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TRAFFIC RESEARCH REPORT

**43**

**New Zealand  
Household Travel  
Survey  
July 1989 - June 1990**

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**SAFETY STANDARDS BRANCH**

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LAND  
**Transport**



**NEW ZEALAND HOUSEHOLD**

**TRAVEL SURVEY**

**JULY 1989 - JUNE 1990**

PREPARED BY  
TRAFFIC RESEARCH AND STATISTICS SECTION  
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MINISTRY OF TRANSPORT

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# New Zealand Household Travel Survey

## Preface

The New Zealand household travel survey was carried out over a full year from July 1989 to June 1990. All travel for household occupants aged 5 years or over was recorded by the survey.

The survey was financed by the Land Transport Division of the MOT and the Road Traffic Safety Research Council. It was carried out by Ampt Applied Research Ltd of Sydney. The sample was designed by Michael Keall in conjunction with the late Bill White. The contract was let and supervised by Bill Frith. The software for digitising trip distances and organising the data into SAS data sets was developed by Stuart Badger. This report was prepared by Wayne Jones assisted by Paul Phipps.

The purpose of this report is to:

- (i) provide a qualitative discussion of the survey sample design, the use of weights in obtaining national travel estimates, and the method used to obtain estimates of the sampling errors,
- (ii) show what data are available from the survey and the format in which they are stored,
- (iii) present an overview of the survey results

The report is not intended as an exhaustive analysis of the survey data. Rather, by providing an overview of the survey data it is expected that this report will suggest areas that may be profitable for more detailed analysis. Any discussion of the results of the survey is left for the more detailed reports that will follow.



## Key Statistics

### Sample Size

|                             |      |
|-----------------------------|------|
| Occupied dwellings surveyed | 4123 |
| Response rate               | 75%  |
| Number of respondents       | 8719 |
| Teenagers, 15-19            | 810  |
| 70 years and over           | 587  |

### National Estimates

|  |      |
|--|------|
| Number of driver licence holders (Thousands) | 2071 |
| car licences                                 | 2061 |
| motorcycle licences                          | 484  |
| heavy vehicle licences                       | 397  |
| Number of household vehicles* (Thousands)    | 1809 |
| cars / station wagons                        | 1464 |
| vans / utilities                             | 188  |
| trucks                                       | 34   |
| motorcycles                                  | 98   |
| bicycles (approximate number)                | 1200 |

### Annual National Travel

|                      | Million<br>Trips | 100 million km<br>travelled |
|----------------------|------------------|-----------------------------|
| Driver / rider trips | 2529             | 201.7                       |
| Passenger trips      | 1125             | 121.6                       |
| Bicycle trips        | 181              | 3.5                         |
| Pedestrian trips     | 1080             | -                           |

\* Household vehicles were those registered vehicles that were usually parked at the address overnight, whether privately owned or not.





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## **2. The Survey**

### **2.1 Introduction**

The New Zealand household travel survey provides data that will assist in the development and evaluation of programmes relating to road use and road safety. The travel estimates from the survey can be used to describe household travel behaviour generally. Also, in conjunction with existing accident data, accident risks for different groups of drivers can be calculated. In addition the survey provides information on the risks of various groups of passengers, pedestrians and pedal cyclists.

The survey was not designed specifically to provide a measure of the total vehicle kilometers travelled in NZ. Some categories of non-private dwellings (e.g. hotels and motels) were not surveyed owing firstly to the difficulty in gaining access to the inhabitants and secondly to the fact that the interviews were based around a four day period which is not compatible with very short term accommodation. This exclusion of a section of the population that is likely to be travelling greater than average distances means that the estimates of distance travelled derived from this household survey may under estimate the total distance travelled in New Zealand. The under estimate in distance travelled would also lead to some over estimate in total accident rate per distance travelled. Various methods have been tried to estimate total distance driven on NZ roads. Land Transport and Transit NZ are at present investigating means of producing annual estimates of the total vehicle kilometers travelled in NZ.

### **2.2 Method**

The New Zealand household travel survey was carried out over a full year from July 1989 to June 1990.

An initial letter, which described the aims and content of the survey, was sent to the selected households. Next an interviewer called at the address to gather household information, explain the purpose of the survey and leave a memory jogger for each participant to record travel details over the two consecutive travel days selected for that household. Finally, as soon as possible after the travel days, the interviewer returned to conduct the survey. Copies of the household and personal survey forms are included in Appendix 5.

All travel for household occupants aged 5 years or over was recorded.

The trip data were recorded in enough detail to allow the trip distances to be measured by tracing out the trip route on a map overlaying a digitising board.

### **2.3 Sample design**

The sample was constructed to fulfil initial estimation requirements of the survey. These were:

- (i) Travel estimation for NZ as a whole
- (ii) Travel estimation for large cities individually
- (iii) Travel estimation for sub-periods of the year of 3 months or more for NZ as a whole

The other main consideration was the minimisation of survey costs, achieved by constructing a survey so that interviewers did not need to travel long distances between households.





All the Major Urban Areas (MUA's; population greater than 45,000 as at the 1986 census) were surveyed throughout the year. So estimates can be made of annual travel for individual cities.

The rest of NZ was surveyed in chunks called Territorial Local Authorities (TLA's). The TLAs are smaller population centres, and were sampled with probabilities proportional to their sizes. So a town of 10,000 had twice the chance of selection of a town of 5,000. A couple of TLAs were large enough to be surveyed throughout the year; the remainder were surveyed over a period of weeks or months, depending on their sizes.

To minimise travelling for the interviewers, meshblocks (groups of households in the the same neighbourhood) were selected within the MUAs and sampled TLAs by simple random sampling.

Every fifth (or in some cases tenth) household was surveyed within the selected meshblocks. All people in these households aged 5 years or older were asked to provide travel data for the 2 designated days.

A more detailed description of the sample design is included in Appendix 2.

## 2.4 Weights

Since the sample was not a simple random sample of the population, an arithmetic average of sample observations was not appropriate for estimating the population mean. Weighted averages were used. The inverse of the probability of selection of a sample unit, whether a household or a person, was used as the weight for the sample unit.

The weights are discussed in more detail in Appendix 3.

## 2.5 Sampling errors

The random group method of variance estimation was used for estimating the confidence intervals. In this method the sample is divided into a number of random groups. Weights are estimated separately for each random grouping. The spread in the estimates obtained from the separate groups were used to provide an estimate of the variance of the estimate obtained from the overall sample.

The sampling errors are discussed in a little more detail in Appendix 3.

*NOTE: Wherever estimates of the sampling errors are presented in this report the value presented is the 95% confidence interval half width for the estimated total.*

**OVERVIEW OF THE  
SURVEY RESULTS**





### 3. Households

#### Analysis of responses

| <u>Response</u>   | <u>Number of households</u> |
|---|-----------------------------|
| Full response   | 3102                        |
| Sample loss<br>(eg. Dwelling under construction, demolished,<br>derelict or vacant, or non-dwelling.) | 311                         |
| Non response  | 1021                        |
| Total   | 4434                        |

A total of 4434 addresses were surveyed. 7% of those addresses were not currently occupied dwellings. Full responses were obtained from 75% of the 4123 currently occupied dwellings. Only 11% refused to respond. The remaining non-responses were due to non-contact with the occupants of the dwelling (12%), language problems (0.8%) and sickness or death (1%).

#### Response rates for the major household types and dwelling structures

(N is the number of occupied dwellings that were surveyed)

|                                    | Separate<br>house | 2 flats or houses<br>together | 3 or more flats<br>together | All dwellings<br>including<br>unspecified |
|------------------------------------|-------------------|-------------------------------|-----------------------------|---|
| Person alone                       | 92%<br>N=437      | 91%<br>N=110                  | 86%<br>N=163                | 90%<br>N=733                              |
| Married / de facto<br>couple       | 92%<br>N=721      | 92%<br>N=60                   | 85%<br>N=55                 | 90%<br>N=859                              |
| Family with children               | 86%<br>N=1126     | 85%<br>N=34                   | 88%<br>N=33                 | 85%<br>N=1236                             |
| Family without<br>children         | 80%<br>N=199      | 80%<br>N=10                   | 78%<br>N=9                  | 79%<br>N=229                              |
| Single adult with<br>children      | 94%<br>N=179      | 90%<br>N=31                   | 95%<br>N=22                 | 93%<br>N=240                              |
| Single adults only                 | 76%<br>N=165      | 64%<br>N=28                   | 66%<br>N=41                 | 72%<br>N=244                              |
| All types including<br>unspecified | 81%<br>N=3078     | 78.5<br>N=303                 | 70%<br>N=389                | 75%<br>N=4123                             |

**Table HH1 : Household data for all households**

|                 |                |
|-----------------|----------------|
|                 | All households |
| Number surveyed | 4123           |

**National Estimates**

|  |                |
|--|----------------|
| Number of households<br>X 1000                                     | 1181<br>(78)   |
| Number of people per<br>household                                  | 2.78<br>(0.12) |
| Number of people in the survey per<br>household                    | 2.25<br>(0.10) |
| Number in full time employment per<br>household                    | 0.96<br>(0.06) |
| Number of licence holders per<br>household                         | 1.75<br>(0.08) |
| Number of household vehicles per<br>household                      | 1.53<br>(0.05) |
| Number of other vehicles available<br>for use by household members | 0.59<br>(0.06) |
| Number of bicycles per household                                   | 1.03<br>(0.10) |

**Annual Estimates**

|  |                 |
|--|-----------------|
| Total vehicle km driven per<br>household   | 17100<br>(1650) |
| Number of trips driven per<br>household    | 2140<br>(130)   |
| Average trip length in km                  | 8.0<br>(0.5)    |
| Vehicle km driven per licensed<br>driver   | 9700<br>(800)   |
| Vehicle km driven by household<br>vehicles | 15100<br>(1100) |
| Vehicle km driven per household<br>vehicle | 9900<br>(600)   |

(The numbers in parentheses are estimates of the sampling errors)

**Table HH2 : Household data by type of household**

|                 | Person alone | Couple married or defacto | Family with children | Other family with no children | Single adult with children | Other adults only |
|-----------------|--------------|---------------------------|----------------------|-------------------------------|----------------------------|-------------------|
| Number surveyed | 733          | 859                       | 1236                 | 229                           | 240                        | 244               |

**National Estimates**

|   |                |                |                |                |                |                |
|---|----------------|----------------|----------------|----------------|----------------|----------------|
| Number of households X 1000                                     | 218<br>(34)    | 297<br>(31)    | 419<br>(59)    | 74<br>(17)     | 79<br>(10)     | 71<br>(15)     |
| Number of people per household                                  | 1              | 2              | 4.20<br>(0.09) | 3.06<br>(0.17) | 2.68<br>(0.11) | 2.57<br>(0.12) |
| Number of people in the survey per household                    | 0.97<br>(0.04) | 1.84<br>(0.06) | 3.21<br>(0.15) | 2.57<br>(0.23) | 2.13<br>(0.14) | 2.15<br>(0.20) |
| Number in full time employment per household                    | 0.34<br>(0.06) | 0.88<br>(0.10) | 1.27<br>(0.10) | 1.40<br>(0.27) | 0.30<br>(0.08) | 1.65<br>(0.25) |
| Number of licence holders per household                         | 0.79<br>(0.06) | 1.84<br>(0.09) | 2.16<br>(0.12) | 2.47<br>(0.34) | 0.95<br>(0.12) | 2.20<br>(0.22) |
| Number of household vehicles per household                      | 0.74<br>(0.05) | 1.59<br>(0.09) | 1.83<br>(0.10) | 2.29<br>(0.23) | 0.85<br>(0.12) | 1.77<br>(0.14) |
| Number of other vehicles available for use by household members | 0.32<br>(0.06) | 0.29<br>(0.04) | 0.85<br>(0.09) | 0.72<br>(0.19) | 0.79<br>(0.20) | 0.84<br>(0.20) |
| Number of bicycles per household                                | 0.27<br>(0.06) | 0.46<br>(0.09) | 1.75<br>(0.17) | 1.02<br>(0.15) | 1.24<br>(0.20) | 0.90<br>(0.18) |

**Annual Estimates**

|   |                |                 |                 |                 |                |                 |
|---|----------------|-----------------|-----------------|-----------------|----------------|-----------------|
| Total vehicle km driven per household   | 6340<br>(990)  | 15300<br>(2500) | 23700<br>(2300) | 23700<br>(4600) | 7500<br>(2200) | 23800<br>(4550) |
| Number of trips driven per household    | 820<br>(100)   | 1950<br>(200)   | 2940<br>(190)   | 2800<br>(440)   | 1350<br>(300)  | 2650<br>(500)   |
| Average trip length in km               | 7.7<br>(1.1)   | 7.9<br>(0.7)    | 8.1<br>(0.7)    | 8.6<br>(1.4)    | 5.5<br>(1.0)   | 8.9<br>(2.1)    |
| Vehicle km driven per licensed driver   | 8000<br>(1200) | 8300<br>(1100)  | 10970<br>(970)  | 9600<br>(1950)  | 7900<br>(2050) | 10870<br>(1600) |
| Vehicle km driven by household vehicles | 5800<br>(900)  | 14500<br>(2600) | 21000<br>(1700) | 18500<br>(5500) | 7050<br>(2250) | 19350<br>(3800) |
| Vehicle km driven per household vehicle | 7800<br>(1400) | 9100<br>(1200)  | 11400<br>(700)  | 8100<br>(2100)  | 8300<br>(1950) | 10950<br>(1900) |

(The numbers in parentheses are estimates of the sampling errors)

**Table HH3 : Household data by number of people per household**

|                               | 1   | 2    | 3   | 4   | 5   | 6 or more |
|-------------------------------|-----|------|-----|-----|-----|-----------|
| Number of households surveyed | 690 | 1157 | 624 | 618 | 318 | 117       |

**National Estimates**

|   |                |                |                |                |                |                |
|---|----------------|----------------|----------------|----------------|----------------|----------------|
| Number of households X 1000                                     | 216<br>(34)    | 401<br>(31)    | 197<br>(19)    | 207<br>(34)    | 116<br>(23)    | 43<br>(15)     |
| Number of people in the survey per household                    | 0.94<br>(0.03) | 1.79<br>(0.05) | 2.35<br>(0.11) | 3.18<br>(0.09) | 3.7<br>(0.3)   | 4.2<br>(0.6)   |
| Number in full time employment per household                    | 0.33<br>(0.06) | 0.85<br>(0.08) | 1.23<br>(0.14) | 1.4<br>(0.1)   | 1.22<br>(0.16) | 1.18<br>(0.20) |
| Number of licence holders per household                         | 0.76<br>(0.05) | 1.70<br>(0.08) | 2.07<br>(0.14) | 2.37<br>(0.12) | 2.1<br>(0.2)   | 1.97<br>(0.32) |
| Number of household vehicles per household                      | 0.72<br>(0.05) | 1.49<br>(0.07) | 1.78<br>(0.09) | 1.87<br>(0.11) | 1.93<br>(0.21) | 1.77<br>(0.28) |
| Number of other vehicles available for use by household members | 0.31<br>(0.06) | 0.38<br>(0.05) | 0.67<br>(0.07) | 0.85<br>(0.10) | 1.08<br>(0.17) | 1.14<br>(0.24) |
| Number of bicycles per household                                | 0.27<br>(0.06) | 0.52<br>(0.10) | 1.04<br>(0.11) | 1.66<br>(0.15) | 2.26<br>(0.29) | 2.29<br>(0.43) |

**Annual Estimates**

|   |                |                 |                 |                 |                 |                 |
|---|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Total vehicle km driven per household   | 5780<br>(890)  | 14400<br>(2400) | 21200<br>(2700) | 25200<br>(3300) | 23900<br>(2400) | 21850<br>(4400) |
| Number of trips driven per household    | 760<br>(87)    | 1880<br>(160)   | 2650<br>(290)   | 3120<br>(280)   | 2800<br>(460)   | 2700<br>(420)   |
| Average trip length in km               | 7.6<br>(1.1)   | 7.7<br>(0.9)    | 8.0<br>(1.0)    | 8.1<br>(0.8)    | 8.5<br>(1.1)    | 8.1<br>(1.7)    |
| Vehicle km driven per licensed driver   | 7590<br>(1350) | 8500<br>(1350)  | 10250<br>(1250) | 10650<br>(1280) | 11380<br>(1000) | 11100<br>(3400) |
| Vehicle km driven by household vehicles | 5450<br>(750)  | 13000<br>(1800) | 19500<br>(2500) | 21900<br>(2800) | 19900<br>(2500) | 17200<br>(4600) |
| Vehicle km driven per household vehicle | 7550<br>(1250) | 8750<br>(980)   | 10800<br>(1600) | 11700<br>(1300) | 10300<br>(1500) | 9750<br>(2000)  |

(The numbers in parentheses are estimates of the sampling errors)

**Table HH4 : Household data by number of household motor vehicles**

|                               | 0   | 1    | 2    | 3   | 4   | 5 or more |
|-------------------------------|-----|------|------|-----|-----|-----------|
| Number of households surveyed | 493 | 1394 | 1193 | 296 | 103 | 48        |

**National Estimates**

|   |                |                |                |                |                |                |
|---|----------------|----------------|----------------|----------------|----------------|----------------|
| Number of households X 1000                                     | 156<br>(17)    | 466<br>(32)    | 409<br>(48)    | 102<br>(16)    | 32<br>(8)      | 16<br>(6)      |
| Number of people per household                                  | 2.03<br>(0.3)  | 2.46<br>(0.18) | 3.16<br>(0.05) | 3.34<br>(0.22) | 3.64<br>(0.30) | 4.14<br>(0.47) |
| Number of people in the survey per household                    | 1.34<br>(0.15) | 2.03<br>(0.15) | 2.65<br>(0.06) | 2.80<br>(0.23) | 2.88<br>(0.49) | 2.87<br>(0.55) |
| Number in full time employment per household                    | 0.22<br>(0.05) | 0.68<br>(0.07) | 1.25<br>(0.09) | 1.64<br>(0.22) | 2.11<br>(0.41) | 2.40<br>(0.56) |
| Number of licence holders per household                         | 0.38<br>(0.09) | 1.49<br>(0.07) | 2.2<br>(0.1)   | 2.65<br>(0.20) | 3.15<br>(0.55) | 3.29<br>(0.57) |
| Number of other vehicles available for use by household members | 0.52<br>(0.10) | 0.52<br>(0.09) | 0.62<br>(0.06) | 0.75<br>(0.20) | 0.96<br>(0.31) | 0.91<br>(0.42) |
| Number of bicycles per household                                | 0.50<br>(0.20) | 0.87<br>(0.10) | 1.25<br>(0.12) | 1.26<br>(0.22) | 1.57<br>(0.31) | 1.61<br>(0.55) |

**Annual Estimates**

|   |                |                 |                 |                 |                 |                 |
|---|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Total vehicle km driven per household   | 450<br>(280)   | 10950<br>(1750) | 23700<br>(2200) | 33750<br>(6500) | 38500<br>(8200) | 40700<br>(9900) |
| Number of trips driven per household    | 61<br>(14)     | 1600<br>(120)   | 2900<br>(210)   | 3650<br>(480)   | 4350<br>(930)   | 4950<br>(920)   |
| Average trip length in km               | 7.4<br>(3.5)   | 6.9<br>(0.8)    | 8.1<br>(0.7)    | 9.3<br>(1.2)    | 8.8<br>(3.1)    | 8.2<br>(1.4)    |
| Vehicle km driven per licensed driver   | 1200<br>(2000) | 7300<br>(1100)  | 10800<br>(1100) | 12750<br>(1650) | 12250<br>(2750) | 12350<br>(2500) |
| Vehicle km driven by household vehicles |                | 9250<br>(1250)  | 21650<br>(1900) | 29950<br>(6000) | 31500<br>(7200) | 38300<br>(9300) |
| Vehicle km driven per household vehicle |                | 9200<br>(1250)  | 10800<br>(950)  | 10000<br>(2000) | 7850<br>(1800)  | 7650<br>(1900)  |

(The numbers in parentheses are estimates of the sampling errors)



## 4. Survey Respondents

**Table PE1: Age group and sex of survey respondents.**

| Age          | Female      | Male        | Total       |
|--------------|-------------|-------------|-------------|
| 5-9          | 343         | 371         | 714         |
| 10-14        | 361         | 374         | 735         |
| 15-19        | 418         | 392         | 810         |
| 20-24        | 332         | 327         | 659         |
| 25-29        | 471         | 401         | 872         |
| 30-34        | 380         | 380         | 760         |
| 35-39        | 373         | 367         | 740         |
| 40-44        | 345         | 321         | 666         |
| 45-49        | 310         | 277         | 587         |
| 50-54        | 217         | 212         | 429         |
| 55-59        | 209         | 205         | 414         |
| 60-64        | 198         | 189         | 387         |
| 65-69        | 163         | 181         | 344         |
| 70 and over  | 367         | 220         | 587         |
| <b>Total</b> | <b>4494</b> | <b>4225</b> | <b>8719</b> |

### Teenagers

|    |     |    |     |
|----|-----|----|-----|
| 15 | 69  | 75 | 144 |
| 16 | 76  | 78 | 154 |
| 17 | 95  | 78 | 173 |
| 18 | 78  | 84 | 162 |
| 19 | 100 | 77 | 177 |

**Table PE2: Employment status of survey respondents**

| <u>Employment status</u> *  | <u>Number</u> |
|-----------------------------|---------------|
| Student - Full time         | 1887          |
| - Part time                 | 152           |
| Work - Full time            | 2991          |
| - Part time                 | 864           |
| - Casual                    | 219           |
| Looking for work            | 316           |
| Keeping house               | 1845          |
| Retired / Old age pensioner | 1204          |
| Other pensioner             | 162           |
| Other                       | 117           |

\* These categories are not mutually exclusive. (eg. Student with part time work)

**Table PE3: Occupations of survey respondents**

| <u>Occupation *</u>  | <u>Number</u> |
|--|---------------|
| Professional, technical and related workers                              | 853           |
| Administrative and managerial  | 190           |
| Clerical and related workers   | 681           |
| Sales  | 496           |
| Service  | 456           |
| Agricultural, animal husbandry, forest, fishermen and hunters.           | 223           |
| Production and related, transport and equipment operators and labourers. | 1062          |
| No occupation recorded   | 4760          |

\* These are Department of Statistics major categories.

Note: Of the 3959 respondents with an occupation listed only 2991 had full time employment.

**Table PE4: Personal income of survey respondents**

| <u>Income category *</u> | <u>Number</u> |
|--------------------------|---------------|
| No income                | 1037          |
| \$1 - \$10,000           | 1332          |
| \$10,001 - \$15,000      | 970           |
| \$15,001 - \$17,500      | 416           |
| \$17,501 - \$20,000      | 484           |
| \$20,001 - \$30,000      | 1095          |
| \$30,001 - \$40,000      | 770           |
| \$40,001 - \$50,000      | 333           |
| \$50,001 - \$70,000      | 179           |
| Over \$70,000            | 83            |
| Don't Know               | 215           |
| Not recorded             | 1805          |

\* These are personal incomes before deductions and relate directly to Statistics Department categories.



