

1997/98 Travel Survey Highlights - Introduction

Introduction

Funded by The New Zealand Road Safety Trust, the New Zealand Travel Survey 1997/98 increases our understanding of New Zealanders' travel behaviour. This in turn provides valuable information for directing both national, regional and community-based road safety programmes to help reduce the level of trauma on our roads.

This highlights booklet presents results compiled from the large number of tables and graphs which appear in the principal document, the New Zealand Travel Survey Report.

It provides information on recent travel patterns as well as showing how travel behaviour has changed over the eight years since the 1989/90 travel survey a project that employed comparable methodology. When road crash statistics are combined with this travel information, it is possible to show which demographic groups are at (and which driving situations present) the greatest risk and how, influenced by changing travel patterns and road safety programmes, risk has changed over time. This also highlights trends that may continue into the future.

There is a wealth of useful information contained in the Travel Survey. Eight years on from the previous survey we find some notable shifts in travel patterns. An example is the change from walking and cycling to schools within our cities to using a car. The section on evaluating risk in terms of mode of transport, age, gender and the time of travel provides excellent information for those considering where our road safety efforts can best be made.

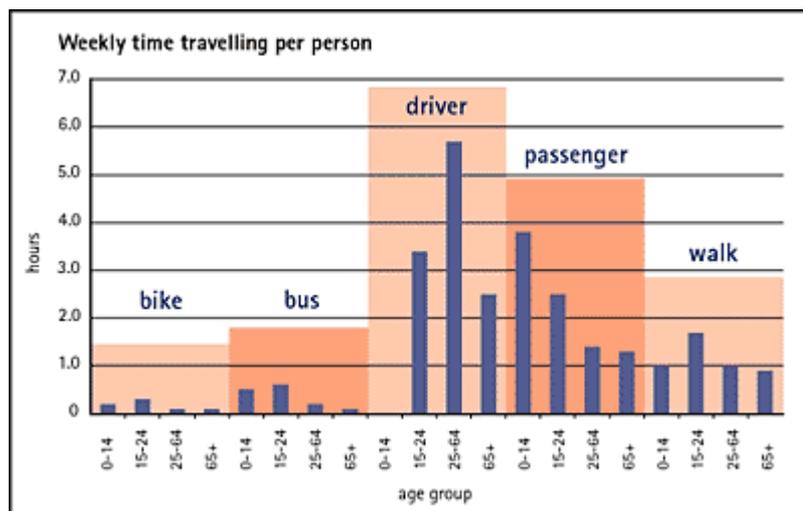
About the 1997/98 Household Travel Survey

Over a period of a year - between June 1997 and July 1998, and during April and May 1999 approximately 14,000 people were surveyed from 7,000 randomly sampled households.

Interviewed in person at their homes, people were asked to describe all of their travel by cars, motorcycles and other motor vehicles, by train or plane, by bicycle, and on foot for two particular days (called travel days). As these days were spread out over a whole year, information could be scaled up to represent a year's travel by all New Zealanders.

Each leg of a trip was recorded in full detail. For example, someone going to work may drive from their home to a parking building and then walk to their workplace. Each of these two legs (one by car, one on foot) was recorded in detail - including time leaving, time arriving, what sort of parking was used, and how many roads were crossed from parking building to work. Even the make, model, and other details about the car driven were recorded. The distance of the driving trip was computer-calculated by locating where the person's home was, where the parking building was, and by measuring the road distance between the two.

1997/98 Travel Survey Highlights - weekly travel



Children (aged up to 14 years) spend the most time as passengers (almost four hours per week). They spend a small amount of time on the bus (about half an hour on average), about an hour walking, and less than a quarter of an hour on a bicycle.

Of any age group, young people in their late teens and early 20s spend most time walking: about one hour 40 minutes per week. They spend about the same amount of time in a motor vehicle as do members of the 25 to 64-year-old age group, but less as a driver and more as a passenger. They spend fractionally more time on a bus and on a bicycle than do other age groups.

On average, people in the 25 to 64-year-old age group are the most independently mobile. Each week, they spend on average almost six hours per person as a driver. Driving is their preferred mode of travel and this activity dominates the time they spend travelling.

On average, older people (aged 65 plus) are the least mobile of all the age groups, each person spending a total of only five hours per week travelling by all modes: walking, driving, passenger travel, etc. This may be partially a reflection of a lifestyle that doesn't require regular attendance at a school or place of work (see section Reasons for travel).

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1997/98 Travel Survey Highlights - reasons for travel

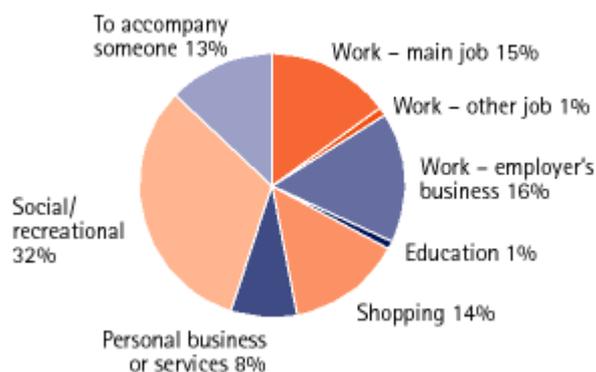
The survey interviews recorded a reason or purpose for each trip as well as describing the trip's origin and destination and detailing time of day and travel mode (driving, walking etc).

The reasons were broadly classed as: going home, going to work, work-related trip (employer's business), education, shopping, etc. The following pie charts show how distance driven was divided among the various reasons for the trip.

Trips made with the purpose of going home are not included because trips with this purpose are simply trips returning from doing something else. Trips made with the purpose work refer to commuting trips from home to workplace.

Likewise, education refers to trips commuting from home to school, university, etc*. The chart here shows that commuting (between home and workplace or education institution) makes up 17 percent of all driving distance. Social and recreational trips make up the largest proportion (32 percent) of all driving.

% of driving distance: all drivers



The pattern changes with age. For drivers aged 65 and over (see chart), almost half (47 percent) of all driving is for social or recreational reasons. Shopping accounts for a further 22 percent.

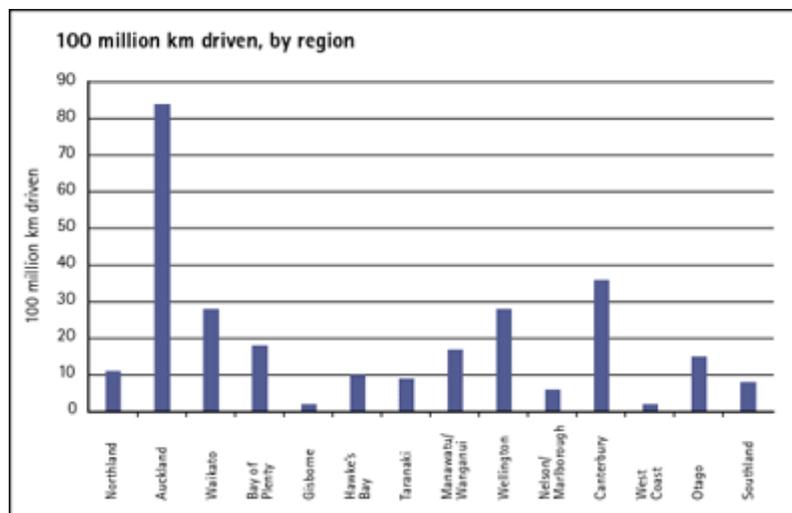
% of driving distance: drivers 65 and older



*A certain small proportion of trips 'to accompany someone' will include trips made by a relative or a friend driving a child to school, for example.

1997/98 Travel Survey Highlights - regional travel patterns

The graph below shows the total annual distance driven by residents of each Local Government Region. Travel is dominated by regions with larger populations, and Auckland alone accounts for 30 percent of the total national distance driven. Wellington, Canterbury and Waikato together account for another 30 percent.



