168%
Norway	6.0	11.6	94%
Poland	35.5[(a)]	21.8	-39%
Portugal	11.6	25.5[(b)]	120%
Spain	21.2	33.7	59%
Sweden	12.0	13.8	14%
Switzerland	36.8	58.0	58%
UK	13.3	11.3	-15%
USA	20.2	14.3	-29%
OECD Median	18.3	22.1	21%

(a) 1990 data
(b) 1996 data

1987 to 5.7 in 1997, a fall of similar magnitude to that for the OECD as a whole. Reductions in motorcyclist fatalities outstripped those made amongst other Australian road users over that period.

Per capita motorcycle ownership decreased substantially in Australia between 1987 and 1997, in contrast to increasing motorcycle ownership in the OECD as a whole.

Data Sources

Crash data and fatality rates for all OECD nations other than Australia were obtained from the International Road Traffic and Accident Database (IRTAD).

Australian crash data were obtained from ATSB's road crash databases. Australian fatality rates were derived using Australian Bureau of Statistics population and motor vehicle registration data.