**Table PE5: Number of driver licence holders (Thousands)**

**a) National estimates by age group and type of licence**

| Age Group      | Car                             | Motorcycle                    | Truck                         | Total                           |
|----------------|---------------------------------|-------------------------------|-------------------------------|---------------------------------|
| 15 - 19        | 144.6<br>(32.7)                 | 21.8<br>(10.4)                | 1.4<br>(1.7)                  | 148.6<br>(33.4)                 |
| 20 - 24        | 219.8<br>(33.5)                 | 45.9<br>(12.9)                | 23.9<br>(11.6)                | 221.4<br>(33.3)                 |
| 25 - 29        | 243.4<br>(36.6)                 | 65.6<br>(10.4)                | 38.5<br>(12.1)                | 244.8<br>(37.0)                 |
| 30 - 34        | 242.2<br>(29.8)                 | 77.8<br>(15.1)                | 46.5<br>(12.3)                | 242.8<br>(30.0)                 |
| 35 - 39        | 224.8<br>(32.0)                 | 57.3<br>(11.9)                | 49.8<br>(15.1)                | 225.1<br>(32.1)                 |
| 40 - 44        | 206.9<br>(27.7)                 | 59.6<br>(9.0)                 | 44.7<br>(13.6)                | 207.2<br>(27.6)                 |
| 45 - 49        | 176.3<br>(27.5)                 | 39.5<br>(12.0)                | 39.6<br>(11.4)                | 177.0<br>(28.2)                 |
| 50 - 54        | 124.5<br>(16.7)                 | 29.1<br>(10.9)                | 37.4<br>(11.9)                | 124.5<br>(16.7)                 |
| 55 - 59        | 122.6<br>(22.9)                 | 27.0<br>(9.2)                 | 34.4<br>(8.2)                 | 123.5<br>(22.2)                 |
| 60 - 64        | 138.2<br>(22.4)                 | 27.1<br>(8.8)                 | 34.1<br>(10.3)                | 138.2<br>(22.4)                 |
| 65 - 69        | 94.4<br>(19.6)                  | 22.2<br>(7.2)                 | 25.6<br>(8.0)                 | 94.4<br>(19.6)                  |
| 70 and<br>over | 123.1<br>(24.0)                 | 11.4<br>(4.6)                 | 21.0<br>(10.1)                | 123.1<br>(24.0)                 |
| <b>Total</b>   | <b>2061.1</b><br><b>(177.1)</b> | <b>484.3</b><br><b>(36.9)</b> | <b>396.8</b><br><b>(70.2)</b> | <b>2070.6</b><br><b>(175.7)</b> |

(Numbers in parentheses are estimates of the sampling errors)

**b) National estimates by age group and sex**

| Age Group   | Female          | Male              | Total             |
|-------------|-----------------|-------------------|-------------------|
| 15 - 19     | 66.2<br>(17.8)  | 82.4<br>(29.1)    | 148.6<br>(33.4)   |
| 20 - 24     | 98.1<br>(17.1)  | 123.2<br>(21.6)   | 221.4<br>(33.3)   |
| 25 - 29     | 119.5<br>(20.5) | 125.3<br>(20.2)   | 244.8<br>(37.0)   |
| 30 - 34     | 116.3<br>(17.5) | 126.6<br>(16.8)   | 242.8<br>(30.0)   |
| 35 - 39     | 111.7<br>(17.1) | 113.3<br>(18.0)   | 225.1<br>(32.1)   |
| 40 - 44     | 99.7<br>(16.0)  | 107.5<br>(16.9)   | 207.2<br>(27.6)   |
| 45 - 49     | 86.8<br>(15.4)  | 90.2<br>(21.6)    | 177.0<br>(28.2)   |
| 50 - 54     | 55.3<br>(9.6)   | 69.2<br>(13.2)    | 124.5<br>(16.7)   |
| 55 - 59     | 53.3<br>(13.9)  | 70.2<br>(12.6)    | 123.5<br>(22.2)   |
| 60 - 64     | 64.3<br>(15.0)  | 73.9<br>(14.6)    | 138.2<br>(22.4)   |
| 65 - 69     | 36.6<br>(11.6)  | 57.8<br>(11.3)    | 94.4<br>(19.6)    |
| 70 and over | 57.4<br>(14.9)  | 65.7<br>(15.6)    | 123.1<br>(24.0)   |
| Total       | 965.3<br>(77.1) | 1105.3<br>(105.4) | 2070.6<br>(175.7) |

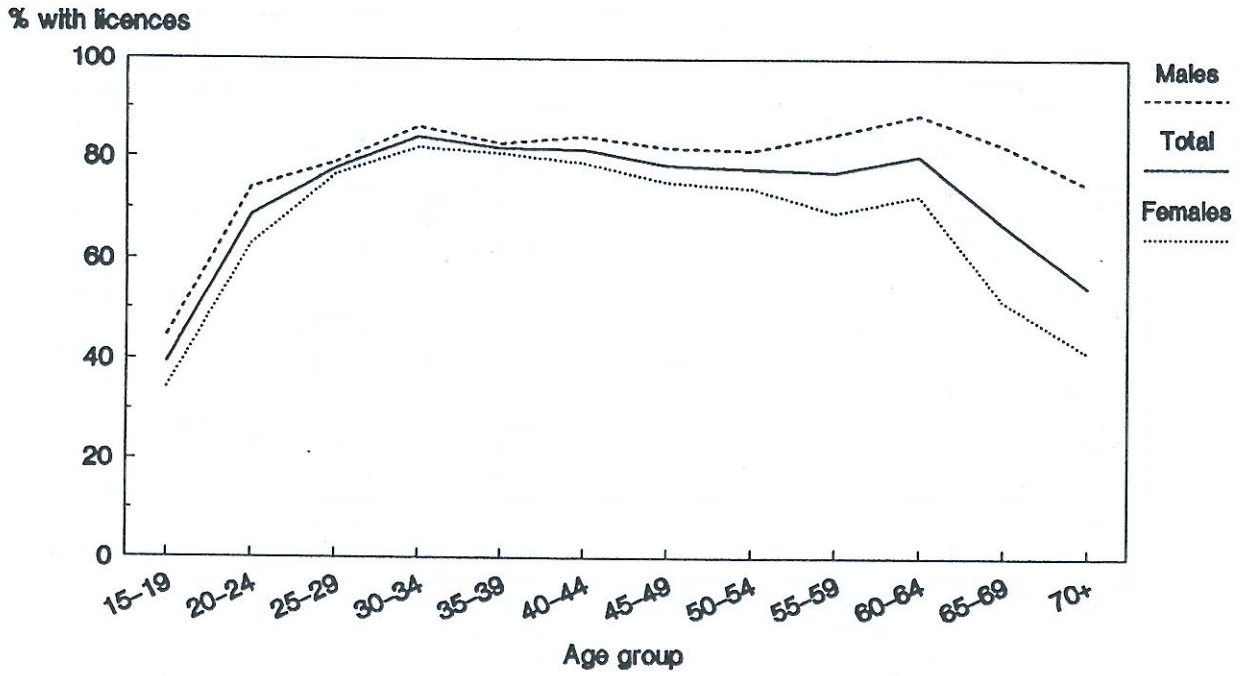
(Numbers in parentheses are estimates of the sampling error)

**c) National estimates by licence type, age group and sex**

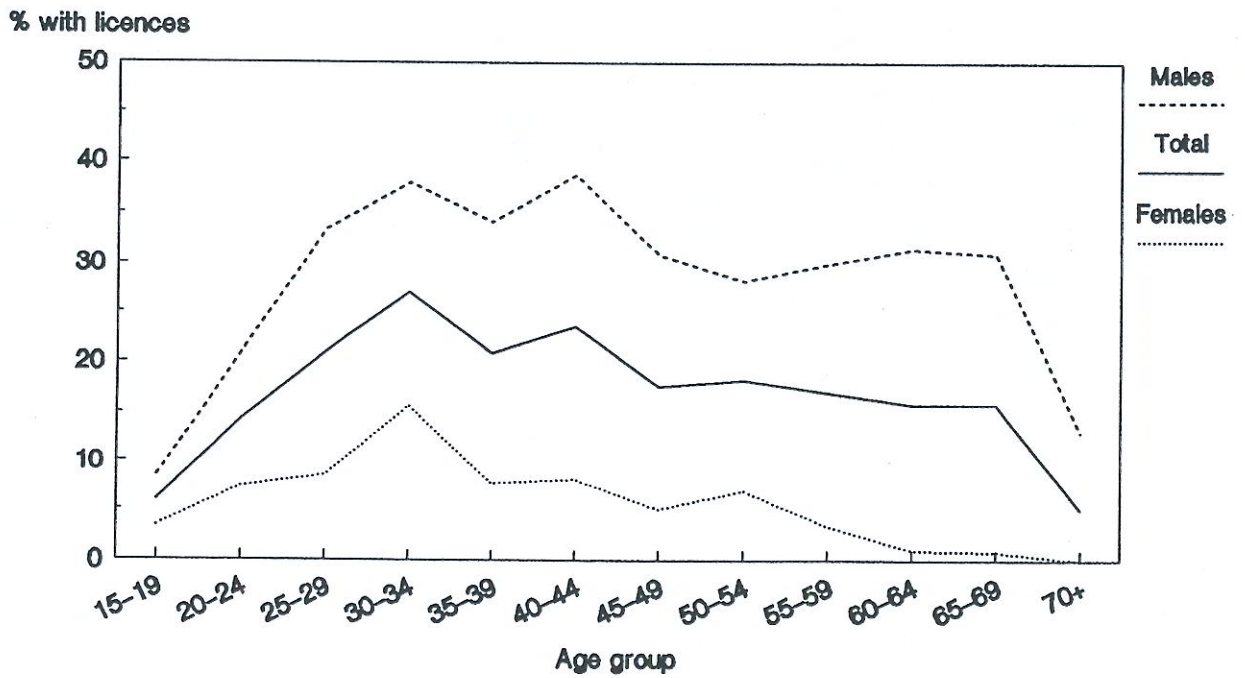
| Age Group    | Female                  |                        |                       | Male                      |                         |                         |
|--------------|-------------------------|------------------------|-----------------------|---------------------------|-------------------------|-------------------------|
|              | Car                     | Motorcycle             | Truck                 | Car                       | Motorcycle              | Truck                   |
| 15 - 19      | 62.5<br>(14.3)          | 6.2<br>(7.5)           | 0.2<br>(0.4)          | 82.1<br>(29.0)            | 15.6<br>(6.7)           | 1.1<br>(1.7)            |
| 20 - 24      | 98.1<br>(17.1)          | 11.5<br>(5.1)          | 1.1<br>(0.9)          | 121.7<br>(21.9)           | 34.4<br>(11.8)          | 22.8<br>(11.4)          |
| 25 - 29      | 119.3<br>(20.4)         | 13.2<br>(6.0)          | 1.6<br>(1.5)          | 124.1<br>(20.3)           | 52.4<br>(12.0)          | 36.9<br>(12.3)          |
| 30 - 34      | 116.0<br>(17.6)         | 22.2<br>(7.2)          | 4.4<br>(3.2)          | 126.3<br>(16.6)           | 55.6<br>(9.6)           | 42.1<br>(10.8)          |
| 35 - 39      | 111.7<br>(17.1)         | 10.7<br>(2.5)          | 3.0<br>(2.3)          | 113.1<br>(17.9)           | 46.6<br>(11.7)          | 46.8<br>(14.9)          |
| 40 - 44      | 99.4<br>(16.0)          | 10.2<br>(6.5)          | 1.9<br>(2.1)          | 107.5<br>(16.9)           | 49.3<br>(10.6)          | 42.8<br>(13.2)          |
| 45 - 49      | 86.6<br>(15.4)          | 5.8<br>(2.9)           | 2.4<br>(2.1)          | 89.8<br>(21.0)            | 33.7<br>(11.7)          | 37.2<br>(11.9)          |
| 50 - 54      | 55.3<br>(9.6)           | 5.1<br>(3.6)           | 2.1<br>(2.1)          | 69.2<br>(13.2)            | 24.0<br>(8.8)           | 35.3<br>(11.1)          |
| 55 - 59      | 53.1<br>(13.9)          | 2.5<br>(2.0)           | 2.4<br>(2.0)          | 69.5<br>(13.0)            | 24.5<br>(8.4)           | 32.0<br>(8.8)           |
| 60 - 64      | 64.3<br>(15.0)          | 0.9<br>(0.9)           | 1.5<br>(1.7)          | 73.9<br>(14.6)            | 26.2<br>(9.1)           | 32.6<br>(10.0)          |
| 65 - 69      | 36.6<br>(11.6)          | 0.6<br>(1.0)           | 1.1<br>(1.1)          | 57.8<br>(11.3)            | 21.6<br>(7.1)           | 24.5<br>(7.5)           |
| 70 and over  | 57.4<br>(14.9)          | 0                      | 0.6<br>(0.8)          | 65.7<br>(15.6)            | 11.4<br>(4.6)           | 20.4<br>(10.1)          |
| <b>Total</b> | <b>960.4<br/>(77.6)</b> | <b>88.9<br/>(18.0)</b> | <b>22.3<br/>(6.1)</b> | <b>1100.7<br/>(104.9)</b> | <b>395.4<br/>(43.1)</b> | <b>374.5<br/>(66.8)</b> |

(Numbers in parentheses are estimates of the sampling error)

Figure PE1  
a) Percentage of the population with car licences



b) Percentage of the population with motorcycle licences



c) Percentage of the population with truck licences

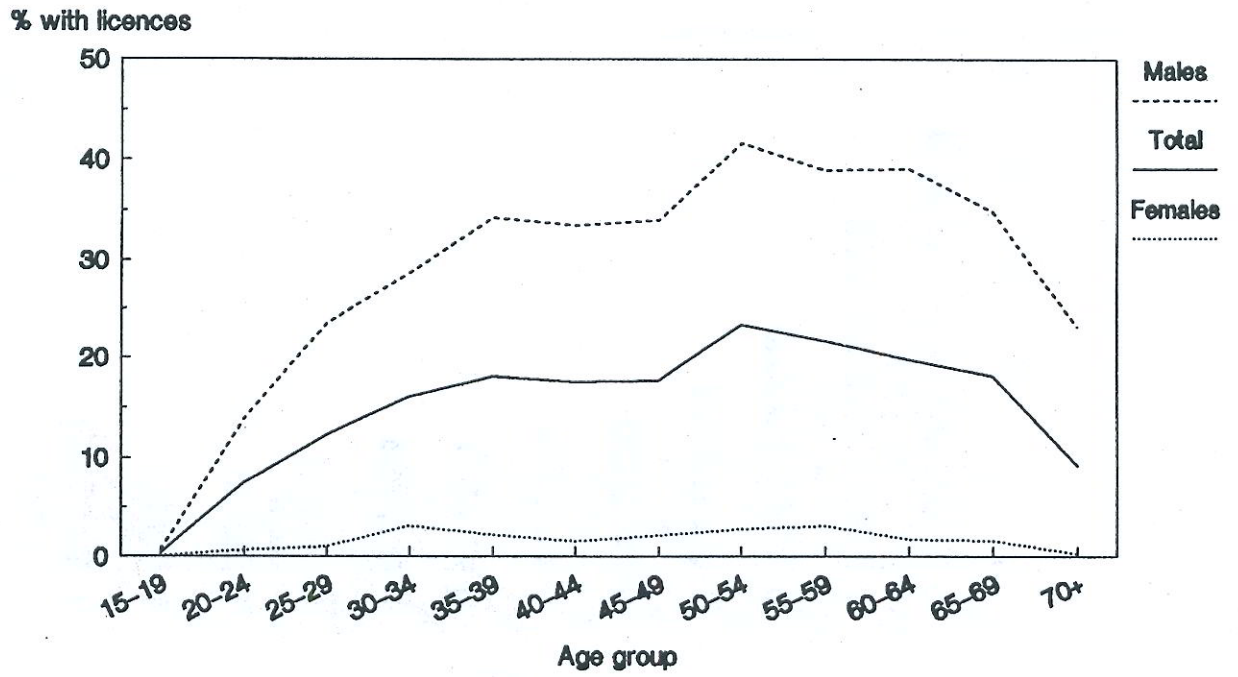


Figure PE2  
Percentage of population with car licences by licence type for young drivers

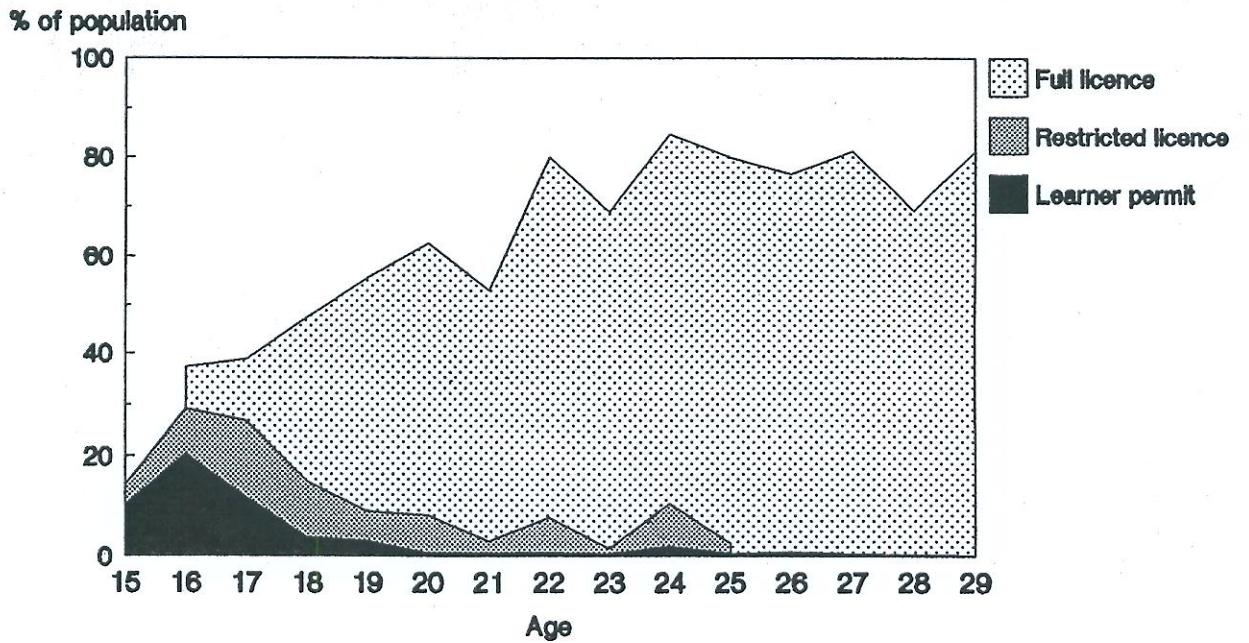
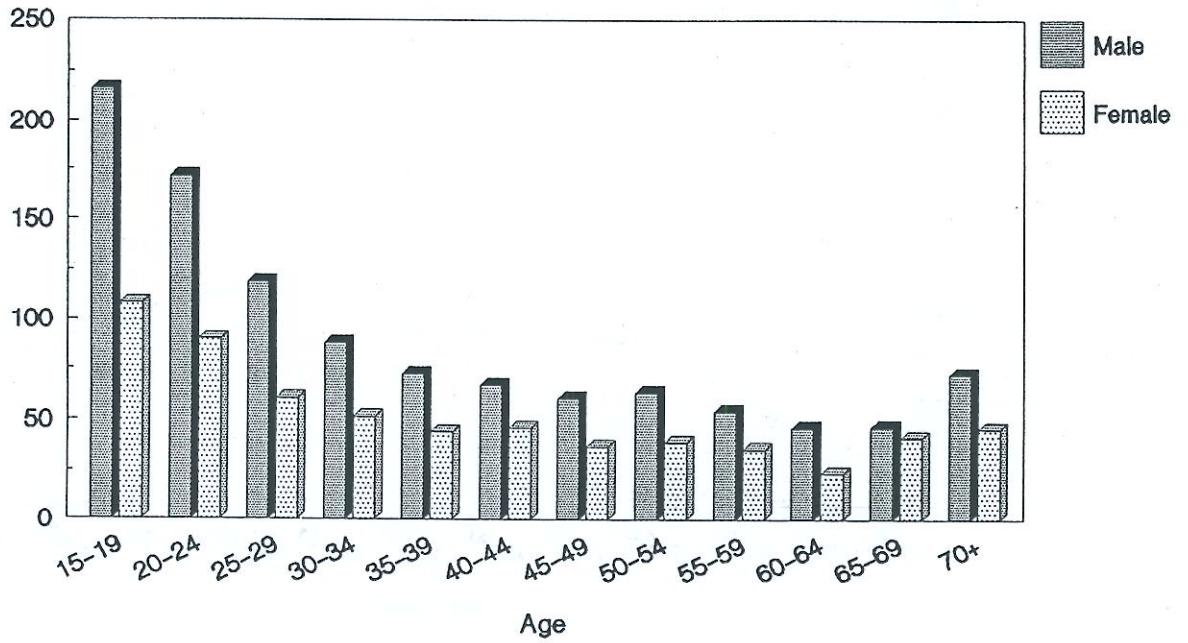


Figure PE3  
 Number of accident involved car drivers per  
 10,000 car licence holders

Drivers in accidents / 10,000 licences



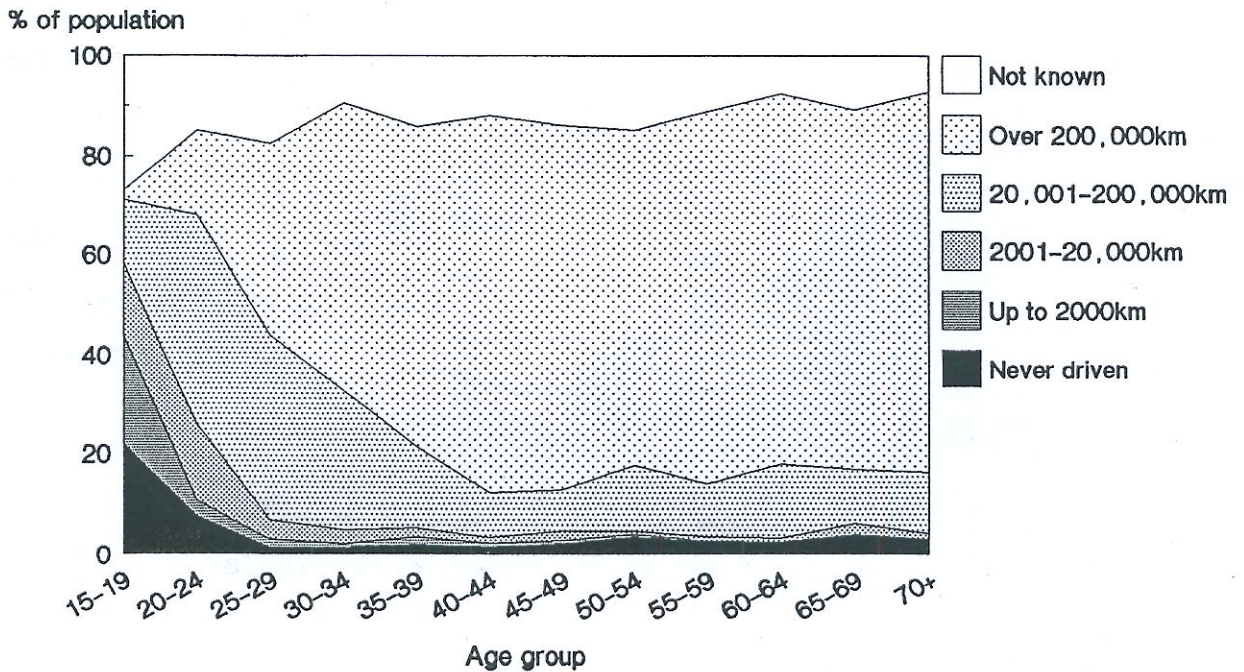
Note: The accidents here are those recorded in the MOT's Traffic Accident Report system for injury accidents.