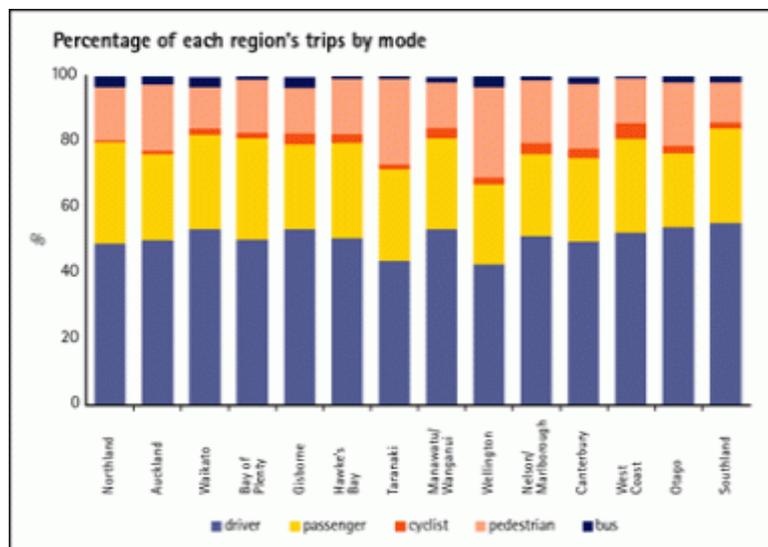
The average distance driven per driver* varied across the country. In Gisborne, drivers drove an average of just 6,500 km each in the 1997/98 year, whereas in Northland the average driver drove more than twice as far in the same year. Average driver distances were also low in Nelson/Marlborough (8000 km per year) and on the West Coast (9,000 km per year). Wellington drivers averaged just under 10,000 km per year. Drivers from all other regions drove average annual distances of between 11,000 and 12,500 km.

People in Canterbury and Hawke's Bay cycle the most, averaging more than 150 km a year for every man, woman and child over five.

**A driver is defined as a person who reported driving at least 20 km in the 12 months immediately preceding their survey interview.*

1997/98 Travel Survey Highlights - mode of transport

Regional differences in geography and transport infrastructure lead to different transport choices. In Wellington and Taranaki, one quarter of trips are made on foot, but in Southland only one in eight. Driver trips play a larger role in regions with a significant rural population, such as Southland, Manawatu/Wanganui, and Gisborne.



The popularity of cycling varies around the country according to terrain, traffic, weather, and the social composition of each region. People in Canterbury and Hawke's Bay cycle the most, averaging more than 150 km a year for every man, woman, and child over five. Conversely, cycling is relatively unpopular in Southland and Auckland (60 and 40 km per person per year, respectively) and almost negligible as a means of transport in Northland, where the average annual distance per person is only 10 km.

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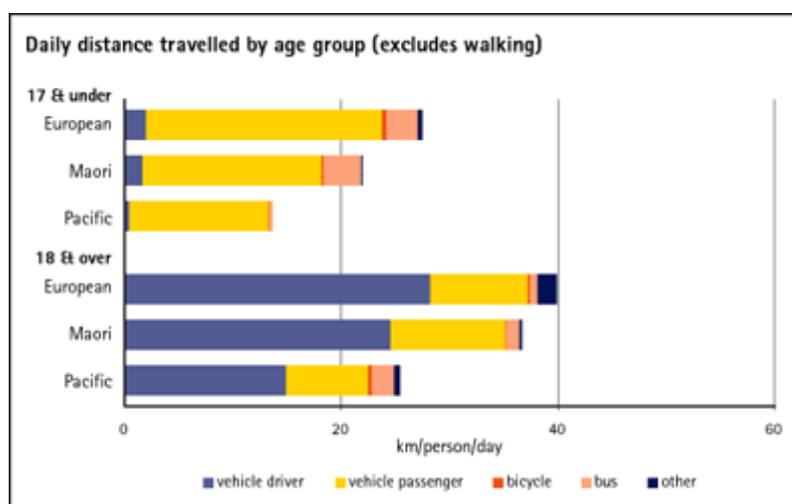
1997/98 Travel Survey Highlights - ethnicity and travel

In the personal interviews, people were asked to describe their ethnic origin. These charts compare travel patterns for three major ethnic groups in New Zealand: those of European descent, Maori people, and people of Pacific descent. The European and Pacific groups include those born in New Zealand and immigrants.

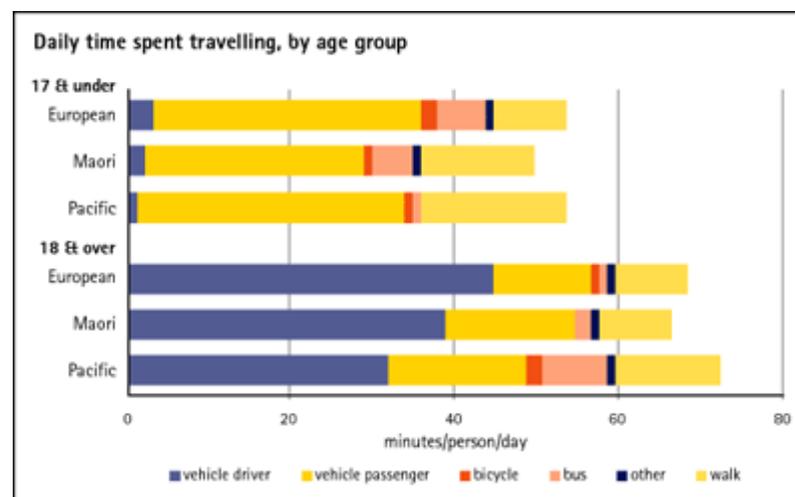
There are several differences between these ethnic groups, including the age structure (the proportion of younger people compared to older people) and the proportion that live in towns and rural areas compared to cities.

Travel patterns reflect these and cultural and socio-economic differences. On average, New Zealanders of European descent travel further, and drive more, than those in the other two groups. The average Maori or European driver drove about 11,000 km per year, compared to only 8,000 km driven by the average Pacific driver.

Pacific children of school age do much less bus travel than Europeans or Maori, partly reflecting the more city-based Pacific population whose schools may be closer to home.



The graph of time spent travelling has a somewhat different pattern. Although Pacific adults cover the least distance daily, they spend as much or more time travelling as the other groups. In particular, they spend more time cycling, walking, and using public transport than Maori and Europeans.

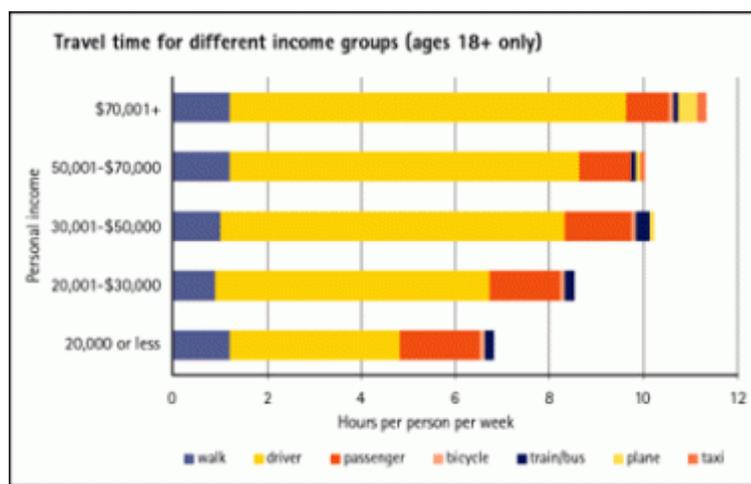


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1997/98 Travel Survey Highlights - personal income and travel

People completing the survey were asked to indicate which category their personal income fell into, and most (93 percent of people over 18) agreed to do so. This lets us describe the travel patterns of different income groups*.

- ▶ High income people spend more time travelling and travel further than low income people. Those with an annual income of over \$70,000 were the only group making significant use of aircraft and taxis.
- ▶ Both high and low income people spend more time walking than middle income people. On average, high and low income people walk for one-and-a-quarter hours a week, compared to less than an hour a week for other groups.
- ▶ Low income people, including people who are not earning, drive less and do more passenger travel than other groups.



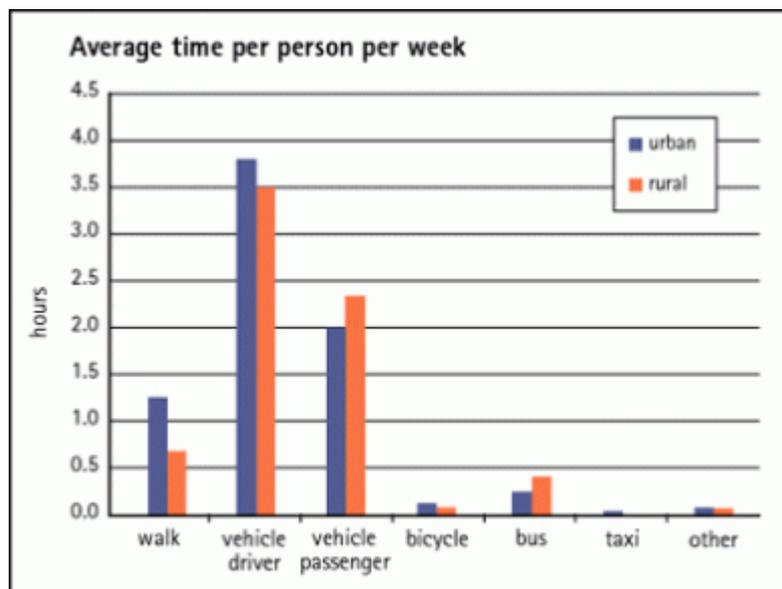
* Personal income is not necessarily a good indicator of socio-economic status, as the relationship between these is complicated. In a family situation, for example, there may be one income earner and three non-earners but everyone enjoys the same standard of living.

1997/98 Travel survey highlights - urban and rural people

With the exception of some sparsely populated, remote areas, the Travel Survey sampled people from all over New Zealand. This means that the travel of people living in the larger cities can be compared to the travel of people in small towns and rural areas.

Some of the main differences are:

- ▶ Annually, the average rural driver covers almost 28% more distance than the average urban driver. However, as shown on the chart below, rural people spend slightly less time on average driving than do urban people. This is because they cover greater distance on higher-speed-limit roads.
- ▶ In terms of average weekly travelling time per person, rural people spend more time on the bus and as a vehicle passenger, and less time walking and cycling than do urban people.



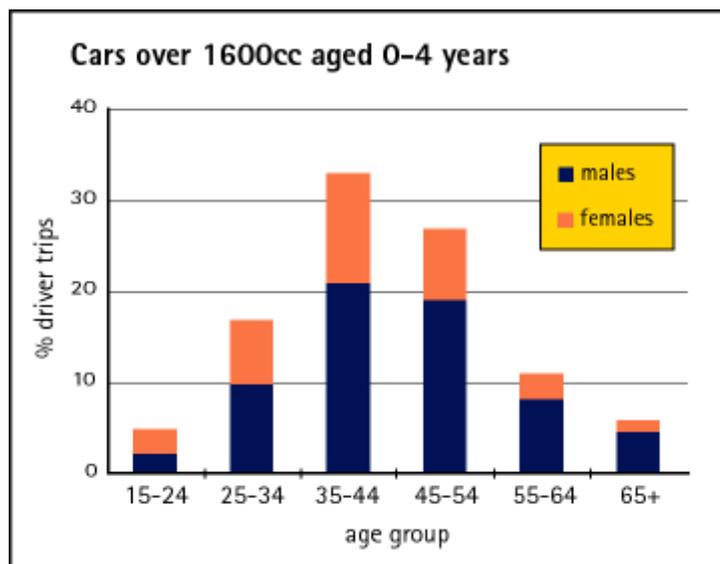
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* People living in Main Urban Areas are compared with people living in population centres and rural areas that are smaller than Secondary Urban Areas, using the Statistics New Zealand definitions of these areas.

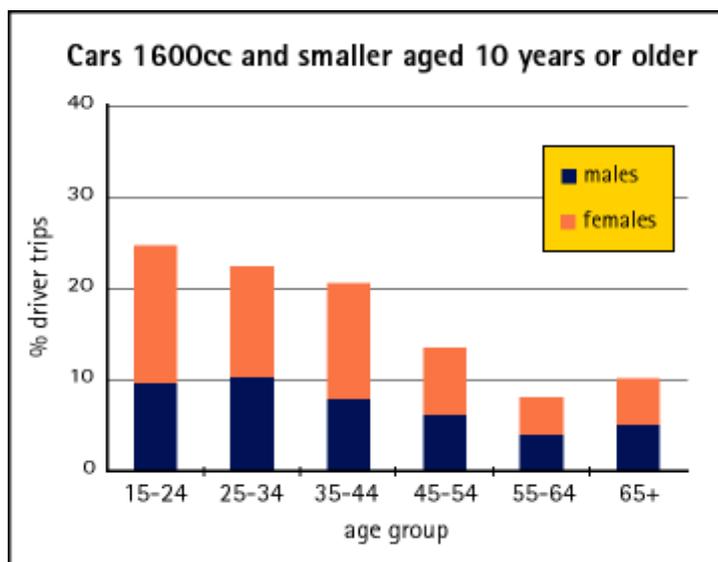
1997/98 Travel Survey Highlights - cars and drivers

During the survey interviews, the make, model, and age of each vehicle driven was recorded. This allows us to see which people drive particular types of cars.

The following graphs show which age and gender groups are the main users of two different types of vehicle. The first graph shows usage of larger*, later model cars i.e. those less than five years old. These cars are favoured by male drivers aged 35-54. Only a small percentage of trips made in these vehicles are made by the youngest and oldest driver age groups: 15-24-year-olds and over-65s.



By contrast, smaller**, older cars i.e. those 10 years old and over - are driven mainly by young people, and predominantly by females. Generally, 61 percent of trips made in larger cars are driven by males and 57 percent of smaller car trips are driven by females.



* More than 1600cc

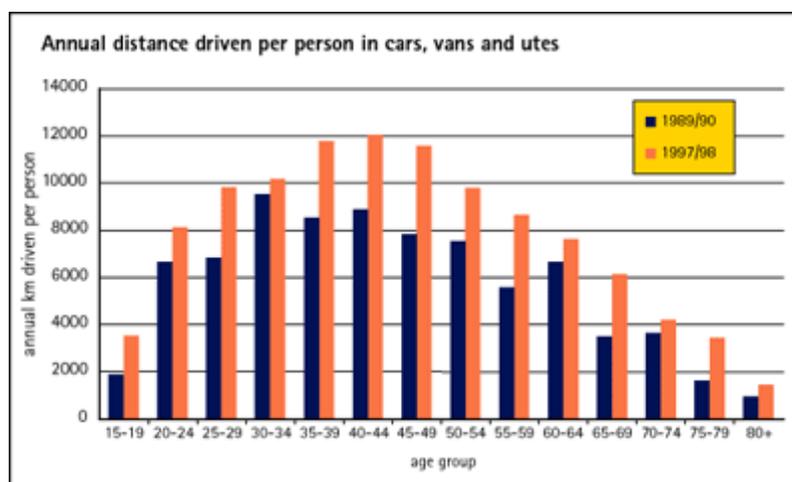
** 1600cc and less

1997/98 Travel Survey Highlights - drivers and passengers

Drivers

Between 1989/90 and 1997/98, total distance driven has increased by one third. This is partly due to an increase in the number of driving-age New Zealanders.