## Driving Experience

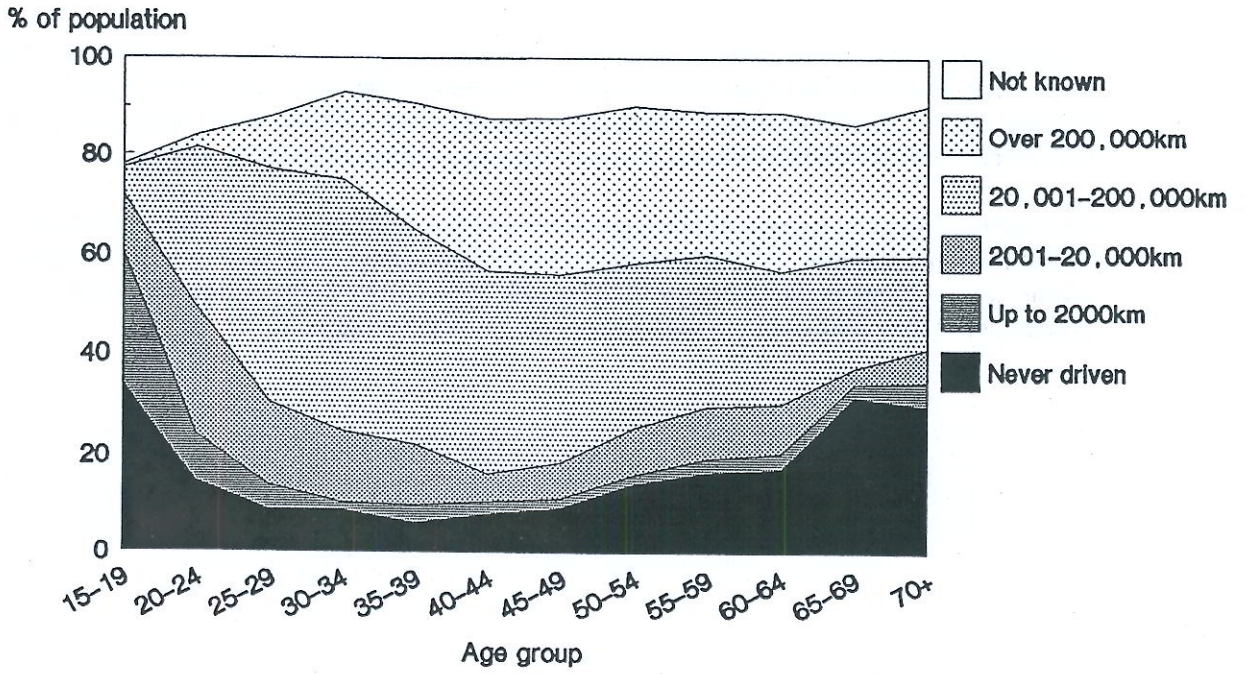
Survey respondents were asked to estimate their total driving experience in kilometres. They were asked to place their experience in one of five broad categories; never driven, up to 2000km, 2001 - 20,000km, 20,001 - 200,000km and over 200,000km. There was also a 'not known' category for those who could not estimate their lifetime driving experience.

This self reported driving experience is presented in figures PE4 a) to c). Figures PE4 a) and b) contrast the estimates for males and females in five year age groups. Figure PE4 c) gives a year by year break down from age 15 to age 29. (The results for the single year age groups are more variable due to the smaller sample sizes available.)

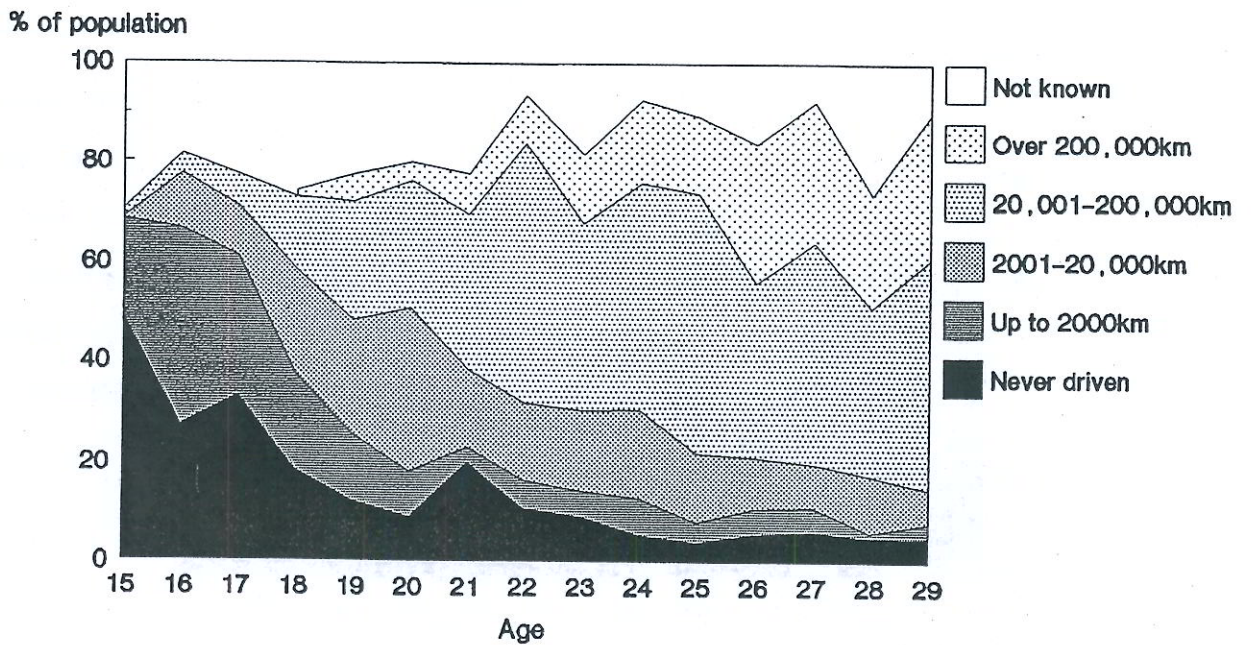
Figure PE4  
Driving experience by age group  
a) Males



b) Females



c) Young drivers



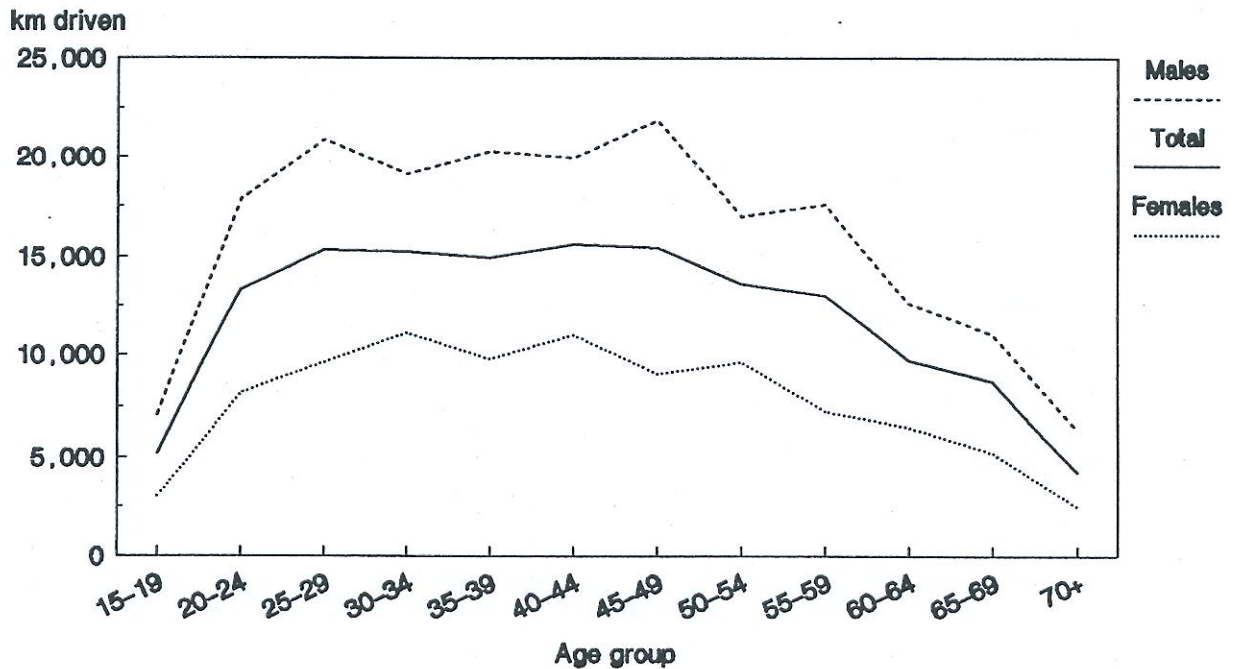


## Distance driven in the year prior to the survey

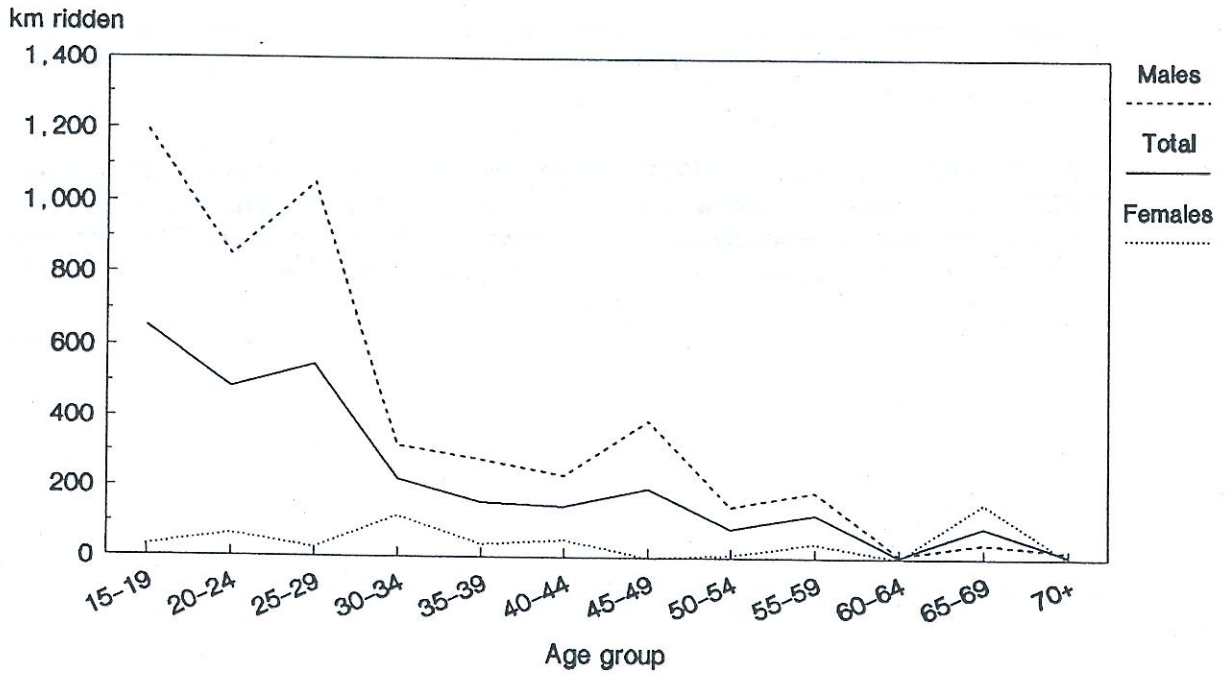
Survey respondents were asked to estimate the distance they had driven in the 12 months prior to the survey. Separate estimates were made for distance driven in a car, distance ridden on a motorcycle and the distance ridden on a bicycle.

Average distances are presented for males and females in five year age groups in figures PE5 a) to c). These distances are self reported estimates of the distances travelled in a year, they are not deduced from the diary of trips recorded in this travel survey. The distances deduced from the trips diary are presented elsewhere in this report.

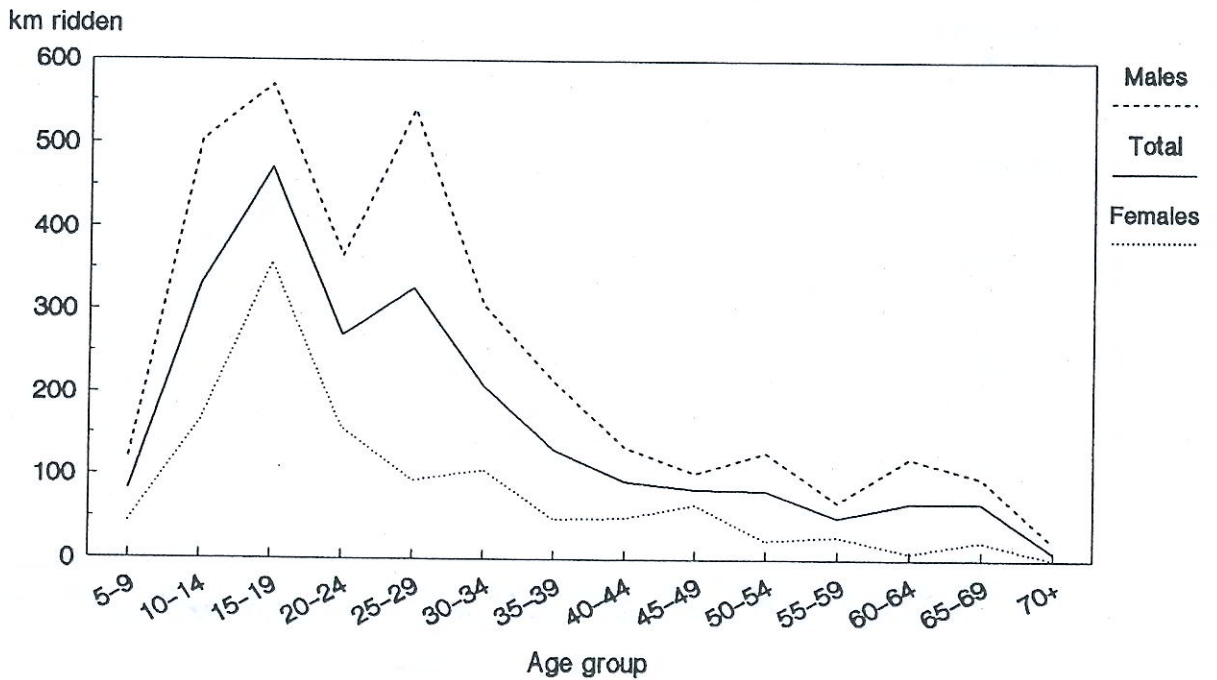
Figure PE5  
a) Average kilometres driven in a car in the  
year prior to the survey



b) Average kilometres ridden on a motorbike  
in the year prior to the survey



c) Average kilometres ridden on a bicycle  
in the year prior to the survey



## 5. Vehicles

Survey respondents were asked to record details of **household** vehicles (registered vehicles usually parked at the address overnight, whether private or company owned) and other **non-household** vehicles used by members of the household.

The numbers of household vehicles in the survey can be scaled up using the appropriate weights to provide national estimates of the number of household vehicles. With the non-household vehicles however there is no comparable national estimate. Some non-household vehicles will belong to other households and so will have already been counted in the household vehicle total. Non-household vehicles that belong to companies may be available for use by a number of people from different households so some multiple counting of the same vehicle may occur. For these reasons no estimates of national totals can be calculated for non-household vehicles.

**Table VE1: Vehicle types**

| Vehicle type             | Household Vehicles |                               | Non-household vehicles |
|--------------------------|--------------------|-------------------------------|------------------------|
|                          | Number in survey   | National estimate (Thousands) | Number in survey       |
| Car / Station wagon      | 4424               | 1464<br>(144)                 | 1609                   |
| Van / ute                | 536                | 188<br>(28)                   | 280                    |
| Truck                    | 83                 | 34<br>(12)                    | 92                     |
| Taxi                     | 11                 | 2.6                           | 1                      |
| Motorcycle               | 269                | 98<br>(19)                    | 16                     |
| Other                    | 38                 | 19                            | 50                     |
| Total (includes unknown) | 5367               | 1809<br>(166)                 | 2119                   |

(Numbers in parentheses are estimates of the sampling error. Where none is recorded the sample is too small to calculate a sampling error.)

There are approximately 1.2 million bicycles in NZ. This figure is approximate as a number of households did not respond to this question.

**Table VE2: Number of household vehicles by age and engine size  
(National estimates)**

**a) Light four wheeled vehicles (Thousands)**

| Engine size<br>(cc) | Age of vehicle  |                 |                 |                  |                  |                      | Total             |
|---------------------|-----------------|-----------------|-----------------|------------------|------------------|----------------------|-------------------|
|                     | 0 - 1<br>year   | 2 - 4<br>years  | 5 - 9<br>years  | 10 - 14<br>years | 15 - 19<br>years | 20 years<br>and over |                   |
| Up to 1000          | 2.9             | 7.6             | 20.7<br>(8.6)   | 9.6              | 11.8             | 25.6<br>(12.0)       | 79.7<br>(18.7)    |
| 1001 - 1300         | 25.5<br>(10.6)  | 46.3<br>(9.4)   | 134.6<br>(23.6) | 86.3<br>(8.9)    | 46.8<br>(10.5)   | 25.9<br>(7.3)        | 374.4<br>(33.3)   |
| 1301 - 1600         | 30.8<br>(7.3)   | 58.3<br>(14.5)  | 139.8<br>(19.3) | 50.9<br>(9.0)    | 32.5<br>(8.4)    | 21.7<br>(6.6)        | 344.9<br>(33.5)   |
| 1601 - 2000         | 45.1<br>(11.0)  | 90.5<br>(18.9)  | 160.5<br>(30.0) | 82.6<br>(11.0)   | 53.7<br>(9.7)    | 16.2                 | 454.8<br>(56.3)   |
| 2001 - 3000         | 10.2            | 18.3<br>(6.7)   | 14.8<br>(5.3)   | 21.2<br>(9.8)    | 31.0<br>(8.4)    | 11.3                 | 108.3<br>(15.3)   |
| Over 3000           | 7.8             | 13.7            | 27.9<br>(13.0)  | 36.6<br>(11.0)   | 38.6             | 13.1                 | 139.0<br>(23.3)   |
| Total               | 129.5<br>(23.6) | 245.8<br>(37.0) | 530.9<br>(76.2) | 307.3<br>(22.2)  | 234.6<br>(34.3)  | 137.0<br>(19.0)      | 1654.9<br>(155.2) |

**b) Motorcycles (Thousands)**

| Engine size<br>(cc) | Age of vehicle |                |                |                  |                  |                      | Total          |
|---------------------|----------------|----------------|----------------|------------------|------------------|----------------------|----------------|
|                     | 0 - 1<br>year  | 2 - 4<br>years | 5 - 9<br>years | 10 - 14<br>years | 15 - 19<br>years | 20 years<br>and over |                |
| Up to 125           | 3.7            | 7.0            | 15.3           | 5.6              | 3.8              | 0.7                  | 46.4<br>(10.4) |
| 126 - 250           | 4.4            | 4.5            | 7.7            | 0.7              | 1.6              |                      | 18.8<br>(8.1)  |
| 251 - 500           | 1.8            | 5.5            | 3.6            | 1.0              | 1.0              | 1.3                  | 15.6<br>(5.2)  |
| 501 - 750           |                | 4.5            | 3.4            | 0.4              | 1.1              |                      | 9.9            |
| Over 750            | 0.2            | 1.2            | 2.8            | 0.7              | 0.8              | 0.5                  | 6.8            |
| Total               | 10.1           | 22.8           | 32.7<br>(9.8)  | 8.1              | 8.4              | 2.4                  | 98.2<br>(18.5) |

Notes: Numbers in parentheses are estimates of the sampling error. Where none is recorded the sample is too small to calculate a sampling error.  
The totals include unknown categories.

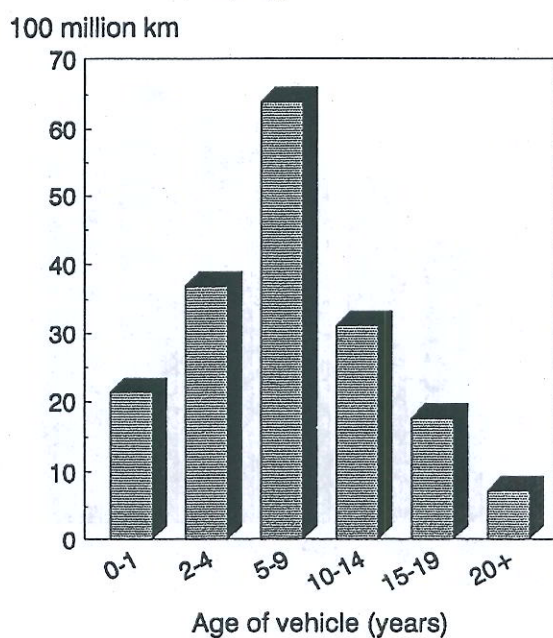
**Table VE3: Annual distance travelled by light four wheeled vehicles  
(100 million km)**

| Engine size (cc) | Age of vehicle |               |                |               |               |                   | Total           |
|------------------|----------------|---------------|----------------|---------------|---------------|-------------------|-----------------|
|                  | 0 - 1 year     | 2 - 4 years   | 5 - 9 years    | 10 - 14 years | 15 - 19 years | 20 years and over |                 |
| Up to 1000       | 0.2            | 0.5           | 1.8            | 0.5           | 0.6           | 0.5               | 4.3<br>(1.3)    |
| 1001 - 1300      | 2.6<br>(1.7)   | 5.3<br>(1.0)  | 16.4<br>(4.8)  | 8.2<br>(1.7)  | 4.5<br>(2.2)  | 1.9<br>(0.8)      | 39.4<br>(8.2)   |
| 1301 - 1600      | 5.7<br>(3.3)   | 7.9<br>(3.5)  | 15.7<br>(3.3)  | 5.3<br>(2.4)  | 3.0<br>(1.3)  | 1.5<br>(0.6)      | 40.3<br>(6.6)   |
| 1601 - 2000      | 8.3<br>(2.6)   | 14.9<br>(2.7) | 21.6<br>(5.5)  | 9.5<br>(3.6)  | 3.8<br>(1.1)  | 0.8               | 59.8<br>(7.3)   |
| 2001 - 3000      | 2.3            | 5.4<br>(4.2)  | 1.2<br>(0.6)   | 2.1<br>(1.3)  | 1.8<br>(0.8)  | 0.7               | 13.8<br>(5.1)   |
| Over 3000        | 1.5            | 1.7           | 3.2<br>(1.7)   | 4.4<br>(2.7)  | 3.3           | 1.3               | 15.4<br>(3.7)   |
| Total            | 21.3<br>(6.1)  | 36.9<br>(5.5) | 63.9<br>(14.5) | 31.2<br>(6.0) | 17.6<br>(3.9) | 7.3<br>(1.7)      | 184.1<br>(23.5) |

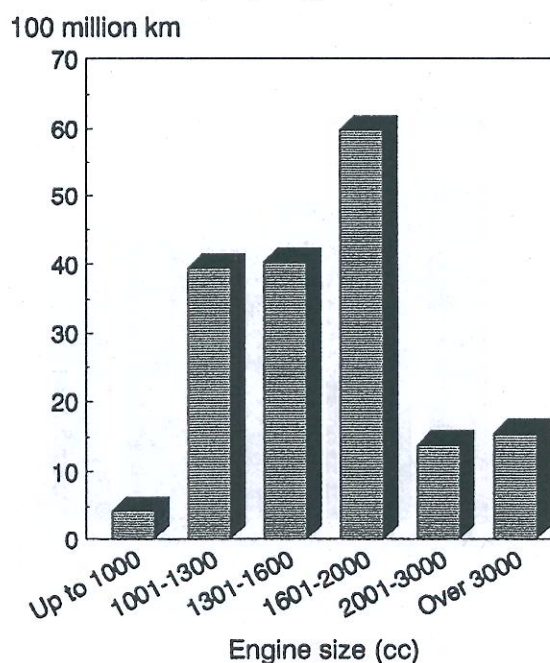
Notes: Numbers in parentheses are estimates of the sampling error. Where none is recorded the sample is too small to calculate a sampling error. The totals include unknown categories.