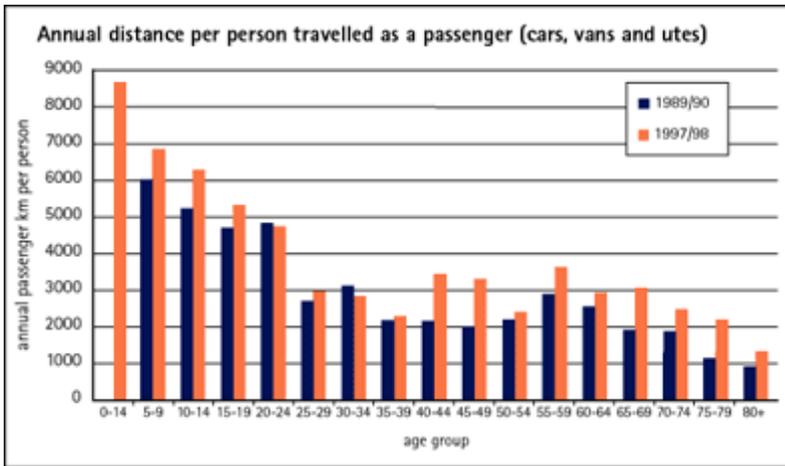
- ▶ Overall mobility has also increased. On average, people in all age groups are driving further than in 1989/90.
- ▶ People in the 35-49 age groups do the most driving.
- ▶ Men make up just under half of the driving-age population. However, they do 61% of the total distance driven in cars and vans.
- ▶ Most driving trips are short. One third are under 2 km long and two thirds are under 6 km. Men do more long driving trips than women.



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Passengers

- ▶ Between 1989/90 and 1997/98, total passenger travel in cars, vans and utes increased by 15%.
- ▶ Children under five do more passenger travel per person than any other age group. (The 1989/90 survey did not include children under five, so there is no estimate from that survey for this group).
- ▶ As might be expected, all children under driving age do a lot of passenger travelling. Fifteen to 24 year olds, who are less likely than older people to own their own car, also do a significant amount. Unlike younger children, this group may be driven by friends in the same age group as well as by parents.



Bus and taxi trips

Teenagers are the heaviest users of buses. Almost half of all bus trips are made by this age group.

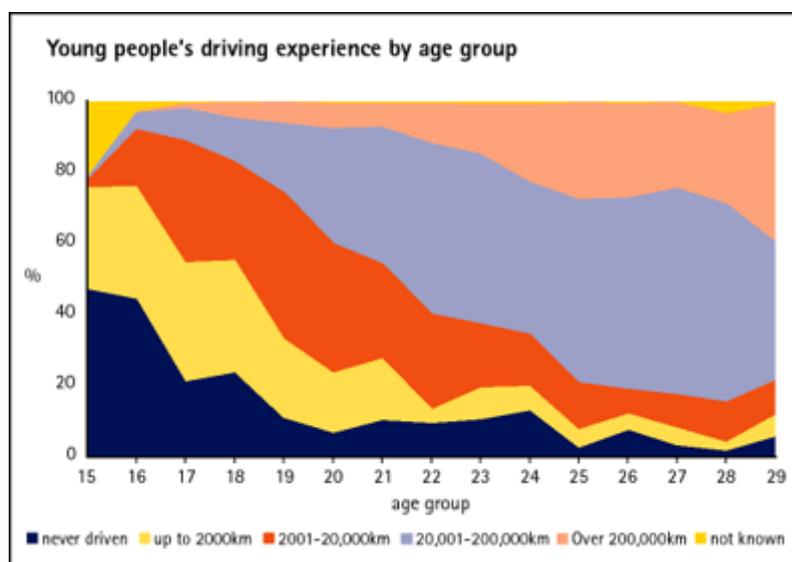
Taxis account for only 1% of passenger travel, with people in their 20s and 30s the heaviest users.

1997/98 Travel Survey Highlights - driving experience

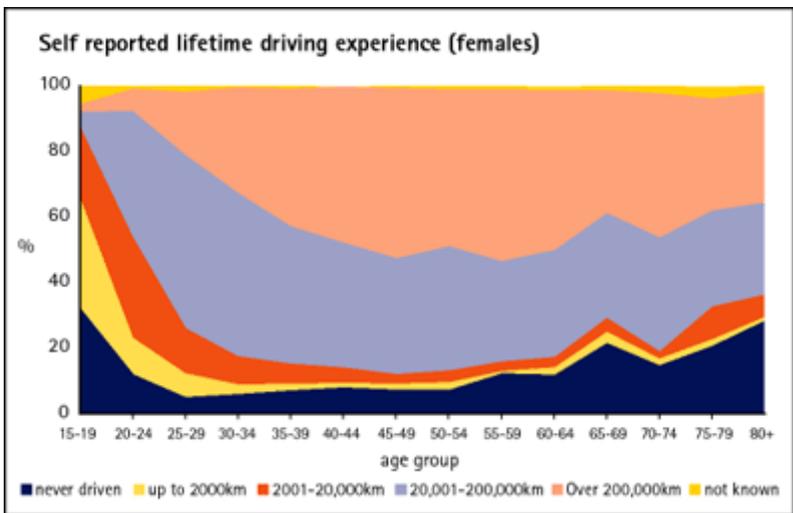
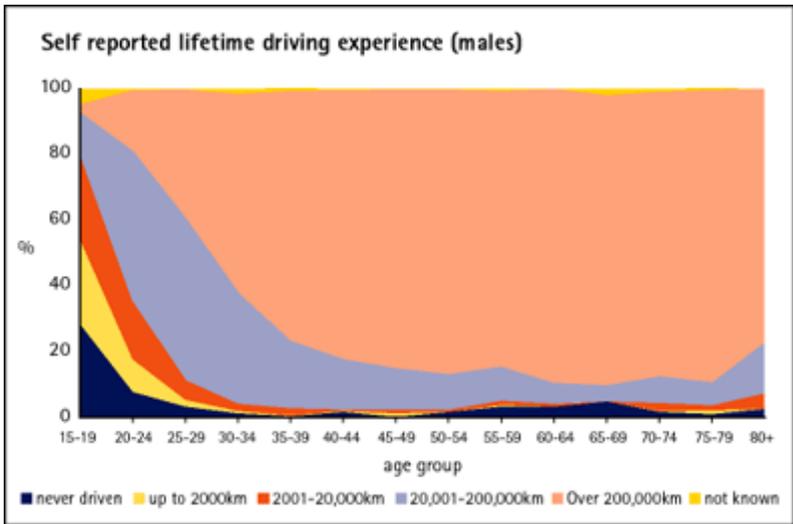
During the survey, interviewees aged 15 and over were asked to estimate the total distance they had driven in their driving lifetime. They were asked to describe their driving experience according to five broad categories: 'Never driven', 'Up to 2000 km', '2001-20,000 km', '20,001-200,000 km' and 'More than 200,000 km'. Those who were unable to estimate their lifetime driving experience were recorded as 'Not known'.

New Zealanders begin driving at a younger age than people in many other countries. About one-third of 15 year olds in the survey had some driving experience. By age 20, 90 percent had done some driving while 40 percent had driven more than 20,000 km.

Of those currently driving, 90 percent of 16 year olds and 70 percent of 19 year olds had driven less than 20,000 km. Inexperienced drivers are known to be at higher risk of crashing than other drivers, as they are less skilled at anticipating and negotiating hazardous situations*.



Women are more likely to be non-drivers, and to learn to drive later than men. Around 7 percent of women in their 30s and 40s have never driven, compared with only 1 percent of men in these age groups. Older women, in particular, are less likely to have learned to drive; one in five women over 65 has never driven. Overall, older women who do drive tend to have less lifetime driving experience than their male peers - and one in 20 has a low level of experience: that is, under 20,000km.



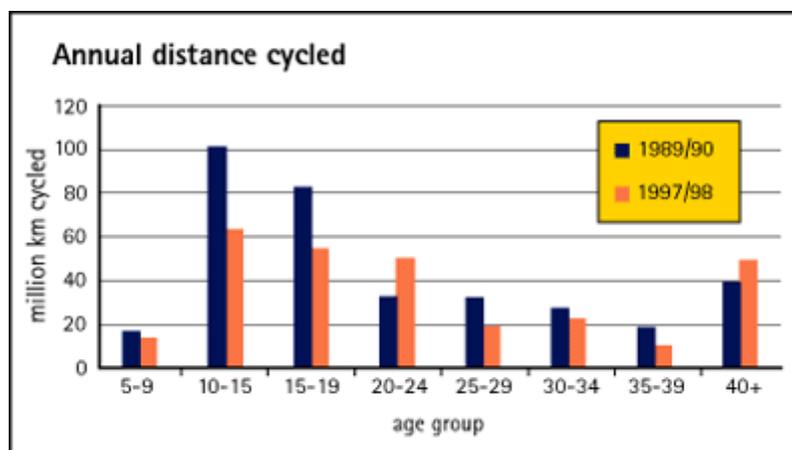
* The driving behaviour of novice drivers is discussed in Mayhew, D.R. and Simpson, H.M. (1990). New to the road. Young drivers and novice drivers: similar problems and solutions? Ottawa, Ontario: Traffic Injury Research Foundation of Canada.