**Figure VE1: Annual distance travelled (light 4 wheeled vehicles)**

a) by age of vehicle



b) by engine size



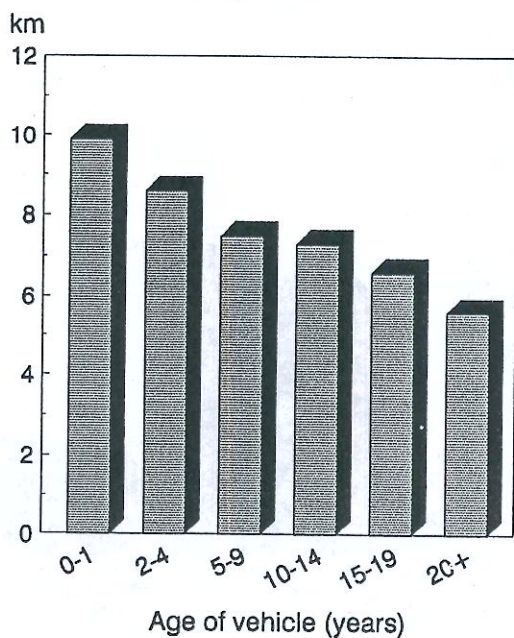
**Table VE4: Average distance travelled per trip by light four wheeled vehicles (km)**

| Engine size (cc) | Age of vehicle |               |              |               |               |                   | Total        |
|------------------|----------------|---------------|--------------|---------------|---------------|-------------------|--------------|
|                  | 0 - 1 year     | 2 - 4 years   | 5 - 9 years  | 10 - 14 years | 15 - 19 years | 20 years and over |              |
| Up to 1000       | 5.6            | 4.5           | 6.2          | 5.4           | 8.0           | 3.7               | 5.5<br>(1.1) |
| 1001 - 1300      | 7.8<br>(2.3)   | 6.8<br>(2.0)  | 7.1<br>(1.3) | 6.6<br>(1.2)  | 7.2<br>(1.5)  | 5.9<br>(1.5)      | 6.9<br>(0.9) |
| 1301 - 1600      | 10.5<br>(4.3)  | 7.9<br>(1.5)  | 7.0<br>(1.2) | 7.7<br>(1.2)  | 6.7<br>(2.0)  | 5.7<br>(2.7)      | 7.5<br>(0.9) |
| 1601 - 2000      | 10.4<br>(2.4)  | 9.5<br>(1.7)  | 7.8<br>(1.7) | 7.1<br>(2.0)  | 6.1<br>(1.2)  | 5.9               | 8.2<br>(0.8) |
| 2001 - 3000      | 9.6            | 17.2<br>(9.2) | 6.1<br>(1.7) | 7.0<br>(3.4)  | 5.3<br>(1.3)  | 5.1               | 8.8<br>(1.8) |
| Over 3000        | 10.7           | 5.1           | 7.5<br>(2.4) | 10.0<br>(3.9) | 7.8           | 8.6               | 8.1<br>(1.8) |
| Total            | 9.9<br>(1.3)   | 8.6<br>(0.9)  | 7.5<br>(1.0) | 7.3<br>(1.1)  | 6.6<br>(0.9)  | 5.6<br>(0.5)      | 7.7<br>(0.6) |

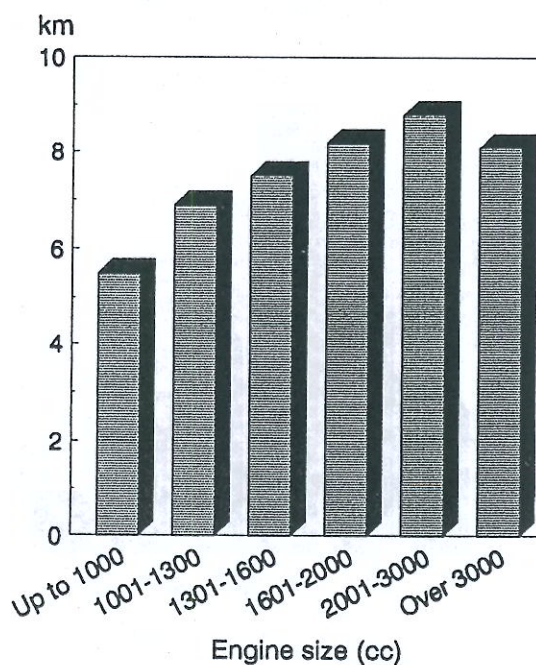
Notes: Numbers in parentheses are estimates of the sampling error. Where none is recorded the sample is too small to calculate a sampling error. The totals include unknown categories.

**Figure VE2: Average distance travelled per trip (light 4 wheeled vehs)**

a) by age of vehicle



b) by engine size



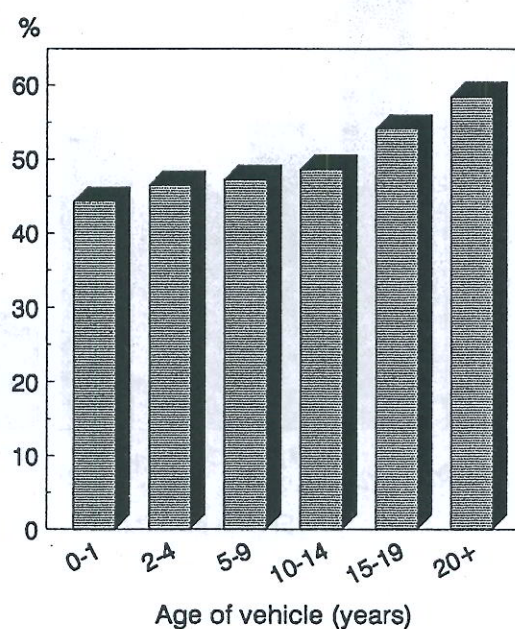
**Table VE5: Percentage of distance travelled that was in urban areas for light four wheeled vehicles (Urban - speedlimit 70kph or less)**

| Engine size (cc) | Age of vehicle |                |                |                |                |                   | Total         |
|------------------|----------------|----------------|----------------|----------------|----------------|-------------------|---------------|
|                  | 0 - 1 year     | 2 - 4 years    | 5 - 9 years    | 10 - 14 years  | 15 - 19 years  | 20 years and over |               |
| Up to 1000       | 59.8           | 78.5           | 61.0           | 61.3           | 58.3           | 84.0              | 66.5<br>(8.8) |
| 1001 - 1300      | 48.9<br>(14.2) | 56.2<br>(10.9) | 47.9<br>(10.4) | 57.6<br>(8.0)  | 48.3<br>(15.8) | 57.7<br>(15.1)    | 51.7<br>(8.0) |
| 1301 - 1600      | 34.4<br>(14.2) | 50.9<br>(10.7) | 50.7<br>(8.5)  | 52.5<br>(11.3) | 55.4<br>(13.2) | 61.0              | 48.8<br>(5.5) |
| 1601 - 2000      | 47.1<br>(9.3)  | 41.5<br>(6.1)  | 47.2<br>(8.4)  | 45.6<br>(10.7) | 67.0<br>(9.4)  | 67.2              | 47.0<br>(5.7) |
| 2001 - 3000      | 46.5           | 30.3<br>(14.0) | 48.7<br>(14.8) | 49.5<br>(13.6) | 72.5<br>(10.2) | 77.0              | 46.8<br>(5.9) |
| Over 3000        | 47.9           | 74.3           | 45.1<br>(12.4) | 31.3<br>(14.4) | 36.7           | 33.1              | 41.6<br>(6.7) |
| Total            | 44.3<br>(5.8)  | 46.5<br>(3.2)  | 47.3<br>(8.5)  | 48.7<br>(8.0)  | 54.1<br>(9.0)  | 58.5<br>(9.3)     | 47.9<br>(4.7) |

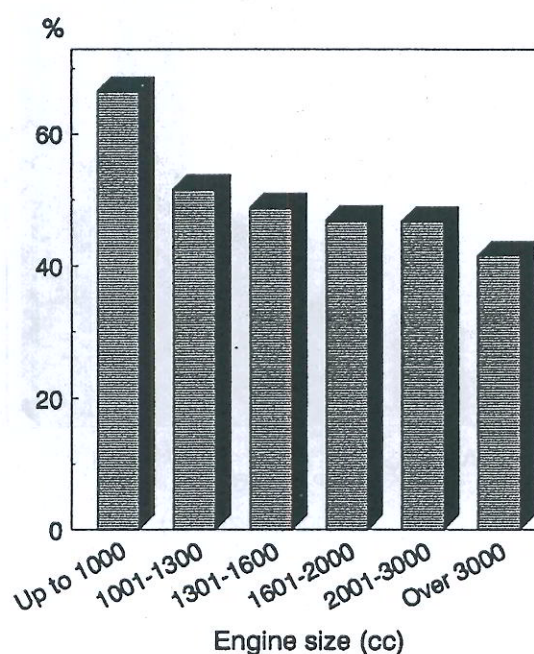
Notes: Numbers in parentheses are estimates of the sampling error. Where none is recorded the sample is too small to calculate a sampling error.  
The totals include unknown categories.

**Figure VE3: Percentage of distance in urban areas (light 4 wheeled vehs)**

a) by age of vehicle



b) by engine size

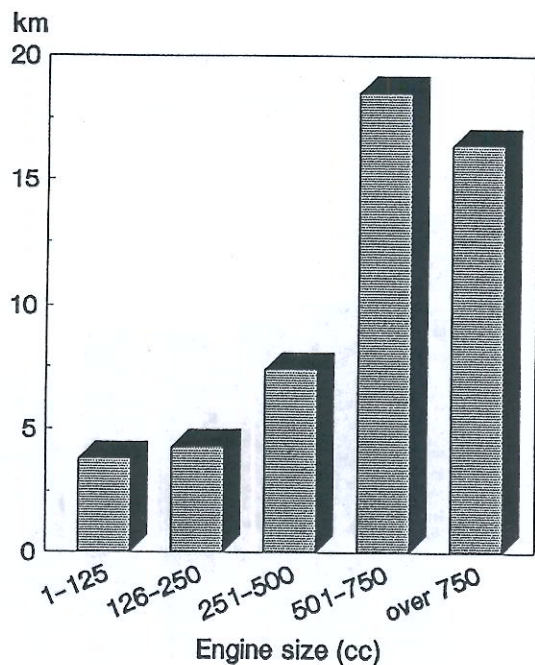


**Table VE6: Motorcycle data by engine size**

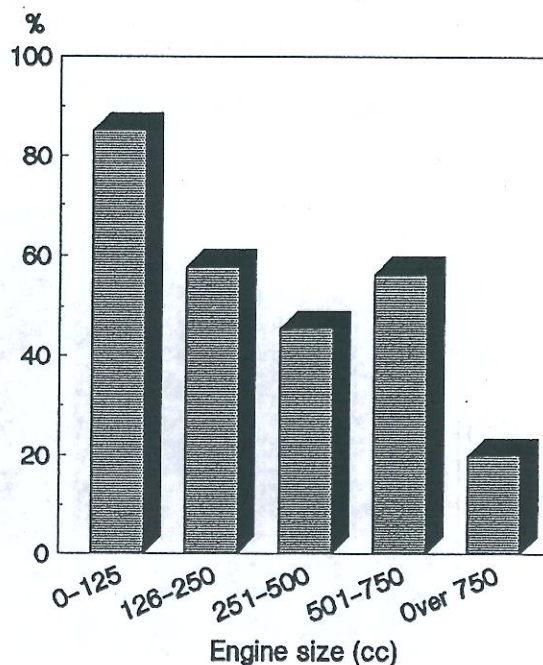
|   | Engine size (cc) |           |           |           |          | Total           |
|---|------------------|-----------|-----------|-----------|----------|-----------------|
|   | 0 - 125          | 126 - 250 | 251 - 500 | 501 - 750 | Over 750 |                 |
| National annual distance travelled (million km) | 68.1             | 44.1      | 33.5      | 66.3      | 64.9     | 281.1<br>(79.5) |
| Average distance per trip (km)                  | 3.8              | 4.3       | 7.4       | 18.5      | 16.4     | 6.9<br>(1.8)    |
| Percentage of distance in urban areas           | 85.2             | 57.9      | 45.6      | 56.4      | 20.1     | 52.5<br>(11.5)  |

Notes: Numbers in parentheses are estimates of the sampling error. Where none is recorded the sample is too small to calculate a sampling error.  
The totals include unknown categories.

**Figure VE4**  
Average trip length by motorcycle engine size



**Figure VE5**  
Percentage of distance in urban areas by motorcycle engine size





## Accident involved vehicles

The accident data from the MOT's Traffic Accident Report data base can be combined with the estimates of annual vehicle kilometres from the travel survey to derive an exposure adjusted measure of vehicle involvement in accidents.

The number of accident involved vehicles per 100 million km is presented in the tables below for light four wheeled vehicles of different age and engine size and for motorcycles of different engine size. This is a measure of those vehicles that are involved in injury accidents that are reported to the MOT.

These results do not necessarily show that one class of vehicle is more or less safe than any other, as important factors such as driver age and sex, urban / rural travel split or seat belt availability are not taken into account here.

**Table VE7: Accident involved vehicles per 100 million km travelled  
(Light 4 wheeled vehicles)**

### a) Fatal accidents

| Engine size<br>(cc) | Age of vehicle      |                     |                     |                     |                     |                      | Total               |
|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|---------------------|
|                     | 0 - 1<br>year       | 2 - 4<br>years      | 5 - 9<br>years      | 10 - 14<br>years    | 15 - 19<br>years    | 20 years<br>and over |                     |
| Up to 1000          |                     |                     |                     |                     |                     |                      | 3.2<br>(2.0)        |
| 1001 - 1300         | 1.9                 | 2.1                 | 1.2                 | 3.1                 | 6.0                 | 4.3                  | 2.6<br>(0.5)        |
| 1301 - 1600         |                     | 1.1                 | 2.0                 | 3.4                 | 3.6                 | 4.6                  | 2.1<br>(0.4)        |
| 1601 - 2000         | 1.9                 | 1.2                 | 2.5                 | 2.7                 | 5.2                 |                      | 2.6<br>(0.4)        |
| 2001 - 3000         |                     | 0.9                 | 5.9                 | 3.3                 | 6.1                 | 7.2                  | 3.1<br>(1.0)        |
| Over 3000           |                     |                     | 3.5                 | 3.2                 | 5.5                 | 6.0                  | 4.0<br>(0.9)        |
| <b>Total</b>        | <b>2.5</b><br>(1.0) | <b>1.8</b><br>(0.3) | <b>2.6</b><br>(0.6) | <b>4.0</b><br>(0.8) | <b>7.4</b><br>(1.9) | <b>7.0</b><br>(2.0)  | <b>3.9</b><br>(0.5) |

Notes: Numbers in parentheses are estimates of the sampling error. They are recorded only for the column and row totals.

The totals include unknown categories, so the subtotals can not be compared to the grand total. For example accident involved vehicles with unknown engine size will be included in the grand total cell but not in the row totals.

Cells for vehicle categories with less than 5 accident involved vehicles have not been included in the table.

**b) All reported injury accidents (including fatal accidents)**

| Engine size (cc) | Age of vehicle |               |                |                |                 |                   | Total           |
|------------------|----------------|---------------|----------------|----------------|-----------------|-------------------|-----------------|
|                  | 0 - 1 year     | 2 - 4 years   | 5 - 9 years    | 10 - 14 years  | 15 - 19 years   | 20 years and over |                 |
| Up to 1000       | 96.4           | 98.1          | 51.6           | 155.5          | 122.9           | 252.7             | 116.6<br>(73.0) |
| 1001 - 1300      | 69.0           | 59.0          | 48.0           | 80.7           | 119.3           | 129.7             | 76.2<br>(14.1)  |
| 1301 - 1600      | 34.4           | 39.1          | 52.4           | 84.7           | 110.3           | 106.2             | 61.2<br>(12.3)  |
| 1601 - 2000      | 41.0           | 39.0          | 54.0           | 77.8           | 125.9           | 149.1             | 62.5<br>(10.6)  |
| 2001 - 3000      | 31.5           | 17.5          | 78.3           | 60.5           | 105.3           | 109.2             | 50.9<br>(16.8)  |
| Over 3000        | 57.2           | 57.1          | 61.6           | 43.2           | 113.1           | 84.4              | 73.0<br>(17.3)  |
| Total            | 52.0<br>(21.0) | 48.5<br>(8.1) | 61.2<br>(14.4) | 90.2<br>(19.1) | 147.0<br>(38.0) | 158.6<br>(45.6)   | 87.2<br>(12.0)  |

Notes: Numbers in parentheses are estimates of the sampling error. They are recorded only for the column and row totals.  
The totals include unknown categories, so the subtotals can not be compared to the grand total. For example accident involved vehicles with unknown engine size will be included in the grand total cell but not in the row totals.

**Table VE8: Accident involved motorcycles per 100 million km by engine size**

|                               | Engine size (cc) |           |           |           |          | Total          |
|-------------------------------|------------------|-----------|-----------|-----------|----------|----------------|
|                               | 0 - 125          | 126 - 250 | 251 - 500 | 501 - 750 | Over 750 |                |
| Fatal accidents               | 10.3             | 63.5      | 56.7      | 49.7      | 32.4     | 46.6<br>(22.5) |
| All reported injury accidents | 568              | 1348      | 987       | 632       | 370      | 809<br>(391)   |

Note: Numbers in parentheses are estimates of the sampling error. They are recorded only for the row totals.  
The totals include unknown categories, so the cell values can not be compared to the totals.

Figure VE6: Number of light 4 wheeled vehicles involved in fatal accidents between July 1989 and June 1990

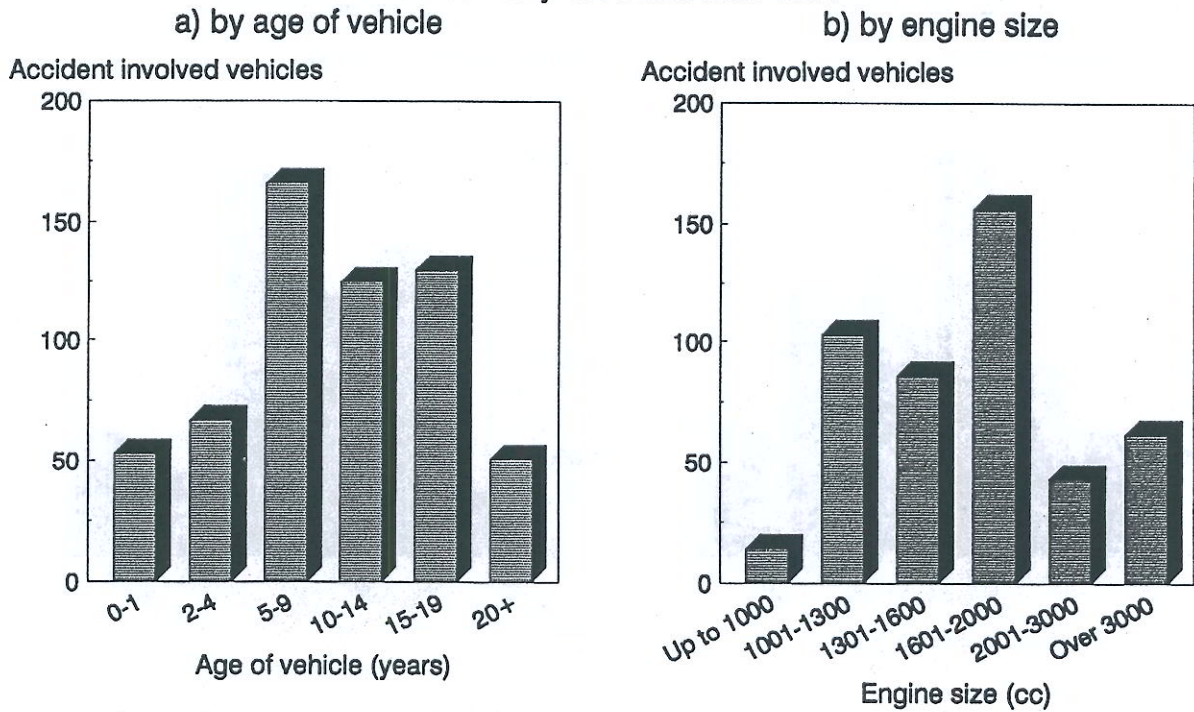


Figure VE7: Accident involved vehicles per 100 million km

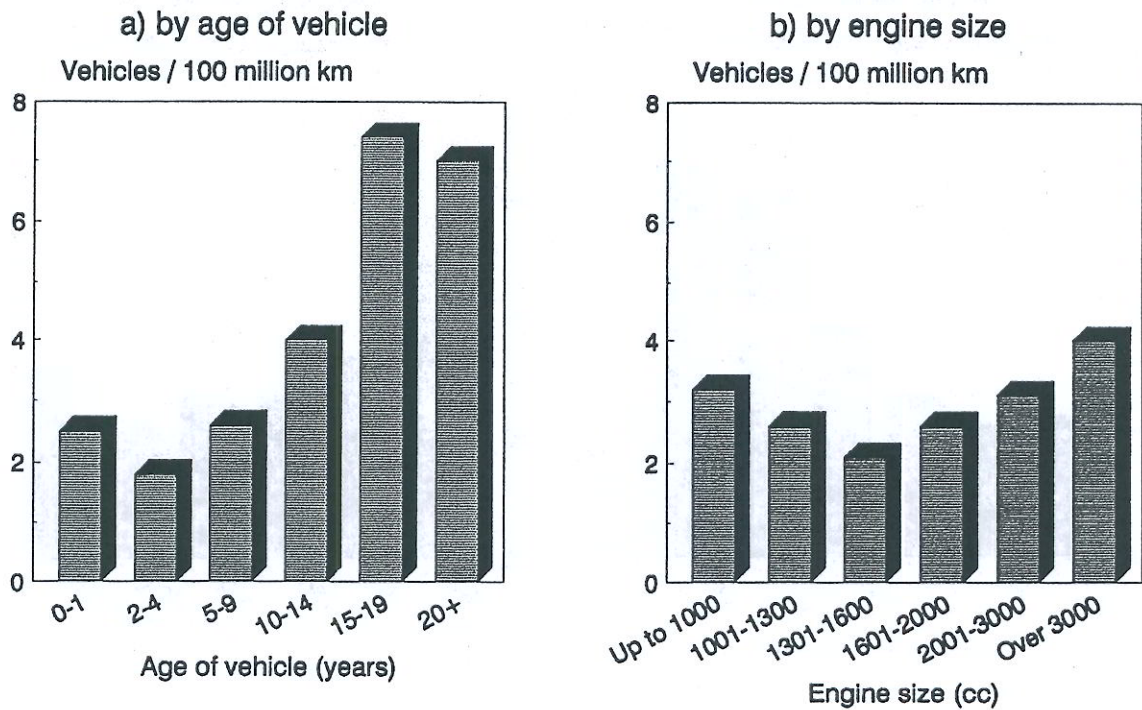
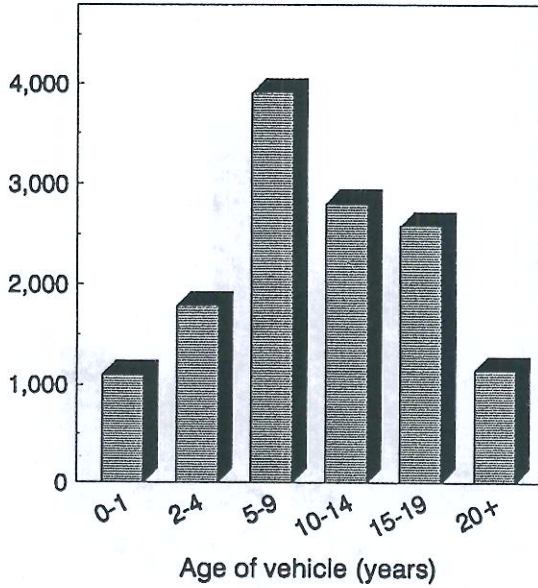