1997/98 Travel Survey Highlights - cyclists

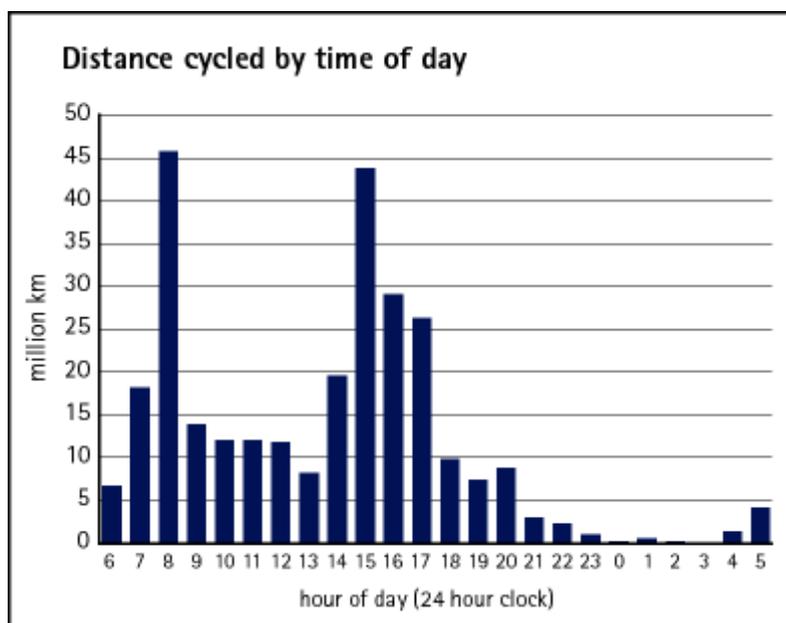
Between 1989/90 and 1997/98, on-road cycling has decreased by 19 percent, with the largest decrease among school-age children and teenagers. Other countries have also seen large reductions in cycling (for example, cycling in Great Britain has fallen by 20 percent over the same period*). Once an almost universal mode of transport for school children, concern about safety has seen cycling to school become less popular. However, there has been an increase in cycling, particularly longer trips, among the 20-24 age group. Trips to and from work make up 40 percent of this age group's cycling trips.

Despite the reduction in cycling among school children, this age group still makes up the greater part of New Zealand's cycling population. Just under half of all cycling distance (and 60 percent of cycling time) is done by children and teenagers. Among adults, cycling is most popular with males. They account for over 80 percent of adult cycle trips and distance travelled.

The number of social and recreational trips (which include both recreational cycling, and cycling as transport to social or recreational destinations) is second only to work-related trips among adults, and trips to school among children.



The graph showing cycling by time of day reflects the influence of school trips on the hourly pattern. Peak times for cycling are 8-9am and 3-4pm, followed by a lower peak at 4-6pm which includes adult commuter cycling as well as cycling by children and teenagers.

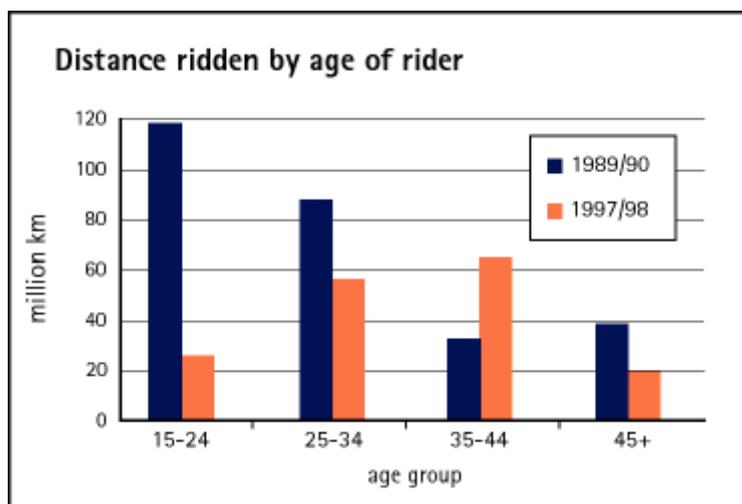
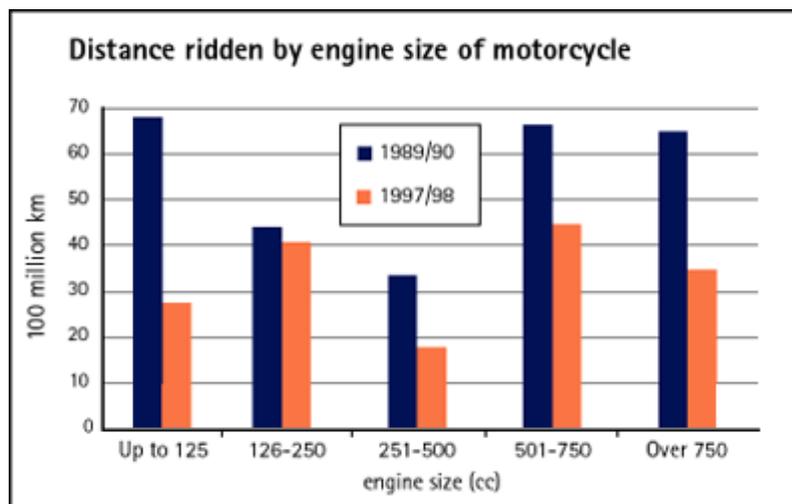


* Source: "Road Accidents Great Britain 1998 The Casualty Report" (September 1999), Department of the Environment, Transport and the Regions, United Kingdom.

1997/98 Travel Survey Highlights - motorcyclists

Over the last decade there has been a marked decrease in the popularity of motorcycling. Between 1989/90 and 1997/98 motorcycle ownership fell by 40 percent and total distance ridden fell by almost as much.

- ▶ In particular, motorcycle use has fallen among the high-risk 15-24 age group, who rode 120 million km in 1989/90 but less than 30 million km in 1997/98.
- ▶ The overall decrease in motorcycle ownership is almost entirely the result of a decrease in ownership of smaller motorcycles and scooters, especially those under 125cc, which compete with cheaper cars as practical urban transport. The increased availability of cheaper used cars from overseas has brought car ownership within reach of many, especially younger, people.
- ▶ Between 1989/90 and 1997/98 there has been some increase in ownership of larger, more expensive motorcycles (over 750cc) but the total distance travelled on motorcycles of this size has almost halved.



* The figures quoted here exclude motorcycle pillion passengers.

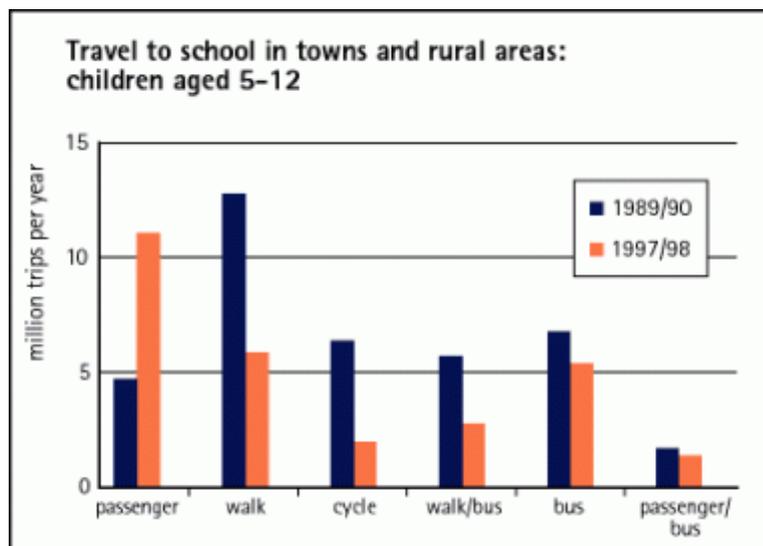
1997/98 Travel Survey Highlights - school children

The ways by which children and teenagers travel to school have changed in the last decade. Concern for children's safety (on the road as well as their personal safety) has had an influence on children's travel patterns. Overall, there has been an increase in the number of children driven to school by car, at the expense of walking or cycling. Changes to school zoning restrictions (allowing children to travel to schools outside their local area), and the changing lifestyles of parents may also have had an effect.