Figure VE8: Number of light 4 wheeled vehicles involved in reported injury accidents between July 1989 and June 1990

a) by age of vehicle

b) by engine size

Accident involved vehicles



Accident involved vehicles

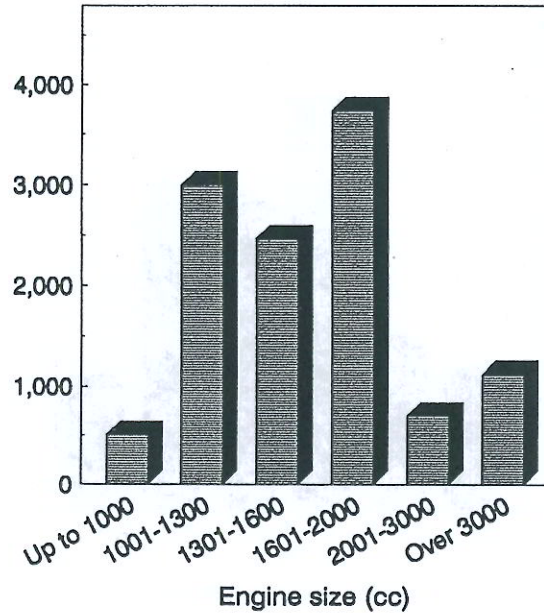
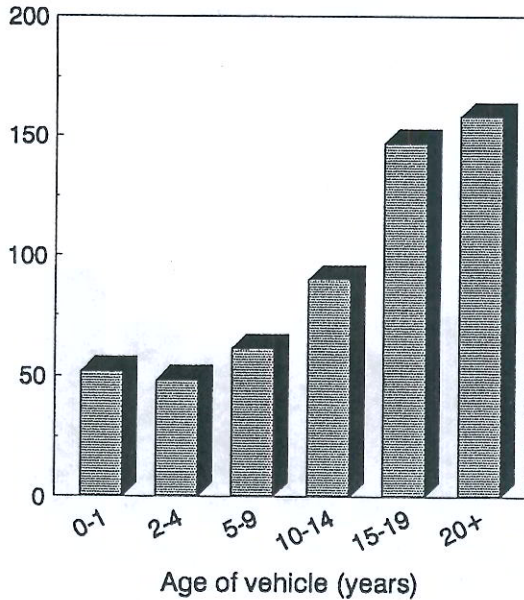


Figure VE9: Accident involved vehicles per 100 million km

a) by age of vehicle

b) by engine size

Accident involved vehicles / 100 million km



Accident involved vehicles / 100 million km

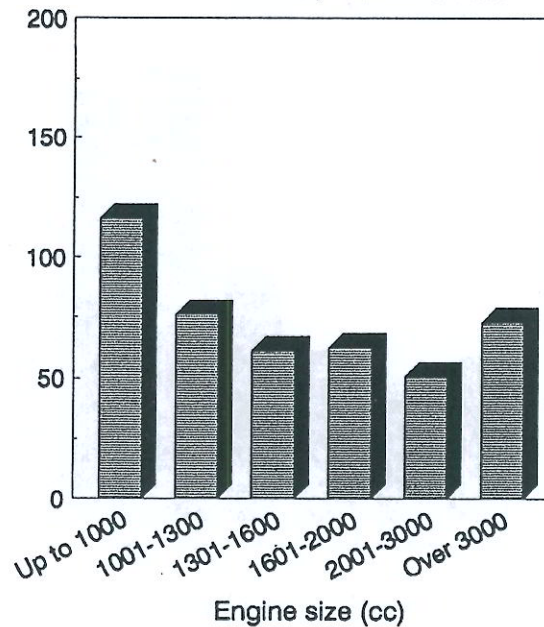
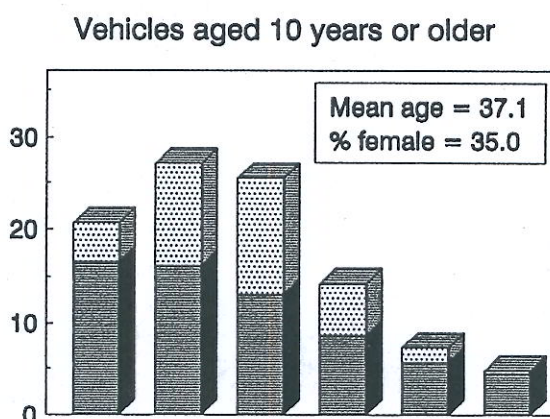
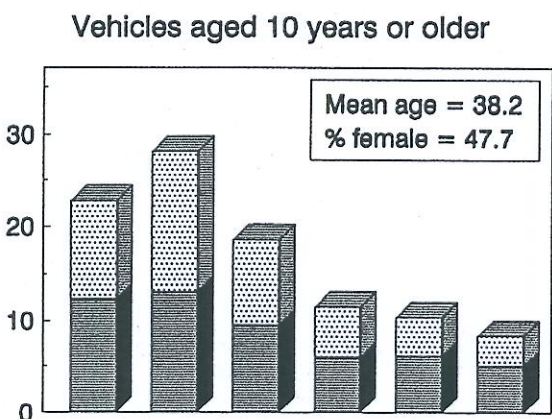
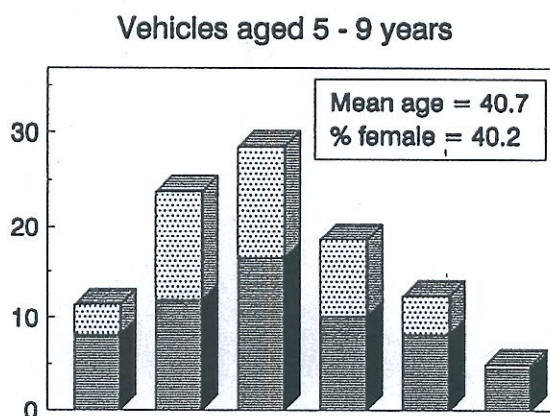
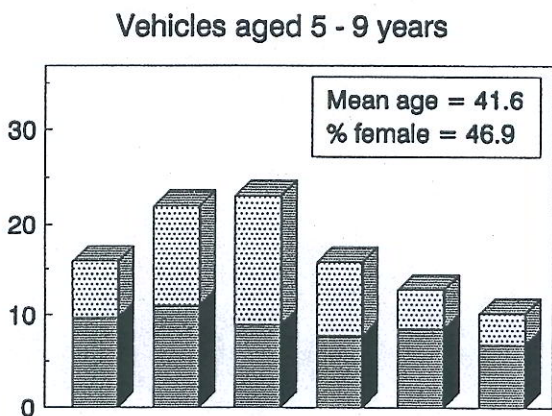
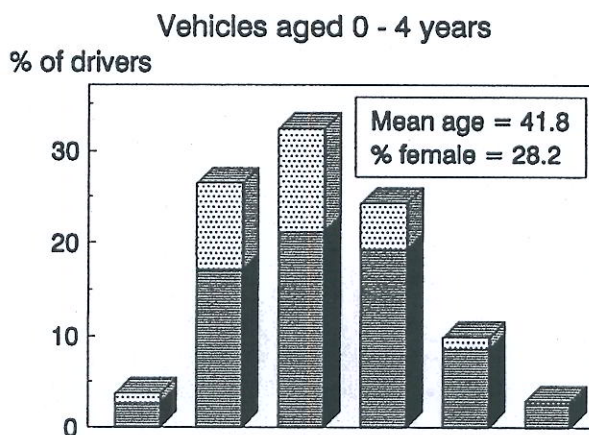
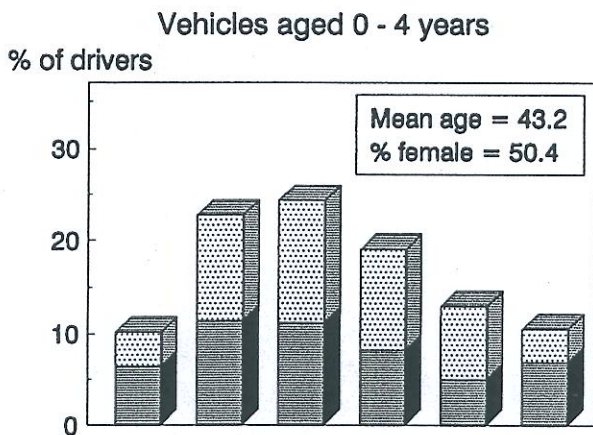


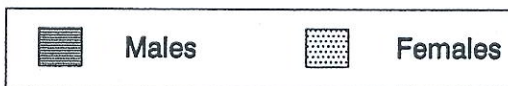
Figure VE10: Age and sex of drivers of vehicles of different engine size and age.

Small vehicles, 0 - 1600cc

Large vehicles, Over 1600cc



15-24 25-34 35-44 45-54 55-64 65+ Driver age



Note: The graphs show the percentage of all driver trips within one vehicle category. Only light four wheeled vehicles are included.



## 6. Trips

**Table TR1: Number of trips in the survey by travel mode and overall trip purpose**

| Trip purpose                  | Travel mode    |                   |             |            |             |              |            | Total        |
|-------------------------------|----------------|-------------------|-------------|------------|-------------|--------------|------------|--------------|
|                               | Vehicle driver | Vehicle passenger | Bus         | Taxi       | Cycle       | Walk         | Other      |              |
| Home                          | 11565          | 5128              | 672         | 133        | 1130        | 4975         | 120        | 23726        |
| Work - main job               | 4783           | 756               | 263         | 18         | 219         | 1699         | 77         | 7815         |
| Work - other job              | 150            | 32                | 3           | 1          | 12          | 38           | 2          | 238          |
| Work - employer's business    | 3396           | 362               | 17          | 4          | 62          | 362          | 23         | 4227         |
| Education                     | 196            | 630               | 287         | 8          | 386         | 1046         | 21         | 2574         |
| Shopping                      | 4543           | 1839              | 127         | 16         | 253         | 2630         | 21         | 9429         |
| Social welfare                | 26             | 7                 | 0           | 1          | 0           | 9            | 0          | 43           |
| Personal business or services | 2191           | 616               | 69          | 14         | 95          | 1054         | 11         | 4050         |
| Medical / dental              | 251            | 134               | 13          | 2          | 8           | 69           | 2          | 479          |
| Social / recreation           | 5821           | 4722              | 264         | 56         | 512         | 3227         | 93         | 14697        |
| To transport passengers       | 3483           | 1623              | 16          | 20         | 31          | 365          | 9          | 5547         |
| <b>Total</b>                  | <b>36406</b>   | <b>15850</b>      | <b>1732</b> | <b>273</b> | <b>2708</b> | <b>15474</b> | <b>378</b> | <b>72830</b> |

The 'other' category includes 175 train trips, 56 ferry trips, 45 plane trips and 102 trips which were classified as other on the survey forms.

In this section each leg of an outing is referred to as a trip. For instance travelling to work may consist of three separate stages, walking to the station, travelling between suburbs by train and then catching a bus to the place of work. This would be included in the table above as three separate trips, each with a different trip mode but with the same overall purpose.

**Table TR2: Number of trips and distance travelled by travel mode**

| Travel mode       | Trips in survey | National, annual estimates |                 |                |
|-------------------|-----------------|----------------------------|-----------------|----------------|
|                   |                 | Million trips              | 100 million km  | km per trip    |
| Vehicle driver    | 36406           | 2529.4<br>(239.3)          | 201.7<br>(26.3) | 8.0<br>(0.5)   |
| Vehicle passenger | 15850           | 1124.5<br>(142.5)          | 121.6<br>(26.1) | 10.8<br>(1.3)  |
| Bus               | 1732            | 125.1<br>(21.8)            | 15.3<br>(3.5)   | 12.2<br>(2.1)  |
| Taxi              | 273             | 16.9<br>(4.8)              | 0.9<br>(0.3)    | 5.2<br>(1.8)   |
| Bicycle           | 2708            | 181.4<br>(39.3)            | 3.5<br>(0.7)    | 1.9<br>(0.2)   |
| Walk              | 15474           | 1079.7<br>(122.2)          |                 |                |
| Train             | 175             | 12.9<br>(4.3)              | 3.6<br>(1.9)    | 27.8<br>(12.8) |
| Ferry             | 56              | 3.5                        | 2.4             | 66.8           |
| Plane             | 45              | 2.8                        | 13.7            | 482.0          |
| Other             | 102             | 8.8                        | 1.2             | 13.2           |

Notes: The numbers in parentheses are estimates of the sampling error. Where none is recorded the sample is too small to estimate a sampling error

There is no distance recorded here for walk trips as not all walk trips were digitised to obtain a travel distance. Walk trips are shown in more detail later in this section.

The 'other' category includes boats, horse riders, electric wheelchairs etc.



**Table TR3: Number of trips and distance travelled by vehicle type**

**a) Drivers**

| Vehicle type         | Trips in survey | National, annual estimates |                         |                      |
|----------------------|-----------------|----------------------------|-------------------------|----------------------|
|                      |                 | Million trips              | 100 million km          | km per trip          |
| Car or station wagon | 30505           | 2089.0<br>(202.7)          | 158.3<br>(19.9)         | 7.6<br>(0.5)         |
| Van or ute           | 3973            | 296.8<br>(54.7)            | 25.4<br>(5.6)           | 8.6<br>(1.4)         |
| Truck                | 960             | 71.9<br>(21.3)             | 12.6<br>(4.5)           | 17.5<br>(3.8)        |
| Taxi                 | 142             | 7.6                        | 0.4                     | 5.0                  |
| Motorcycle           | 549             | 40.6<br>(9.2)              | 2.8<br>(0.8)            | 6.9<br>(1.8)         |
| Other                | 195             | 18.1                       | 1.5                     | 8.5                  |
| <b>Total</b>         | <b>36406</b>    | <b>2529.4<br/>(239.3)</b>  | <b>201.7<br/>(26.3)</b> | <b>8.0<br/>(0.5)</b> |

**b) Passengers**

| Vehicle type         | Trips in survey | National, annual estimates |                         |                       |
|----------------------|-----------------|----------------------------|-------------------------|-----------------------|
|                      |                 | Million trips              | 100 million km          | km per trip           |
| Car or station wagon | 13717           | 951.1<br>(107.6)           | 101.5<br>(22.8)         | 10.7<br>(1.4)         |
| Van or ute           | 1550            | 117.8<br>(31.9)            | 14.4<br>(5.7)           | 12.3<br>(3.4)         |
| Truck                | 257             | 34.1                       | 3.6                     | 10.6                  |
| Motorcycle           | 34              | 2.9                        | 0.4                     | 13.3                  |
| Other                | 96              | 6.8                        | 1.0                     | 14.8                  |
| <b>Total</b>         | <b>15850</b>    | <b>1124.5<br/>(142.5)</b>  | <b>121.6<br/>(26.1)</b> | <b>10.8<br/>(1.3)</b> |

Notes: The numbers in parentheses are estimates of the sampling error. Where none is recorded the sample is too small to estimate a sampling error  
The total rows include trips for which the vehicle type was not recorded.

## 6.1 Driver trips

**Table TR4: Estimates of the annual, national distance driven by age group and sex for drivers of all vehicle types. (100 million km).**

| Age group | Females       | Males           | Total           |
|-----------|---------------|-----------------|-----------------|
| 15-19     | 2.5<br>(1.1)  | 4.8<br>(2.1)    | 7.3<br>(2.3)    |
| 20-24     | 6.6<br>(2.2)  | 17.1<br>(4.1)   | 23.7<br>(5.6)   |
| 25-29     | 7.4<br>(2.0)  | 18.8<br>(5.8)   | 26.2<br>(6.9)   |
| 30-34     | 9.8<br>(3.4)  | 19.6<br>(3.6)   | 29.4<br>(5.1)   |
| 35-39     | 8.1<br>(1.9)  | 18.9<br>(5.8)   | 27.0<br>(6.7)   |
| 40-44     | 8.8<br>(2.2)  | 15.4<br>(4.3)   | 24.1<br>(6.0)   |
| 45-49     | 6.1<br>(1.6)  | 12.2<br>(3.1)   | 18.2<br>(3.3)   |
| 50-54     | 3.7<br>(1.2)  | 10.7<br>(3.9)   | 14.4<br>(4.6)   |
| 55-59     | 2.5<br>(0.6)  | 6.6<br>(2.4)    | 9.1<br>(2.7)    |
| 60-64     | 2.1<br>(0.7)  | 9.5<br>(6.4)    | 11.6<br>(6.3)   |
| 65-69     | 1.1           | 3.9<br>(1.2)    | 4.9<br>(1.5)    |
| 70+       | 1.4<br>(0.7)  | 4.0<br>(1.4)    | 5.4<br>(1.5)    |
| Total     | 60.2<br>(9.7) | 141.5<br>(18.0) | 201.7<br>(26.3) |

**Note:** The numbers in parentheses are estimates of the sampling errors. Where none is recorded the sample is too small to estimate a sampling error.

### 6.1.1 Drivers of light 4 wheeled vehicles

**Table TR5: Drivers of light 4 wheeled vehicles; estimates of number of trips, distance driven and distance per trip by age group and sex .**

| Age group    | Females                  |                       |                      | Males                     |                         |                      |
|--------------|--------------------------|-----------------------|----------------------|---------------------------|-------------------------|----------------------|
|              | Million trips            | 100 million km        | km per trip          | Million trips             | 100 million km          | km per trip          |
| 15-19        | 35.1                     | 2.3                   | 6.6                  | 65.4<br>(27.3)            | 4.6<br>(2.1)            | 7.0<br>(1.5)         |
| 20-24        | 89.4<br>(27.7)           | 6.6<br>(2.2)          | 7.4<br>(1.5)         | 161.5<br>(37.0)           | 14.7<br>(4.0)           | 9.1<br>(0.7)         |
| 25-29        | 116.1<br>(24.9)          | 7.3<br>(2.0)          | 6.3<br>(0.9)         | 144.5<br>(42.9)           | 14.2<br>(5.0)           | 9.8<br>(1.2)         |
| 30-34        | 162.1<br>(26.8)          | 9.7<br>(3.4)          | 6.0<br>(1.1)         | 176.2<br>(19.6)           | 18.1<br>(2.9)           | 10.3<br>(1.4)        |
| 35-39        | 144.6<br>(22.5)          | 8.1<br>(1.9)          | 5.6<br>(0.9)         | 161.1<br>(28.2)           | 15.5<br>(4.5)           | 9.6<br>(1.7)         |
| 40-44        | 143.5<br>(34.7)          | 8.6<br>(2.2)          | 6.0<br>(1.3)         | 146.0<br>(24.1)           | 14.0<br>(3.7)           | 9.6<br>(2.6)         |
| 45-49        | 101.1<br>(19.6)          | 6.1<br>(1.7)          | 6.0<br>(0.7)         | 146.0<br>(38.5)           | 11.5<br>(3.0)           | 7.9<br>(1.4)         |
| 50-54        | 62.6<br>(10.8)           | 3.7<br>(1.2)          | 6.0<br>(1.2)         | 96.2<br>(26.9)            | 8.3<br>(2.9)            | 8.7<br>(1.9)         |
| 55-59        | 47.6<br>(14.4)           | 2.5<br>(0.6)          | 5.3<br>(2.6)         | 84.8<br>(17.0)            | 6.3<br>(2.5)            | 7.5<br>(3.0)         |
| 60-64        | 42.8<br>(9.8)            | 2.1<br>(0.7)          | 4.9<br>(1.1)         | 92.2<br>(28.1)            | 9.3<br>(6.4)            | 10.1<br>(3.3)        |
| 65-69        | 19.0                     | 1.1                   | 5.5                  | 66.0<br>(17.0)            | 3.9<br>(1.2)            | 5.9<br>(1.4)         |
| 70+          | 34.0<br>(13.4)           | 1.4<br>(0.7)          | 4.1<br>(1.0)         | 54.6<br>(17.8)            | 3.9<br>(1.4)            | 7.2<br>(2.4)         |
| <b>Total</b> | <b>998.9<br/>(118.4)</b> | <b>59.5<br/>(9.7)</b> | <b>6.0<br/>(0.5)</b> | <b>1394.5<br/>(115.2)</b> | <b>124.6<br/>(15.6)</b> | <b>8.9<br/>(0.7)</b> |

Note: The numbers in parentheses are estimates of the sampling errors. Where none is recorded the sample is too small to estimate a sampling error.

Figure TR1  
Annual distance travelled  
100 million km

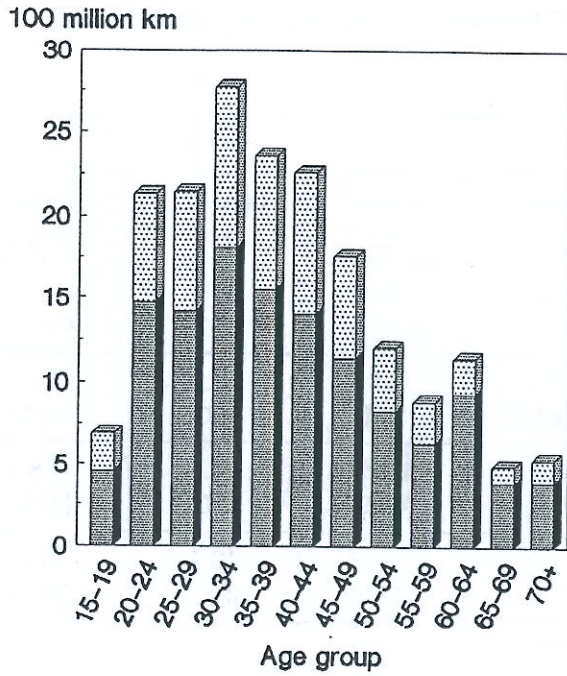


Figure TR2  
Number of drivers involved in  
reported injury accidents

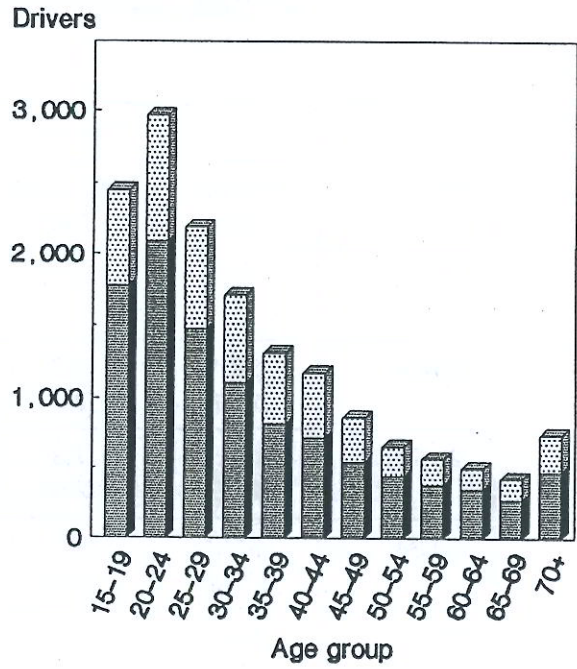
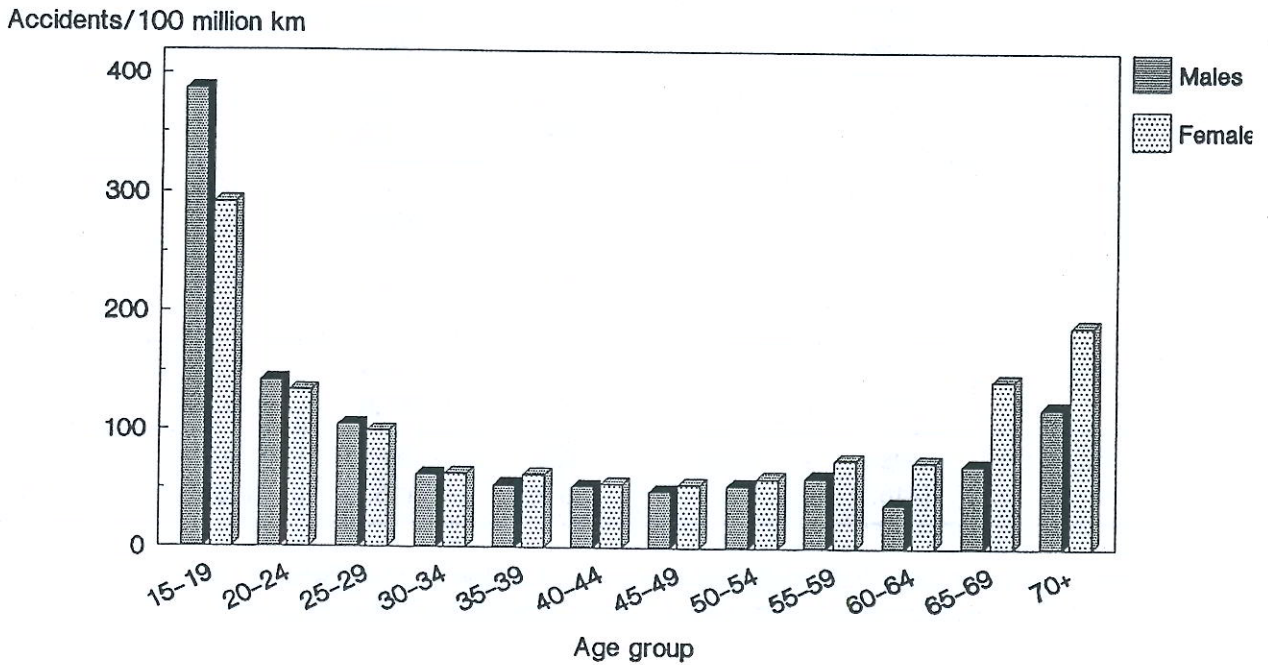
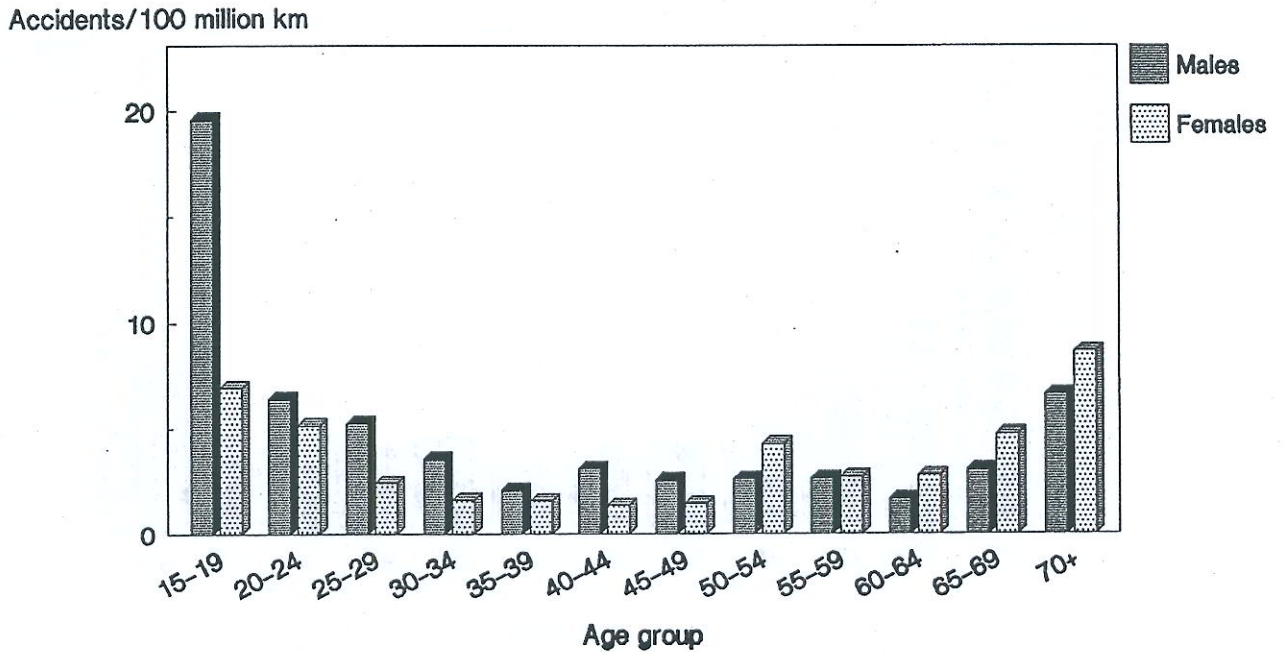


Figure TR3  
Number of drivers involved in injury accidents  
per 100 million km driven



**Figure TR4**  
**Number of drivers involved in fatal accidents**  
**per 100 million km driven**



Total number of drivers involved = 721

**Table TR6: Accident involved drivers per 100 million km travelled**  
**(Summary table).**

| Driver sex | Accident severity | Speed limit area |       |       |
|------------|-------------------|------------------|-------|-------|
|            |                   | Urban            | Rural | Total |
| Males      | Fatal             | 3.2              | 5.4   | 4.4   |
|            | Injury            | 127              | 52    | 86    |
| Females    | Fatal             | 1.6              | 4.4   | 2.8   |
|            | Injury            | 114              | 55    | 87    |
| Total      | Fatal             | 2.6              | 5.1   | 3.9   |
|            | Injury            | 124              | 53    | 87    |

**Notes:** The injury accident category includes all reported injury accidents (fatals included). The distances travelled in urban and rural areas are determined from the respondents self reporting since the urban / rural components of a trip were not digitised separately. The total distance travelled in urban areas is estimated by multiplying the total digitised distance by the proportion of the self reported trip distances that were in urban areas. Urban areas are defined here as areas with a speed limit of 70 kph or less.

Figure TR5  
 Number of drivers involved in urban accidents  
 per 100 million km driven

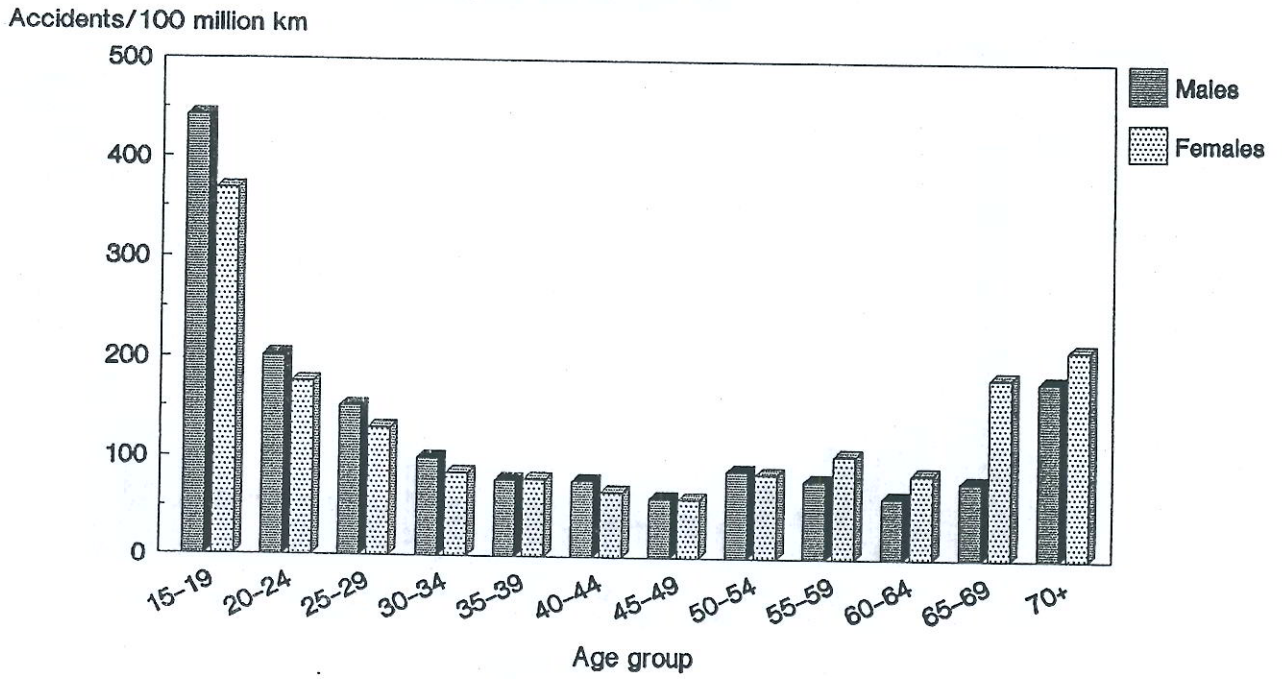


Figure TR6  
 Number of drivers involved in rural accidents  
 per 100 million km driven

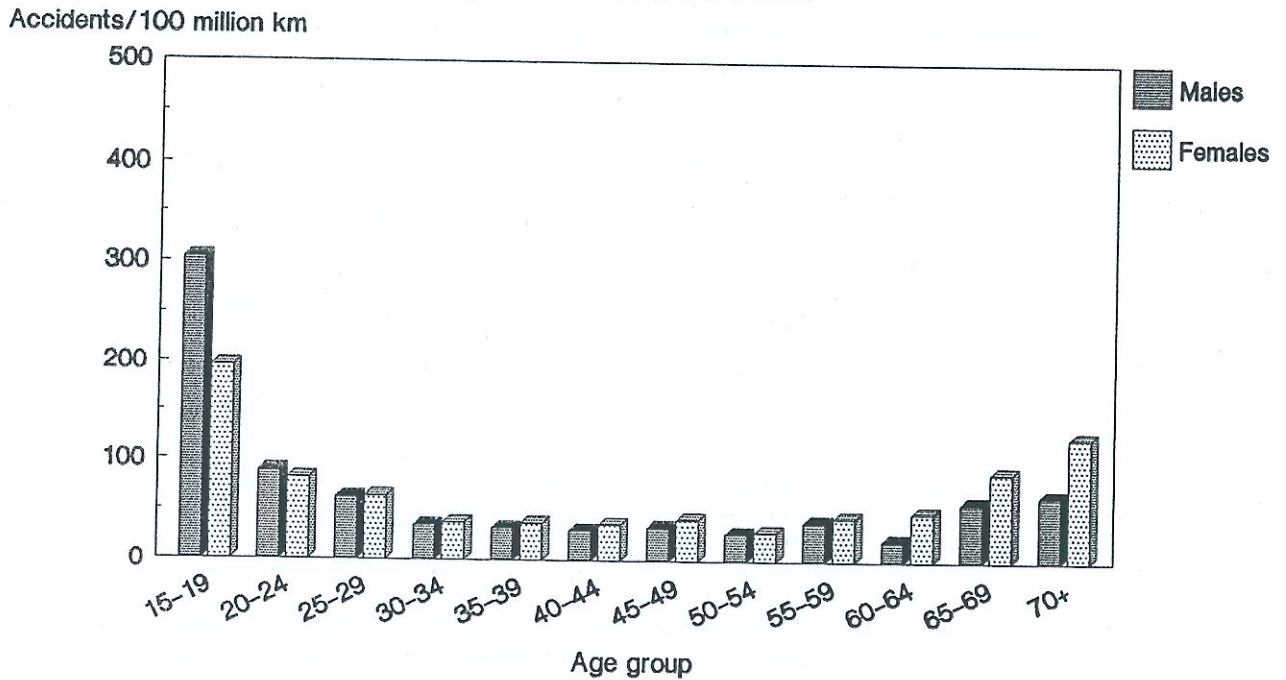


Figure TR7  
Proportion of trips that are in urban areas

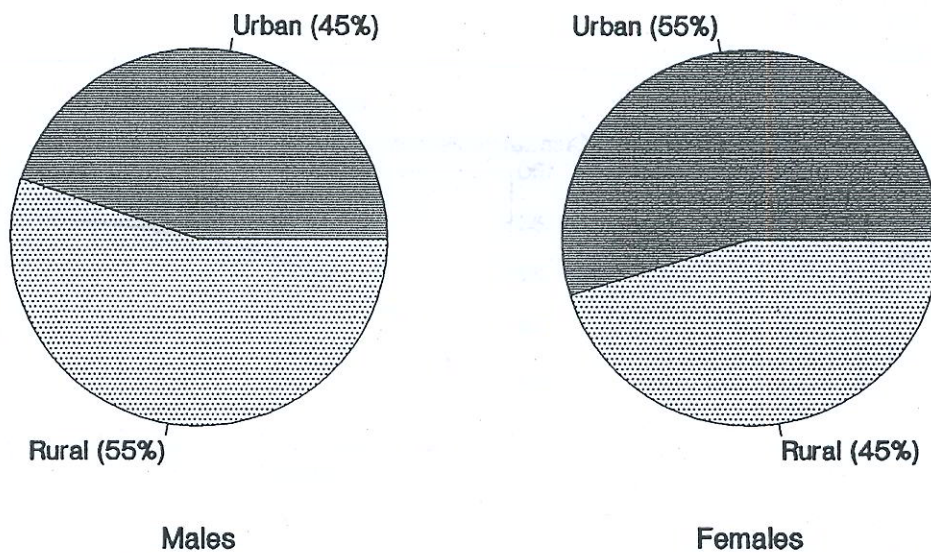
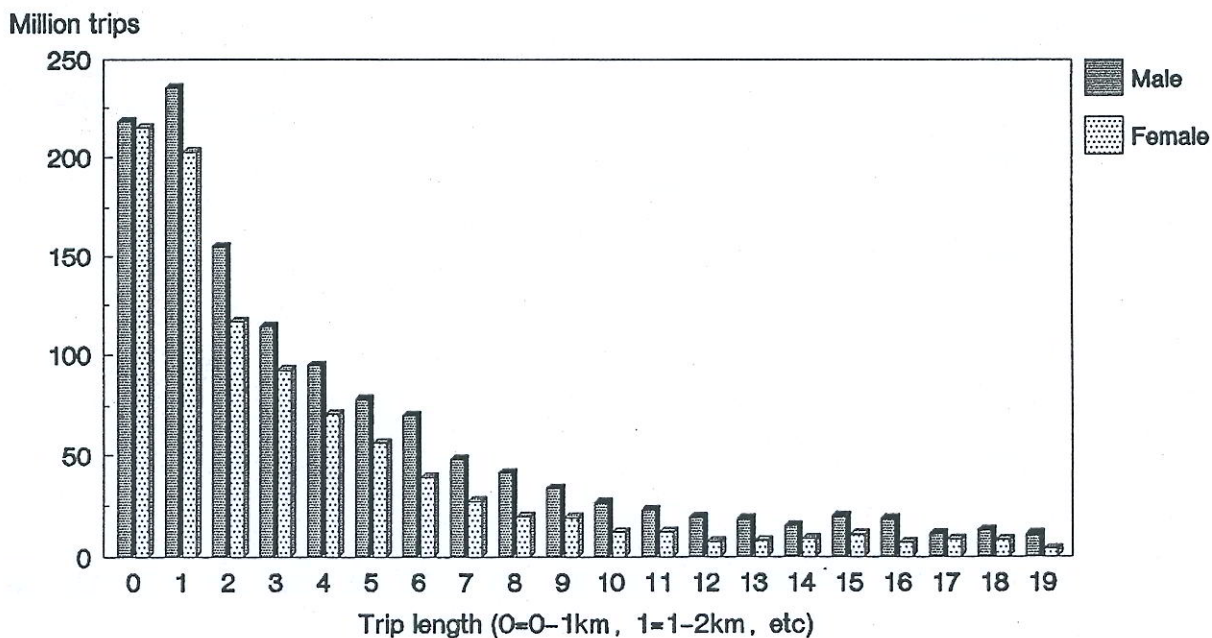


Figure TR8  
Number of trips by length of trip  
(Drivers of light 4 wheeled vehicles)



Note: 7.7% of trips were over 20km in length

Figure TR9  
Percent of all trips  
(Light 4 wheeled vehicles)

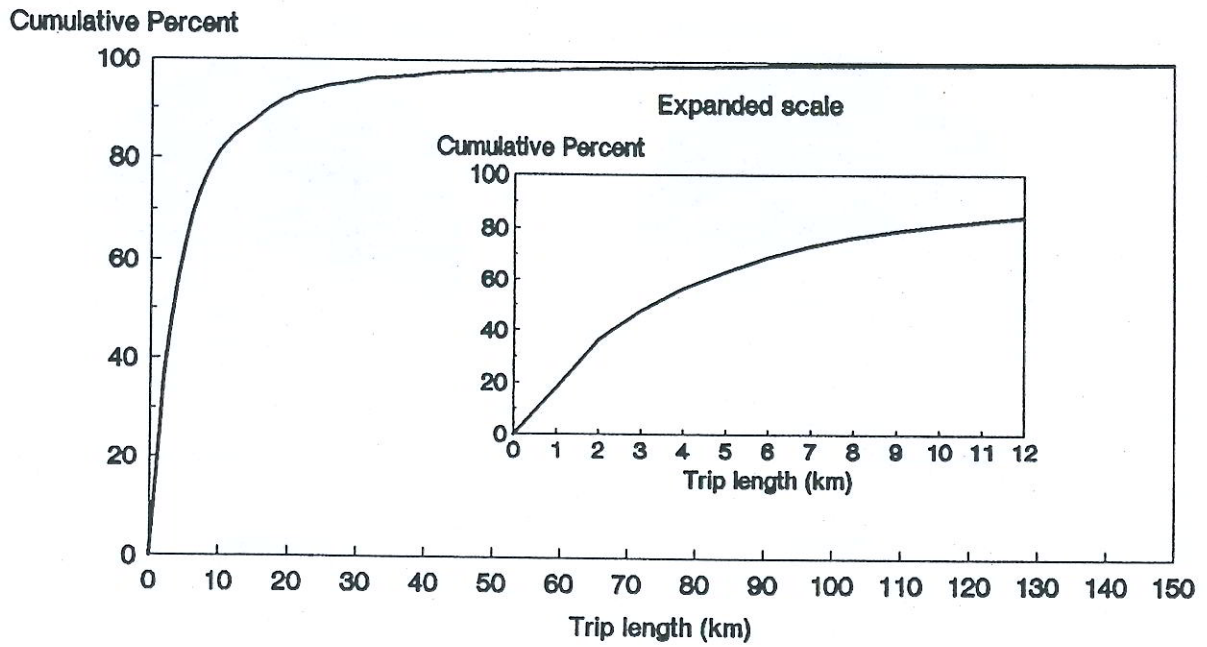
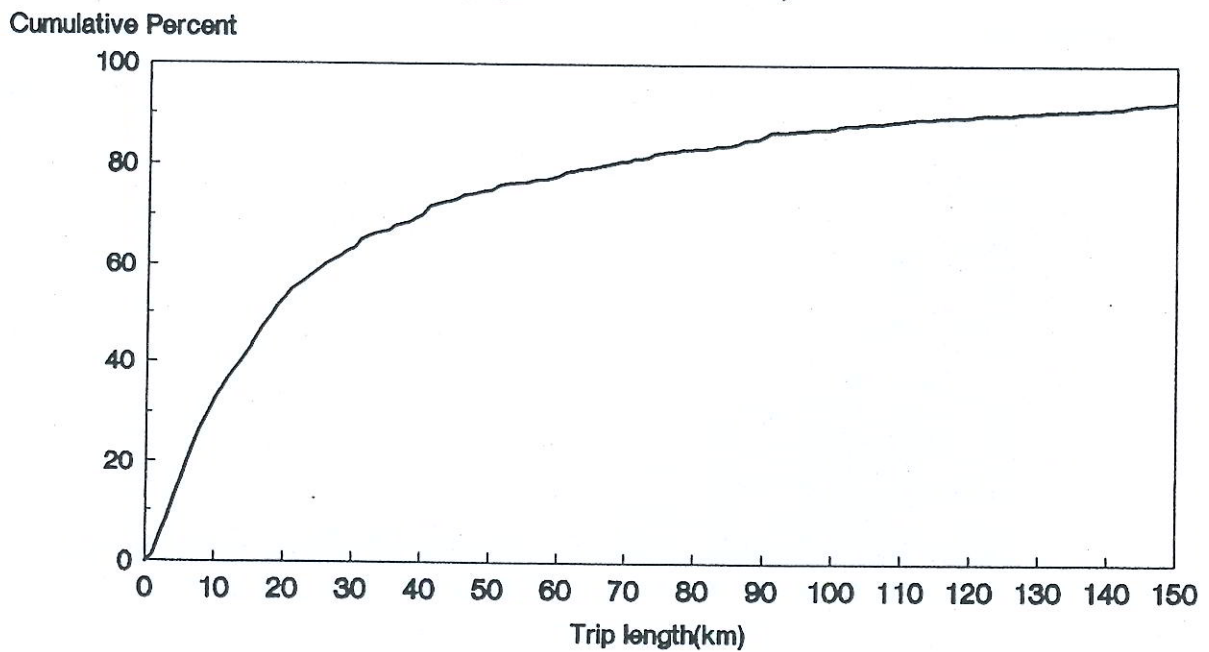


Figure TR10  
Percent of all distance travelled  
(Light 4 wheeled vehicles)





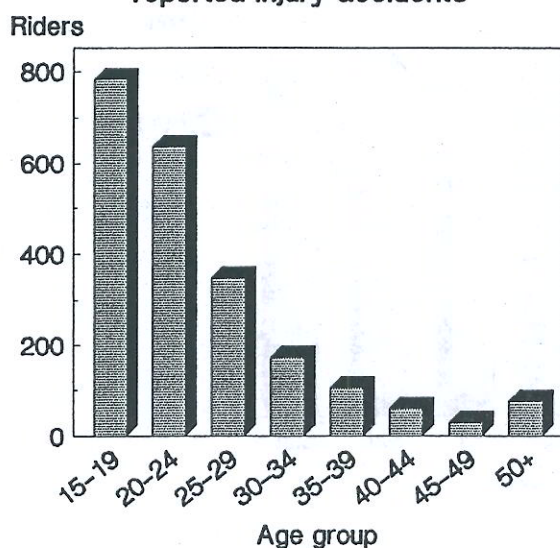
## 6.1.2 Motorcycle riders

**Table TR7: Motorcycle riders: estimates of number of trips and distance ridden by age group and sex .**

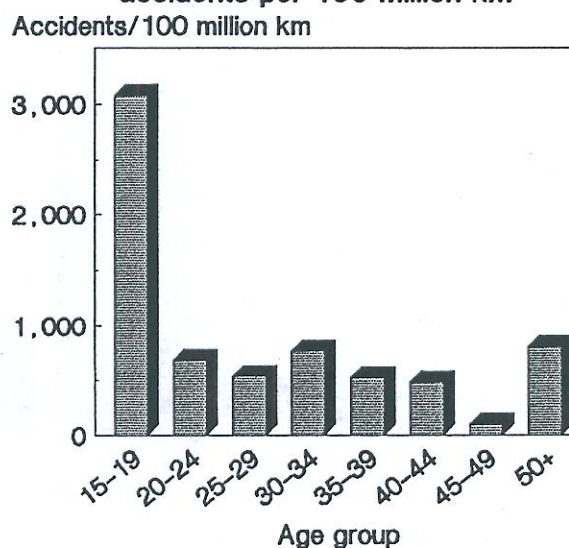
| Age group | Females       |            | Males         |                 | Total         |                 |
|-----------|---------------|------------|---------------|-----------------|---------------|-----------------|
|           | Million trips | Million km | Million trips | Million km      | Million trips | Million km      |
| 15-19     | 3.4           | 11.8       | 3.7           | 13.7            | 7.1           | 25.4            |
| 20-24     | 0.4           | 1.3        | 7.3           | 91.8            | 7.7           | 93.0            |
| 25-29     | 0.3           | 1.2        | 8.9           | 64.1            | 9.2           | 65.3            |
| 30-34     | 0.1           | 0.4        | 3.7           | 22.3            | 3.8           | 22.7            |
| 35-39     | 1.5           | 3.6        | 2.1           | 16.5            | 3.6           | 20.1            |
| 40-44     | 0.4           | 5.1        | 1.8           | 7.4             | 2.2           | 12.6            |
| 45-49     | 0.7           | 1.8        | 2.0           | 27.8            | 2.7           | 29.6            |
| 50+       | 0.1           | 0.4        | 2.7           | 9.0             | 2.8           | 9.4             |
| Total     | 7.9           | 28.3       | 32.7<br>(7.8) | 252.8<br>(77.4) | 40.6<br>(9.2) | 281.1<br>(79.5) |

Note: The numbers in parentheses are estimates of the sampling errors. Where none is recorded the sample is too small to estimate a sampling error.