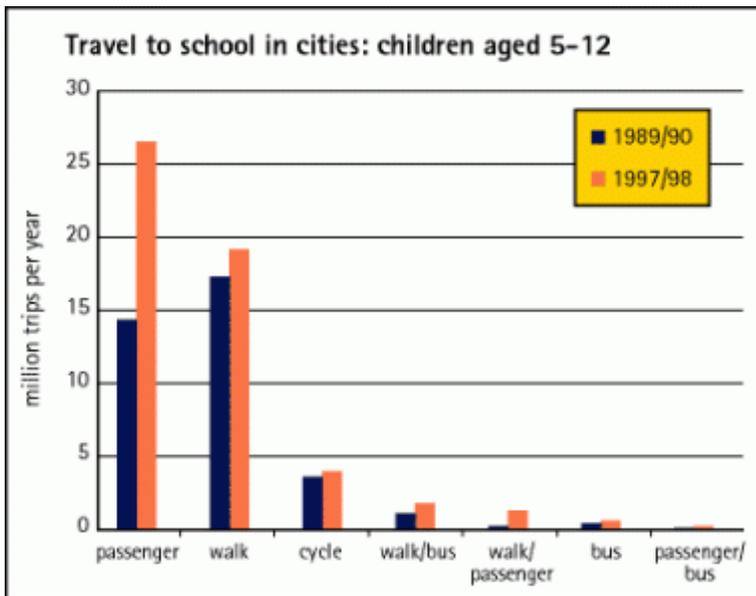
Because the number of school-age children has grown, especially in the cities, the total number of trips to school has increased between 1989/90 and 1997/98. The graphs show how primary and intermediate age children (5-12 years) travel to school in the main urban areas ("cities" compared to other places (smaller cities, such as Wanganui or Timaru, towns and rural areas, referred to as "towns and rural areas").

In the cities, being driven by car is now the most common way of getting to primary or intermediate school. The number of these trips has almost doubled between 1989/90 and 1997/98, while the number of cycling and walking trips to school has increased only slightly. A small but growing number of primary and intermediate-age children catch the bus to school usually in combination with walking part of the way.

Among secondary school students in cities (graph not shown), car passenger trips have doubled over the same period and outstrip walking as the most common means of transport to school. The number of cycle and walking trips has decreased slightly and the number of teenagers who catch buses or drive themselves to school has increased since 1989/90.



In towns and in rural areas, there has been a smaller increase in the number of primary and intermediate school trips. The number of children driven to school by car has more than doubled, at the expense of walking and cycling. Forty percent of children in both primary and secondary age groups in these areas travel to school by bus, often combined with walking or being driven to the bus stop.



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1997/98 Travel Survey Highlights - alcohol use by drivers

People who drove at all on the survey days were asked to record the amounts - as well as types - of alcohol they drank during that period. Drinking session times were recorded in both the 1989/90 and 1997/98 surveys, but the type and amount of alcohol are available for the 1997/98 survey only.

The following chart shows a comparison between 1989/90 and 1997/98 drinking patterns. It refers to the average amount of time (per person) spent in drinking session hours, per week.

- ▶ The largest decreases in drinking time have occurred in younger age groups, particularly the under 30s.
- ▶ There have been increases in drinking time for older age groups.

Average time spent in drinking sessions



In the 1997/98 survey, people were also asked what type of drinks and the amount they had consumed. In deciding whether drivers were likely to be alcohol impaired, consideration was given to the amount of alcohol consumed, normal rates of absorption and elimination of alcohol from the blood, and the time lag between drinking and driving. "High alcohol hours" are defined as those between 10pm and 4am daily, plus 4am-6am on Fridays, Saturdays and Sundays.

More information

Find out more about about the NZ Police and NZTA enforcement and advertising campaign (<http://www.nzta.govt.nz/about/advertising/drink-driving/index.html>) to stop drink-driving.

1997/98 Travel Survey Highlights - meaning of risk

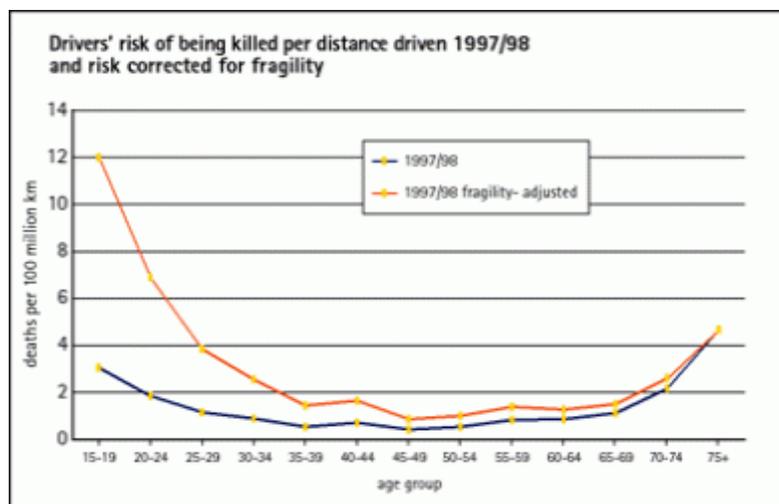
Road crash statistics by themselves don't necessarily tell us who is most at risk on the road since they don't take into account the amount of driving, walking, riding, etc. By merely considering the total number of crashes that drivers have, it could be concluded that drivers less than 15 years old are very safe on the road because there are very few crashes involving them. In fact, this is really a result of there being only a small number of this age group actually driving as it is illegal for them to be doing so.

In the following section, we make use of information about the amount of travel being done by various groups in order to see who is at greater or lesser risk given the amount of travel they do. Risk can be expressed as road crashes or injuries occurring per km travelled or per hour of travel, or even per road crossed in the case of pedestrians.

1997/98 Travel Survey Highlights - correcting for fragility

A complicating factor in comparing risks is the fragility of the road user. An 80-year-old male is about four times as likely to die as a 20-year-old male if they were involved in the same crash*.

This means that crashes proving fatal for an elderly driver or passenger would not have been fatal for younger people. This has nothing to do with the capability or behaviour of the drivers involved but means that older drivers appear to be worse drivers than they actually are because they are more likely to be involved in injury crashes (in which they themselves, or their elderly passengers, are injured or killed).



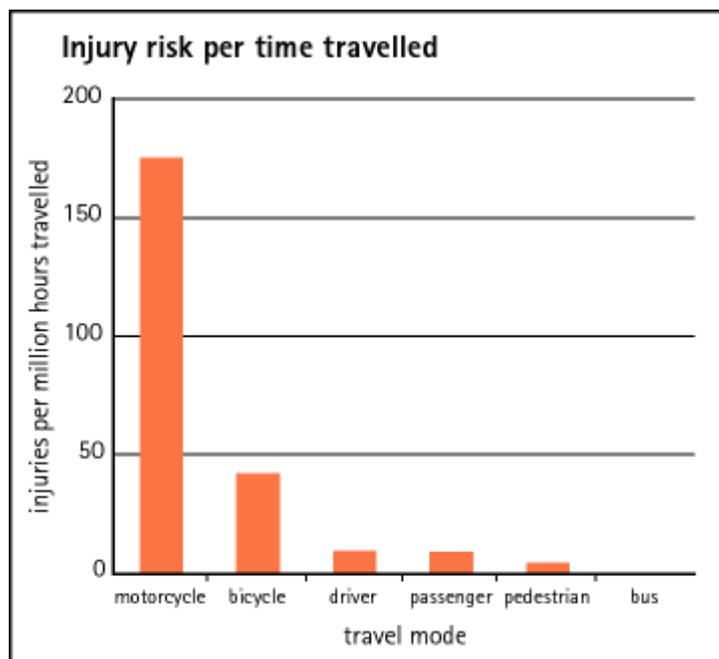
Shown above is the fatality risk of drivers per 100 million km driven and a fragility-adjusted risk. The adjustment for fragility shows what the picture would be if drivers from all age groups were as fragile as the oldest age group. This gives a better indication of which driver age groups are at risk (or may put others at risk) in terms of driving behaviour, capability, or environment:

- ▶ Young drivers are considerably more risky drivers than other age groups.
- ▶ The risks are relatively low between the ages of 30 and 74.
- ▶ For drivers over 75, when corrected for fragility, the risks start rising above those of 25-29-year-old drivers - but are still less than half those of 15-19-year-old drivers.

*Relative fragility is calculated according to Evans, L. (1991) *Traffic safety and the driver*. New York: Van Nostrand Reinhold, pp 20-43.

1997/98 Travel Survey Highlights - risks of different modes

It is possible to compare the risks of different modes of transport. The Travel Survey recorded the time spent by each transport mode - but not distance travelled for pedestrian trips. For this reason, the best way to compare the risks of the modes is to compare the number of injured road users per time travelled (see graph below). For cyclists, also included is the number of injuries leading to hospital admission that occurred on public roads - but which did not happen as a result of a collision with a motor vehicle.



Travel by motorcycle is vastly more dangerous than by any other travel mode. It is about 18 times more risky than travel by cars (including vans and utes) and four times as dangerous as cycling. Of course, a mode of transport may appear more dangerous if it is used in more risky circumstances - or by more risky drivers. Traditionally, motorcycle riding has been dominated by the most risky driving group - young males. However, the inherent danger of this mode of transport is indicated by the high risk for riders aged 40 and over, one of the safest driving groups as car drivers. For every million hours riding a motorcycle, they have approximately 190 injuries, almost 30 times the risk they have as car drivers.

How does this translate to a risk for an average car driver? The average driver spends about 280 hours driving per year*. On average, one in 380 drivers can expect to be injured (including fatal injury) in a road crash during a year's driving. If each motorcyclist rode as much as car drivers drive, one in 35 would be injured per year. In fact, motorcyclists ride for only 44 hours per year (on average) and one in 130 is injured (or killed) in a crash per year.

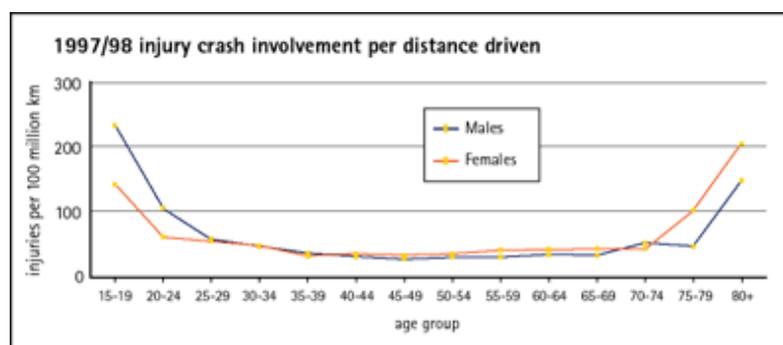
* A "driver" is defined as a person who reported driving at least 20km in the 12 months immediately preceding their survey interview.

1997/98 Travel Survey Highlights - risks by age group and gender

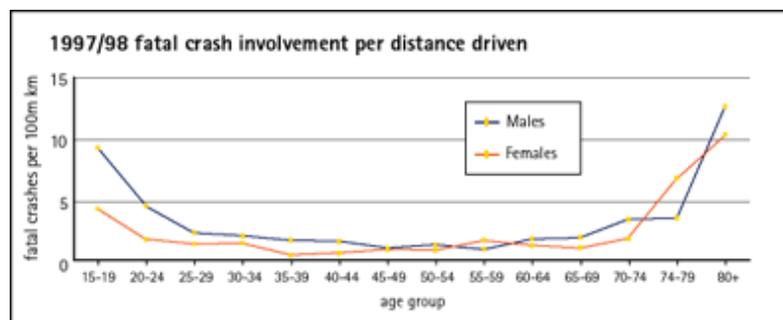
The graph below shows the risks of drivers' injury crash involvement (1997/98) by age group and gender.

- ▶ Young male drivers are considerably more risky than young females.
- ▶ The risks for males and females are fairly equal for all ages from 25-74.
- ▶ After age 74, females are more risky drivers than males. This may be related to their relative inexperience as drivers (see section Driving experience. (/mot-resources/household-travel-survey/1997-98travelsurveyhighlights-contents/199798travelsurveyhighlights-drivingexperience/)).

Note that this graph has not been adjusted for fragility, so some of the apparent high risk of the older drivers can be attributed to their (and their passengers') increased liability to be injured in crashes.



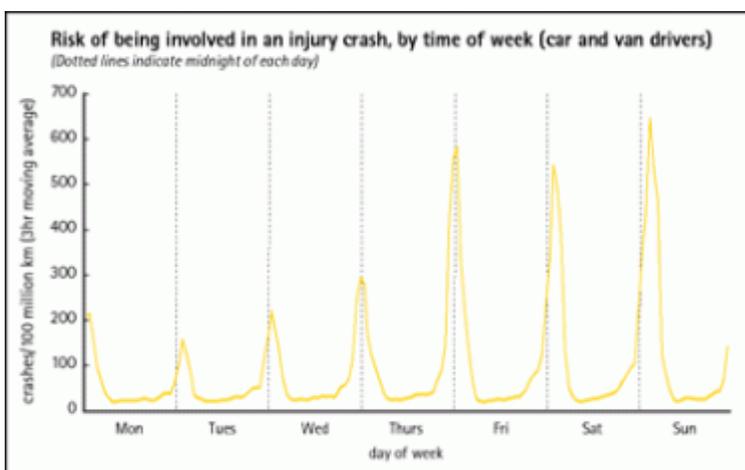
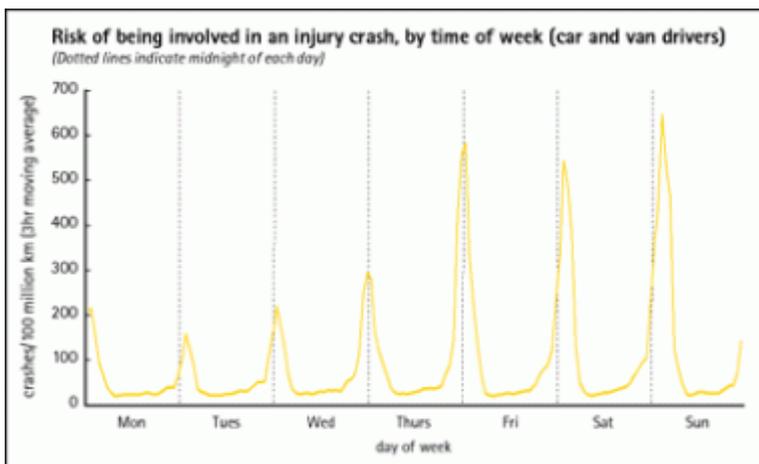
However, male drivers are generally more risky than females in terms of involvement in *fatal* crashes. Again, the graph has not been corrected for fragility:



1997/98 Travel Survey Highlights - risks by time/day

The risk of crashing varies by the time of day and between weekdays and weekends. Darkness and peak drinking times combine to make late-night driving much more risky than day-time driving. The combination of alcohol and (often) higher speeds means that late night is an especially high risk time for fatal crashes. Indeed, the risk of being involved in a fatal crash is 17 times higher between 12 midnight and 3am than it is between 12 midday and 3pm.