**Figure TR11**  
Number of riders involved in reported injury accidents



**Figure TR12**  
Number of riders involved in accidents per 100 million km



### 6.1.3 Reported injury accidents per 100 million km travelled by time of day and day of week

The data presented in these graphs is for all drivers and motorcycle riders. The accidents are all reported injury accidents that occurred during the survey period, July 1989 to June 1990.

Figure TR13  
100 million km travelled  
by day of week

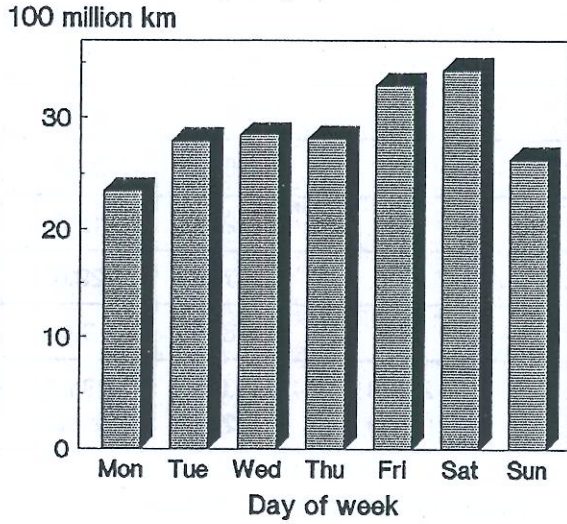


Figure TR14  
Reported injury accidents  
by day of week

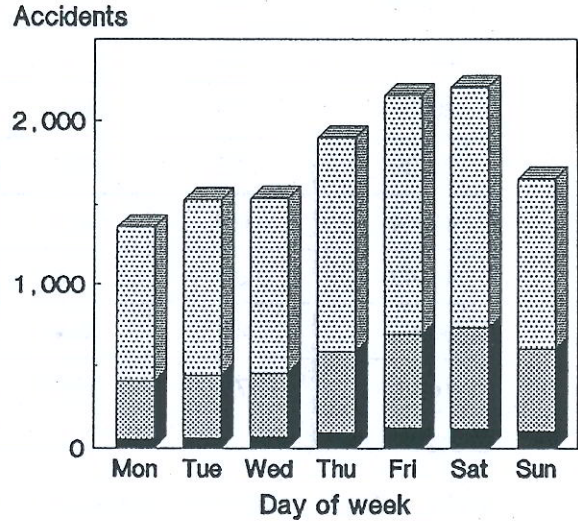


Figure TR15  
Reported injury accidents per 100 million km  
by day of week

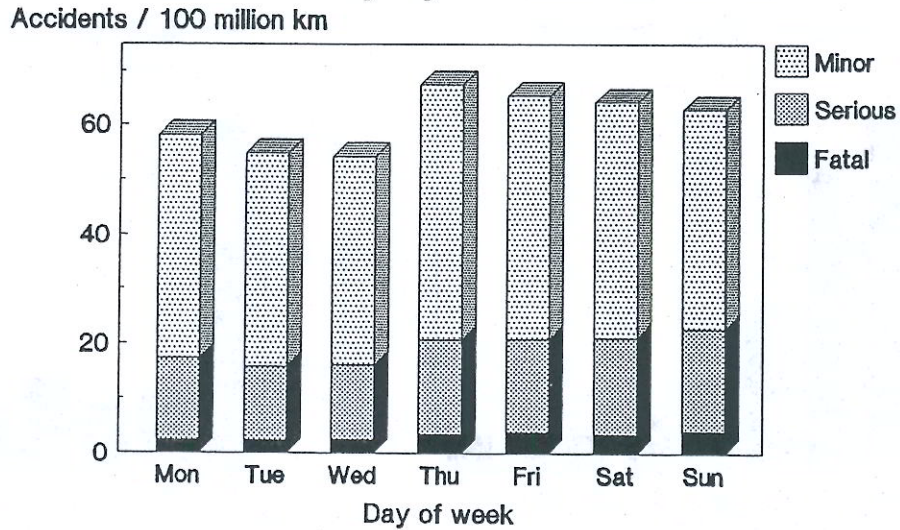


Figure TR16  
Distance driven by hour of day  
(6:00am to 5:59am)

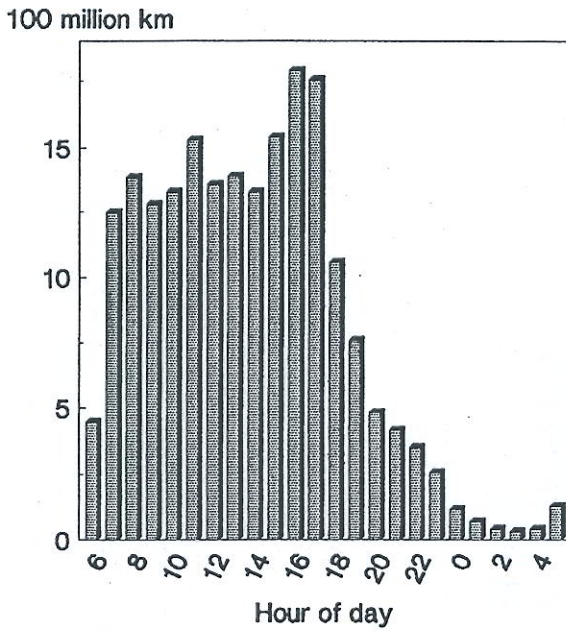


Figure TR17  
Accidents by hour of day  
(6:00am to 5:59am)

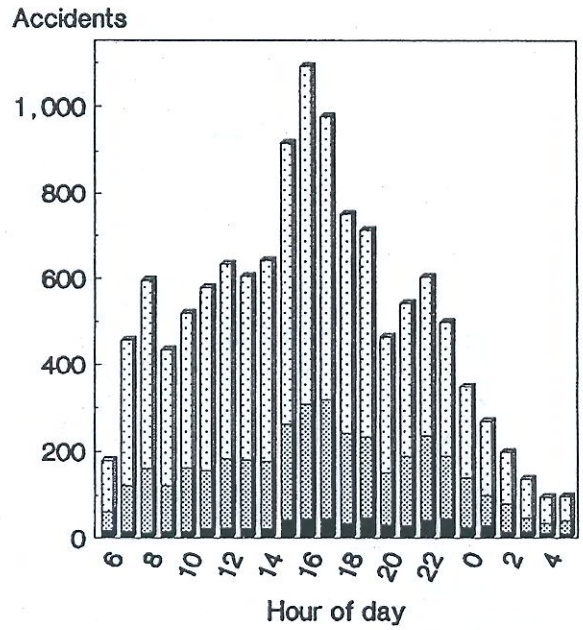
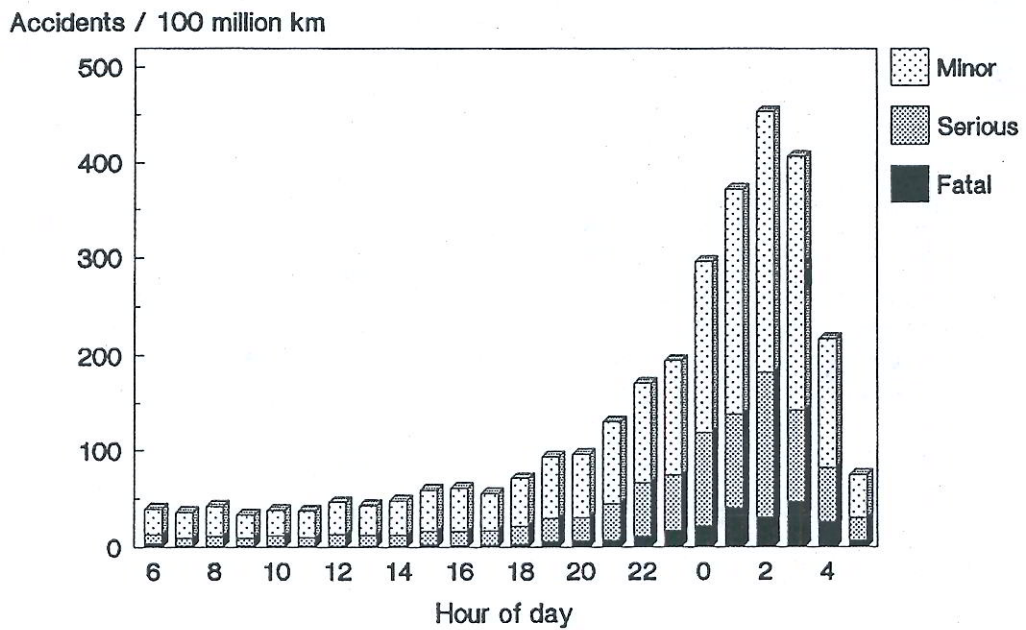
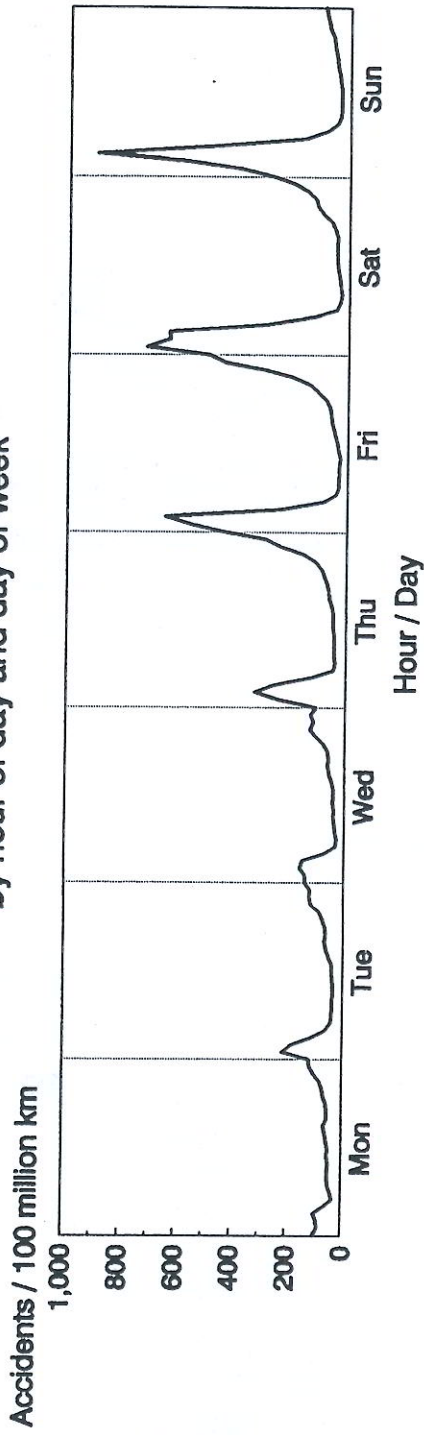


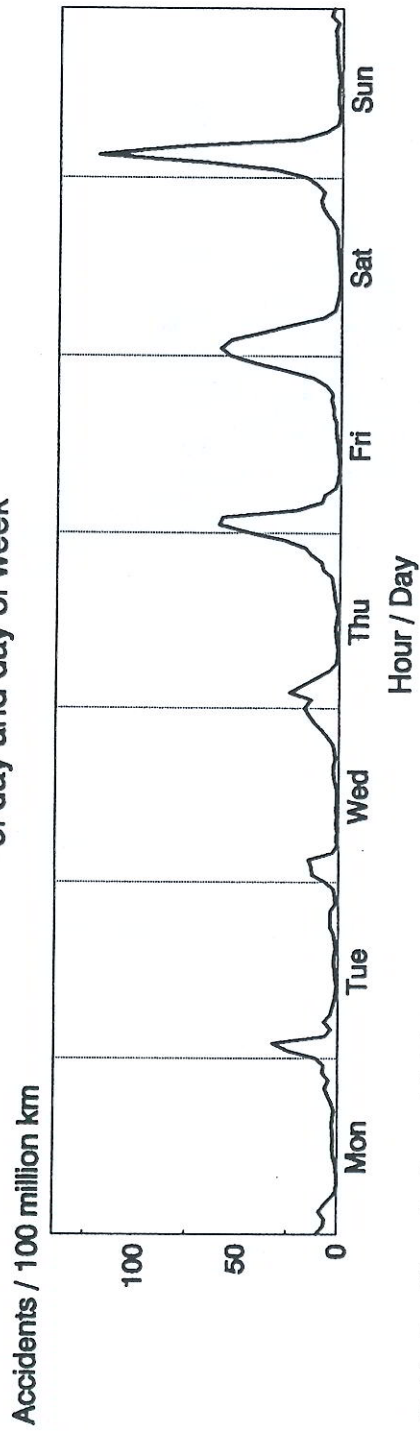
Figure TR18  
Accidents per 100 million km by hour of day  
(6:00am to 5:59am)



**Figure TR19**  
**Reported injury accidents per 100 million km**  
**by hour of day and day of week**



**Fatal accidents per 100 million km by hour**  
**of day and day of week**



- (i) Vertical lines indicate Midnight
- (ii) The data has been smoothed with a 3 hour moving average

## 6.2 Passenger Trips

**Table TR8: Distance travelled by passengers of light 4 wheeled vehicles**

| Age group    | Females                | Males                  | Total                   |
|--------------|------------------------|------------------------|-------------------------|
|              | 100 million km         | 100 million km         | 100 million km          |
| 5-9          | 8.2<br>(4.8)           | 8.0<br>(3.9)           | 16.2<br>(7.9)           |
| 10-14        | 6.0<br>(1.6)           | 8.9<br>(2.9)           | 14.9<br>(4.1)           |
| 15-19        | 7.9<br>(3.1)           | 9.3<br>(5.1)           | 17.2<br>(7.1)           |
| 20-24        | 10.1<br>(2.5)          | 5.4<br>(4.0)           | 15.5<br>(5.4)           |
| 25-29        | 5.7<br>(2.1)           | 2.8<br>(1.1)           | 8.4<br>(2.1)            |
| 30-34        | 5.8<br>(2.8)           | 3.2<br>(1.8)           | 9.0<br>(3.4)            |
| 35-39        | 5.0<br>(1.8)           | 1.0<br>(0.3)           | 6.1<br>(1.9)            |
| 40-44        | 3.8<br>(1.1)           | 1.7<br>(0.8)           | 5.5<br>(1.4)            |
| 45-49        | 3.4<br>(1.4)           | 1.1<br>(0.6)           | 4.5<br>(1.3)            |
| 50-54        | 2.7<br>(1.5)           | 0.8                    | 3.5<br>(1.9)            |
| 55-59        | 3.7<br>(1.8)           | 0.9<br>(0.7)           | 4.6<br>(2.0)            |
| 60-64        | 3.7<br>(1.9)           | 0.7                    | 4.4<br>(2.1)            |
| 65-69        | 2.0                    | 0.7                    | 2.7                     |
| 70+          | 2.9<br>(0.9)           | 0.5                    | 3.4<br>(1.0)            |
| <b>Total</b> | <b>70.9<br/>(14.0)</b> | <b>45.0<br/>(12.4)</b> | <b>116.0<br/>(24.9)</b> |

Note: The numbers in parentheses are estimates of the sampling errors. Where none is recorded the sample is too small to estimate a sampling error.

Figure TR20  
Annual distance travelled  
100 million km

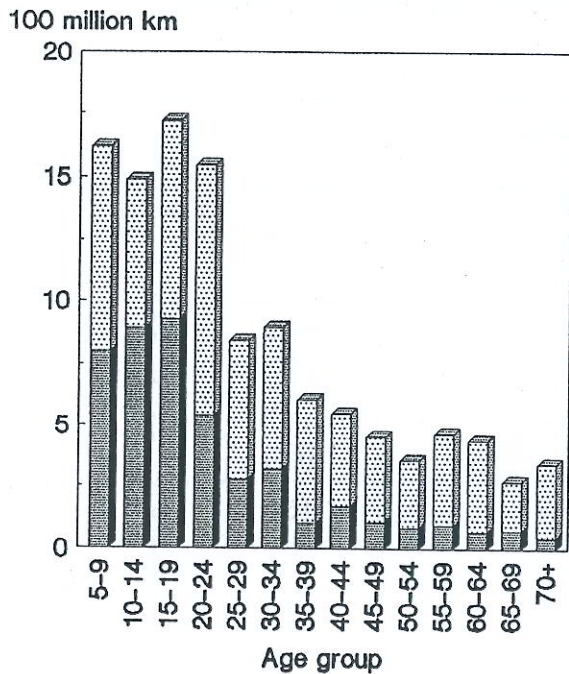


Figure TR21  
Number of passenger casualties in  
reported injury accidents

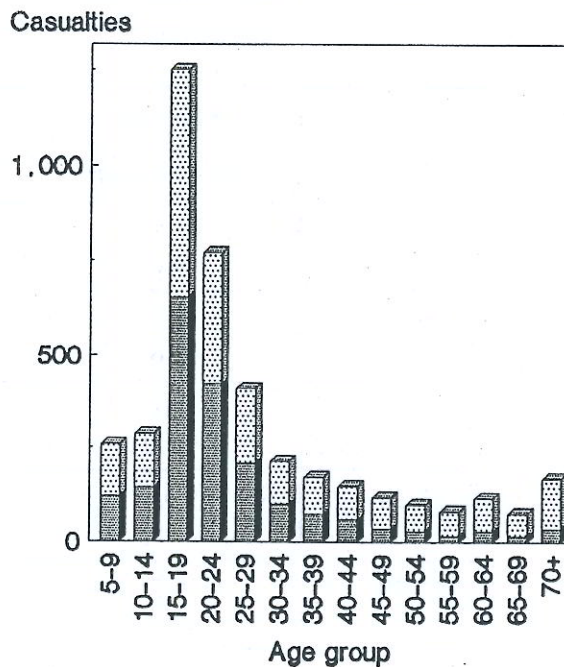
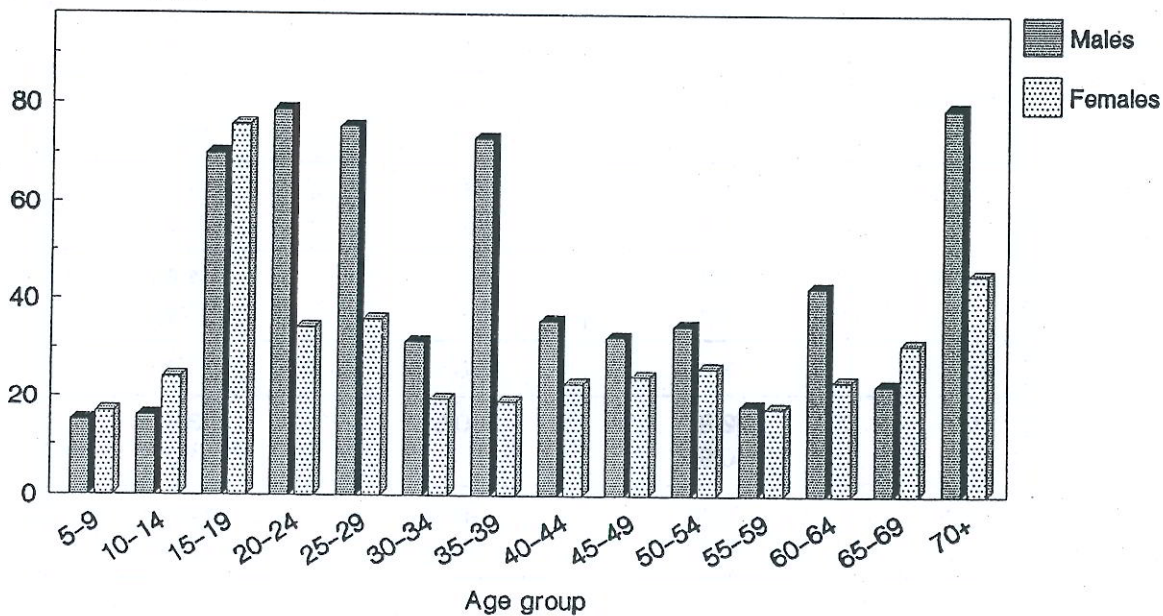


Figure TR22  
Number of passengers injured in injury accidents  
per 100 million km travelled

Casualties/100 million km



(Light 4 wheeled vehicle passengers only)

**Table TR9: Distance travelled and number of trips for passengers of buses and taxis**

| Age group | Buses             |                 | Taxis          |               |
|-----------|-------------------|-----------------|----------------|---------------|
|           | Million km        | Million trips   | Million km     | Million trips |
| 5-9       | 66.7              | 9.8             | 3.2            | 0.7           |
| 10-14     | 265.0<br>(133.4)  | 27.1<br>(10.7)  | 1.0            | 0.3           |
| 15-19     | 376.1<br>(186.5)  | 28.1<br>(12.3)  | 24.8           | 3.2           |
| 20-24     | 204.4<br>(77.3)   | 12.7<br>(2.8)   | 14.9           | 3.0           |
| 25-29     | 104.3             | 8.1             | 13.3           | 2.8           |
| 30-34     | 48.4              | 6.3             | 6.5            | 1.3           |
| 35-39     | 57.6              | 6.0             | 3.2            | 0.9           |
| 40-44     | 89.7<br>(56.9)    | 5.5<br>(2.5)    | 3.7            | 0.6           |
| 45-49     | 41.6              | 4.5             | 5.5            | 1.1           |
| 50-54     | 93.2              | 3.8             | 0.8            | 0.2           |
| 55-59     | 69.7              | 2.9             | 1.3            | 0.4           |
| 60-64     | 33.6              | 2.6             | 5.8            | 0.9           |
| 65-69     | 21.1              | 2.8             | 0.2            | 0.1           |
| 70+       | 57.4              | 4.9             | 3.1            | 1.4           |
| Total     | 1528.8<br>(347.2) | 125.1<br>(21.8) | 87.3<br>(27.8) | 16.9<br>(4.8) |

Note: The numbers in parentheses are estimates of the sampling errors. Where none is recorded the sample is too small to estimate a sampling error.