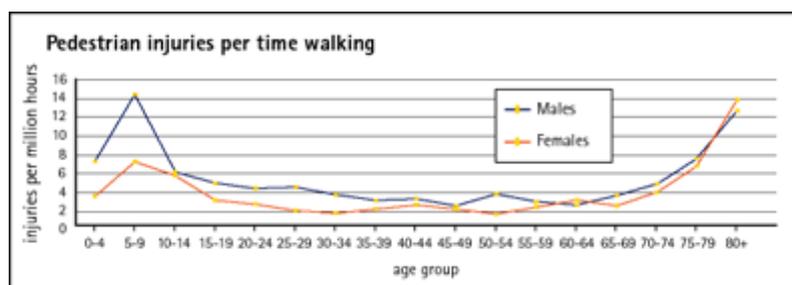
The popular drinking nights of Thursday, Friday, and Saturday are particularly high risk times. The risk of crashing in the early hours of Sunday morning (1-3 am) is more than 20 times higher than it is on a Sunday afternoon.



1997/98 Travel Survey Highlights - risks for pedestrians

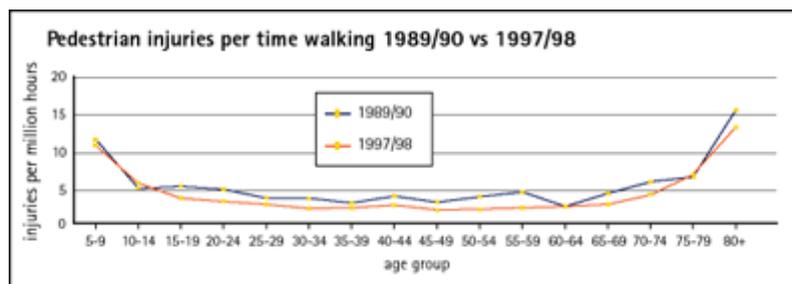
The number of people killed or injured per hour walking is a common way of expressing risk for pedestrians. A complicating factor, as discussed above for drivers, is that older people are more fragile; a collision that may have caused little harm for a young person could nevertheless hurt someone who is older, and hence more fragile.

The following chart shows how the risks vary over age groups and between men and women.



Male pedestrians are consistently more liable to be injured when walking than females. Such differences in risk suggest that, as pedestrians, males behave differently - leading to higher risk. Predictably, the youngest school-age children are very much at risk - particularly boys aged 5 to 9. The high risks for older pedestrians partly reflects their fragility but also indicates that they can no longer cross the road as safely since they are slower to react and less likely to be aware of approaching vehicles.

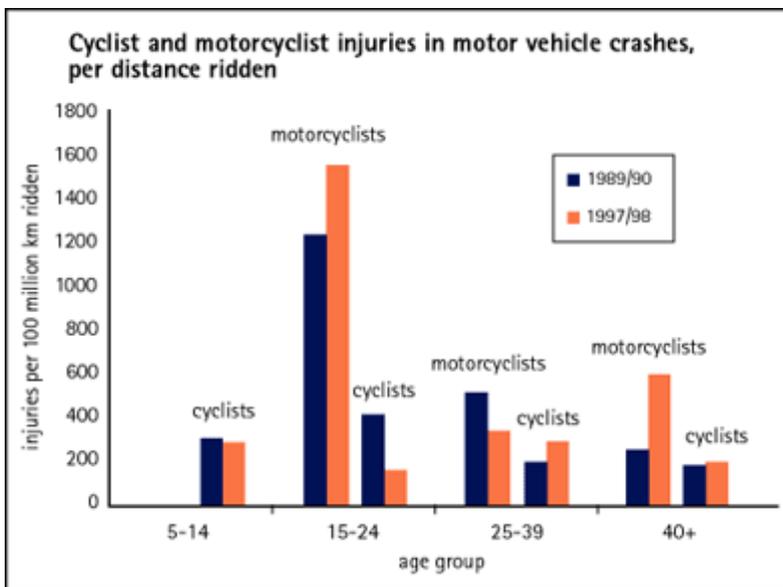
The following graph on pedestrians injured annually, per million hours walking, shows there has been a fairly consistent improvement in pedestrian safety between 1989/90 and 1997/98. This may indicate a combination of improved behaviour by pedestrians, improved driving behaviour, and improved pedestrian road environment - including the provision of better footpaths, separation of pedestrians from vehicles, and better crossing facilities.



1997/98 Travel Survey Highlights - risks for motorcyclists and cyclists

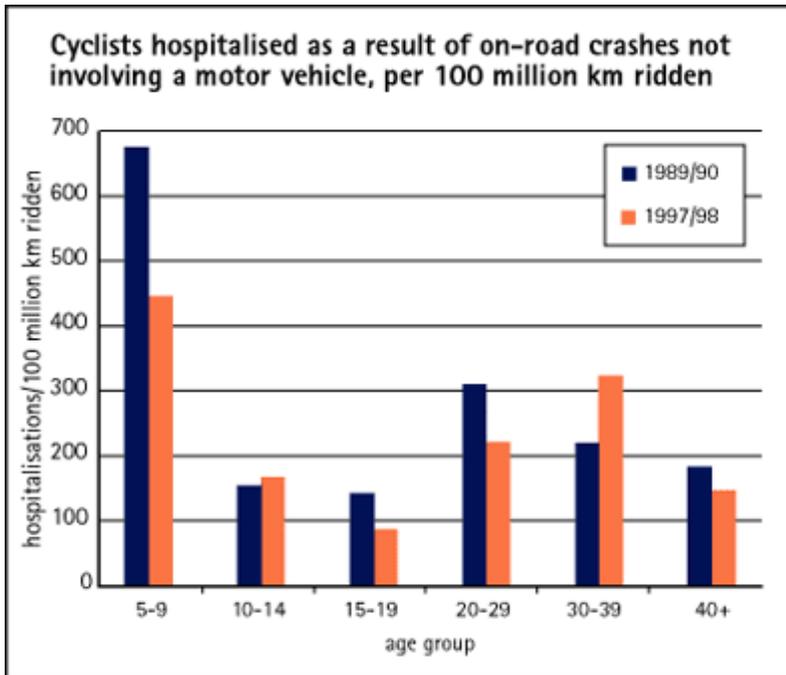
Unlike car occupants, cyclists and motorcyclists have little physical protection and so, in the event of crashes, are particularly vulnerable to injury. They are also less visible to motorists. Moreover, because of their greater speed, motorcyclists are at higher risk than cyclists, while both cyclists and motorcyclists are at considerably higher risk than car occupants (see Risks of different modes section).

For both groups the overall risk of injury decreased between 1989/90 and 1997/98. The overall average risk of injury or death to a motorcyclist fell by more than 25 percent over this period. However, this is not the case for young motorcyclists (aged 15-24) whose risk increased slightly. Between 1989/90 and 1997/98 the overall average risk of cyclists being injured in a collision with a motor vehicle decreased by 20 percent. Children aged 5-14 are now at the highest risk.



The highest risk time for motorcyclists is the same as that for car drivers (midnight to 4am), with alcohol and speed being major contributors to the increased risk at this time. Peak risk for cyclists is centred on the 6-8pm period, when traffic is still fairly heavy and cyclists are often less visible to motorists in the twilight or dark.

To consider only crashes with motor vehicles would be to underestimate the injury risk for cyclists. Cyclists are also at risk of being injured in other crashes such as those involving pedestrians, other cyclists, roadside obstructions, or simply falling off. On average, for every 100 million km ridden, 140 cyclists are injured severely enough to be admitted to hospital in crashes that don't involve motor vehicles*. This figure excludes cyclists who received minor injuries in such crashes and were not admitted to hospital.



* Note that this includes only cyclists injured in crashes that were known to be on-road. A large number of cycle crashes occurred at unrecorded locations, and it is to be expected that this includes some additional on-road crashes.

Conclusion

This document has highlighted significant research findings. It is hoped that individuals and groups will be able to make use of these findings so that our roads may become safer places for all New Zealanders and the many visitors to this country.