### 6.3 Cyclist Trips

**Table TR10: Cyclists; estimates of number of trips, distance ridden and distance per trip by age group and sex.**

| Age group    | Million trips           | Million km              | km per trip          |
|--------------|-------------------------|-------------------------|----------------------|
| 5-9          | 22.5<br>(10.3)          | 16.8<br>(7.0)           | 0.7<br>(0.5)         |
| 10-14        | 60.6<br>(12.5)          | 101.0<br>(24.7)         | 1.7<br>(0.2)         |
| 15-19        | 41.9<br>(13.9)          | 82.7<br>(23.3)          | 2.0<br>(0.4)         |
| 20-24        | 14.5                    | 32.8                    | 2.3                  |
| 25-29        | 8.9<br>(4.5)            | 32.3<br>(19.5)          | 3.6<br>(1.5)         |
| 30-34        | 9.7<br>(4.8)            | 27.5<br>(12.5)          | 2.8<br>(0.5)         |
| 35-39        | 6.8                     | 18.9                    | 2.8                  |
| 40+          | 16.5<br>(5.8)           | 39.5<br>(19.3)          | 2.4<br>(1.5)         |
| <b>Total</b> | <b>181.4<br/>(39.3)</b> | <b>351.6<br/>(72.0)</b> | <b>1.9<br/>(0.2)</b> |

| Age group    | Females                |                         |                      | Males                   |                         |                      |
|--------------|------------------------|-------------------------|----------------------|-------------------------|-------------------------|----------------------|
|              | Million trips          | Million km              | km per trip          | Million trips           | Million km              | km per trip          |
| 5-9          | 8.4                    | 5.9                     | 0.7                  | 14.1                    | 10.9                    | 0.8                  |
| 10-14        | 26.0<br>(11.1)         | 38.7<br>(17.4)          | 1.5<br>(0.4)         | 34.6<br>(7.3)           | 62.3<br>(14.9)          | 1.8<br>(0.6)         |
| 15-19        | 12.7<br>(5.2)          | 27.6<br>(11.1)          | 2.2<br>(0.6)         | 29.2<br>(14.2)          | 55.1<br>(18.9)          | 1.9<br>(0.6)         |
| 20-24        | 3.3                    | 8.3                     | 2.5                  | 11.2                    | 24.6                    | 2.2                  |
| 25-29        | 2.6                    | 10.5                    | 4.0                  | 6.3                     | 21.8                    | 3.5                  |
| 30-34        | 2.8                    | 5.7                     | 2.0                  | 6.8                     | 21.8                    | 3.2                  |
| 35-39        | 1.8                    | 2.3                     | 1.3                  | 5.0                     | 16.6                    | 3.3                  |
| 40+          | 6.7                    | 13.9                    | 2.1                  | 9.8                     | 25.6                    | 2.6                  |
| <b>Total</b> | <b>64.4<br/>(20.0)</b> | <b>112.9<br/>(41.5)</b> | <b>1.8<br/>(0.3)</b> | <b>117.0<br/>(24.2)</b> | <b>238.7<br/>(40.9)</b> | <b>2.0<br/>(0.3)</b> |

**Note:** The numbers in parentheses are estimates of the sampling errors. Where none is recorded the sample is too small to estimate a sampling error.



Figure TR23  
Annual distance travelled  
Million km

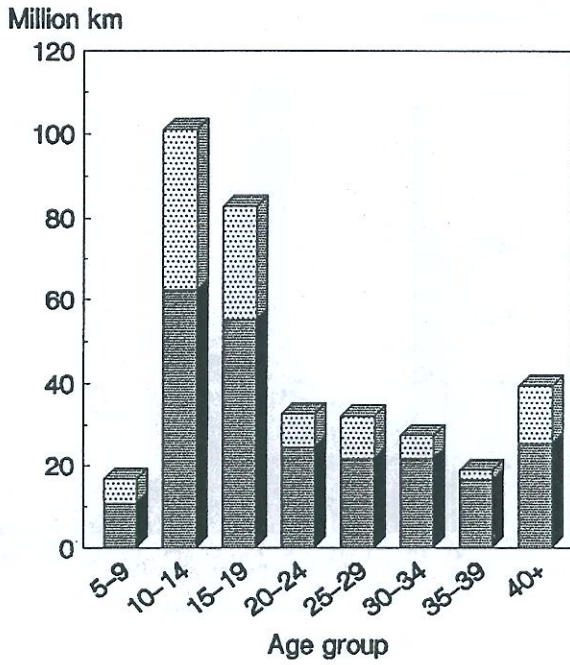


Figure TR24  
Number of cyclist casualties in  
reported injury accidents

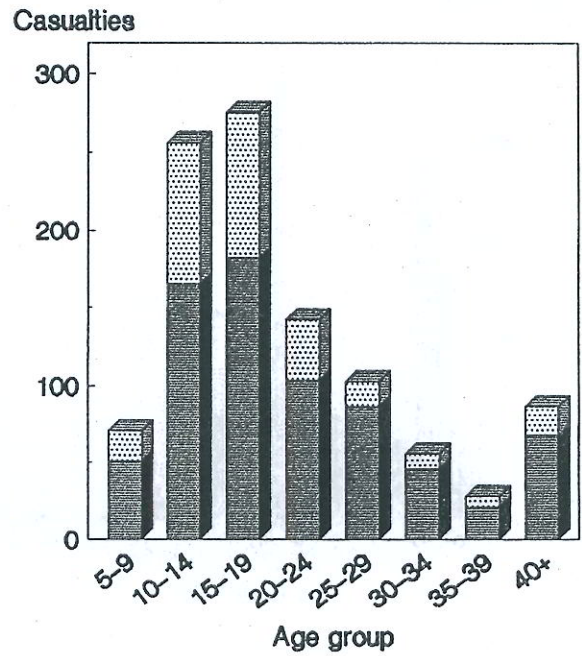


Figure TR25  
Number of cyclists injured in injury accidents  
per 100 million km travelled

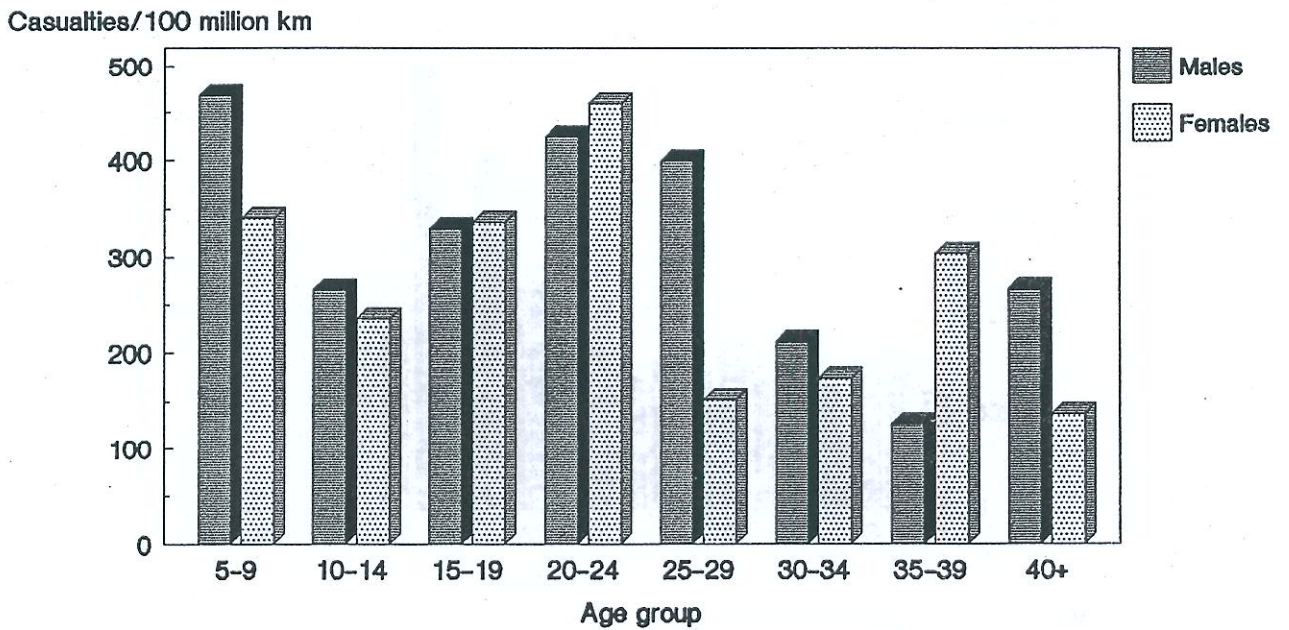


Figure TR26  
Distance ridden by hour of day  
(Week days only 6:00am - 5:59am)

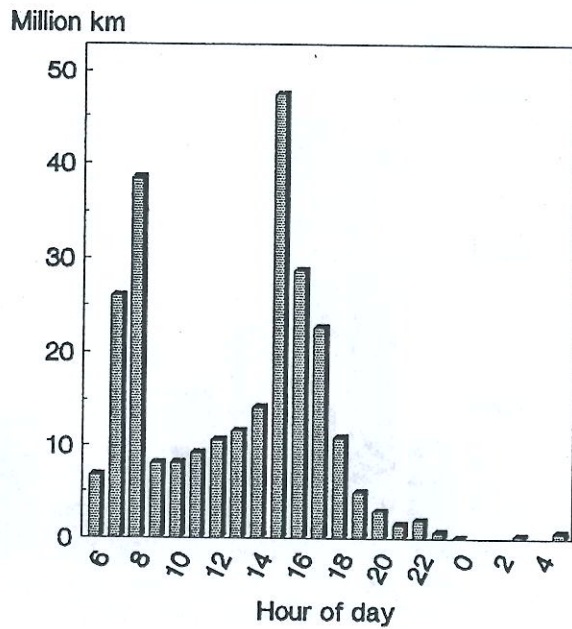


Figure TR27  
Cyclist casualties by hour of day  
(Week days only 6:00am - 5:59am)

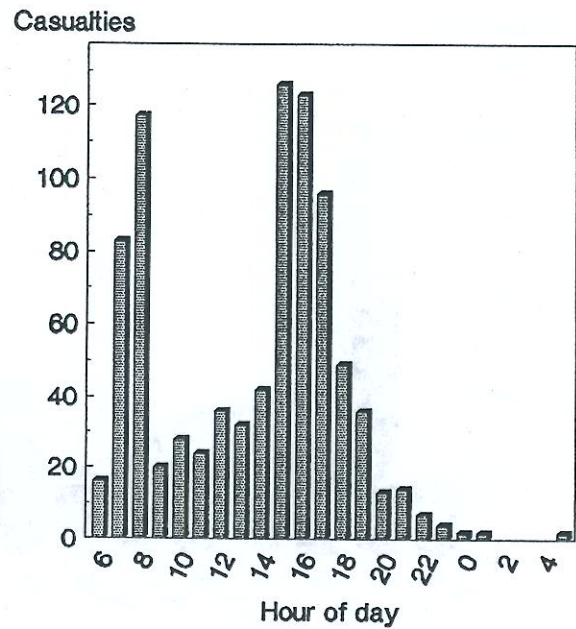
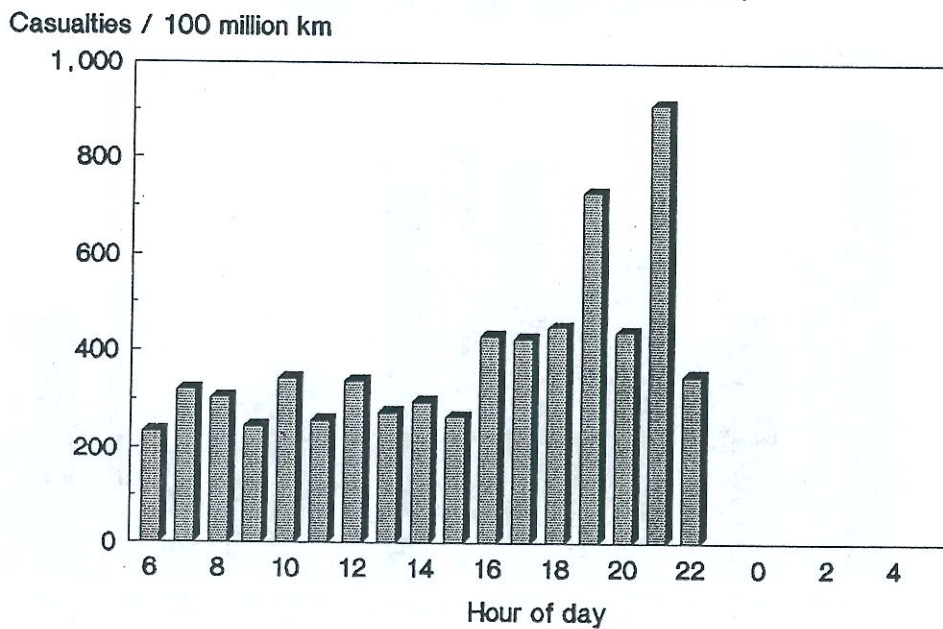


Figure TR28  
Casualties per 100 million km by hour of day  
(Week days only 6:00am - 5:59am)



Values are not entered where the number of casualties is less than 5.

## 6.4 Pedestrian Trips

**Table TR11: Pedestrian trips; number of trips, time spent walking and number of road crossings.**

**a) by age group.**

| Age group    | Million trips             | Million hours           | Million road crossings    |
|--------------|---------------------------|-------------------------|---------------------------|
| 5-9          | 97.4<br>(26.5)            | 16.2<br>(4.6)           | 153.9<br>(50.5)           |
| 10-14        | 127.7<br>(30.0)           | 24.2<br>(6.0)           | 278.0<br>(79.0)           |
| 15-19        | 146.9<br>(29.1)           | 29.1<br>(6.0)           | 325.2<br>(80.2)           |
| 20-24        | 109.4<br>(18.2)           | 19.8<br>(5.4)           | 248.5<br>(65.4)           |
| 25-29        | 79.2<br>(12.4)            | 14.4<br>(3.1)           | 177.0<br>(50.8)           |
| 30-34        | 76.1<br>(19.2)            | 12.3<br>(2.5)           | 138.6<br>(35.3)           |
| 35-39        | 74.9<br>(16.8)            | 11.6<br>(3.3)           | 125.4<br>(31.3)           |
| 40-44        | 64.9<br>(15.5)            | 9.4<br>(2.7)            | 110.0<br>(32.2)           |
| 45-49        | 56.9<br>(12.6)            | 8.9<br>(2.2)            | 90.5<br>(28.4)            |
| 50-54        | 42.4<br>(10.9)            | 7.1<br>(1.8)            | 72.5<br>(17.0)            |
| 55-59        | 41.4<br>(11.4)            | 6.3<br>(2.2)            | 61.0<br>(17.0)            |
| 60-64        | 59.2<br>(20.9)            | 12.4<br>(3.8)           | 96.5<br>(30.0)            |
| 65-69        | 37.0<br>(11.5)            | 6.7<br>(1.9)            | 57.7<br>(19.7)            |
| 70+          | 66.3<br>(9.6)             | 13.4<br>(2.9)           | 109.8<br>(18.4)           |
| <b>Total</b> | <b>1079.7<br/>(122.2)</b> | <b>191.7<br/>(22.8)</b> | <b>2044.5<br/>(274.8)</b> |

**b) by age group and sex**

| Age group | Females         |                 |                        | Males           |                |                        |
|-----------|-----------------|-----------------|------------------------|-----------------|----------------|------------------------|
|           | Million trips   | Million hours   | Million road crossings | Million trips   | Million hours  | Million road crossings |
| 5-9       | 45.3<br>(12.4)  | 7.5<br>(2.5)    | 69.4<br>(22.5)         | 52.0<br>(15.5)  | 8.7<br>(2.9)   | 84.6<br>(31.7)         |
| 10-14     | 69.7<br>(20.4)  | 13.5<br>(4.0)   | 154.0<br>(51.9)        | 58.0<br>(14.7)  | 10.6<br>(2.7)  | 124.0<br>(47.7)        |
| 15-19     | 84.6<br>(25.0)  | 16.9<br>(5.3)   | 195.3<br>(76.1)        | 62.3<br>(20.5)  | 12.1<br>(3.9)  | 129.9<br>(49.5)        |
| 20-24     | 65.0<br>(12.9)  | 11.9<br>(3.6)   | 131.8<br>(26.1)        | 44.4<br>(10.7)  | 7.8<br>(2.6)   | 116.6<br>(46.9)        |
| 25-29     | 47.3<br>(10.4)  | 7.9<br>(2.4)    | 99.9<br>(29.4)         | 31.9<br>(8.2)   | 6.5<br>(1.8)   | 77.1<br>(34.8)         |
| 30-34     | 43.6<br>(15.2)  | 6.4<br>(1.7)    | 71.9<br>(26.5)         | 32.5<br>(7.5)   | 6.0<br>(1.5)   | 66.6<br>(20.5)         |
| 35-39     | 44.1<br>(11.1)  | 6.9<br>(1.9)    | 68.7<br>(17.7)         | 30.8<br>(9.0)   | 4.7<br>(2.1)   | 56.7<br>(20.6)         |
| 40-44     | 32.3<br>(10.0)  | 4.9<br>(1.8)    | 54.1<br>(22.0)         | 32.6<br>(10.8)  | 4.5<br>(2.0)   | 55.8<br>(22.1)         |
| 45-49     | 30.4<br>(10.8)  | 4.5<br>(1.6)    | 49.7<br>(24.0)         | 26.5<br>(10.4)  | 4.4<br>(1.8)   | 40.8<br>(12.4)         |
| 50-54     | 25.4<br>(6.9)   | 4.1<br>(1.4)    | 42.9<br>(13.8)         | 17.0<br>(7.1)   | 3.0<br>(0.8)   | 29.6<br>(10.5)         |
| 55-59     | 22.9<br>(8.3)   | 3.7<br>(1.8)    | 31.4<br>(11.5)         | 18.5<br>(5.6)   | 2.6<br>(1.0)   | 29.6<br>(11.7)         |
| 60-64     | 30.3<br>(14.4)  | 6.4<br>(2.3)    | 47.0<br>(25.6)         | 28.8<br>(11.1)  | 6.0<br>(2.1)   | 49.5<br>(14.3)         |
| 65-69     | 20.2            | 3.4             | 34.8                   | 16.8<br>(3.8)   | 3.3<br>(1.0)   | 22.9<br>(5.8)          |
| 70+       | 42.4<br>(10.0)  | 8.3<br>(2.3)    | 66.8<br>(12.5)         | 23.8<br>(7.3)   | 5.1<br>(2.4)   | 43.0<br>(19.2)         |
| Total     | 603.7<br>(58.4) | 106.4<br>(11.6) | 1117.8<br>(125.9)      | 475.9<br>(74.6) | 85.4<br>(13.0) | 926.8<br>(195.9)       |

Note: The numbers in parentheses are estimates of the sampling errors. Where none is recorded the sample is too small to estimate a sampling error.

Figure TR29  
Annual time spent walking  
Million hours

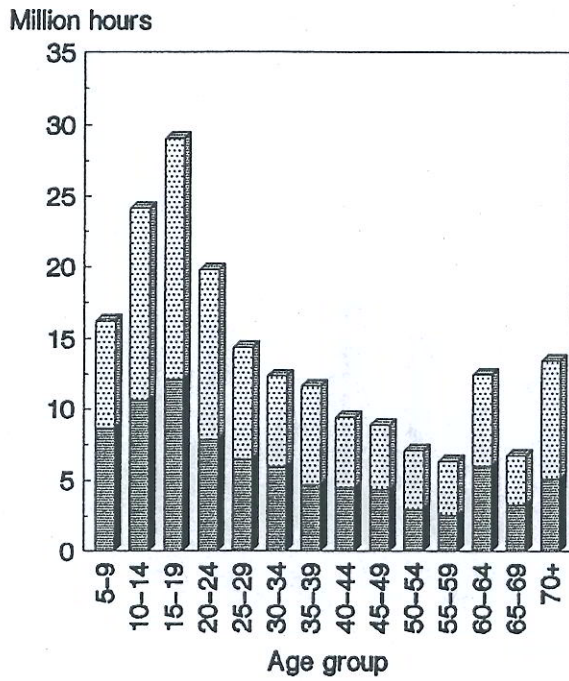


Figure TR30  
Annual number of road crossings  
Million crossings

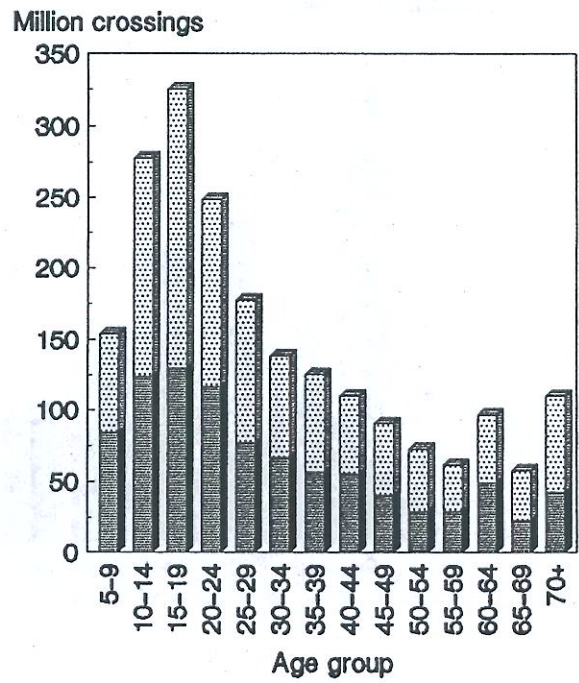


Figure TR31  
Number of pedestrians injured  
in reported injury accidents

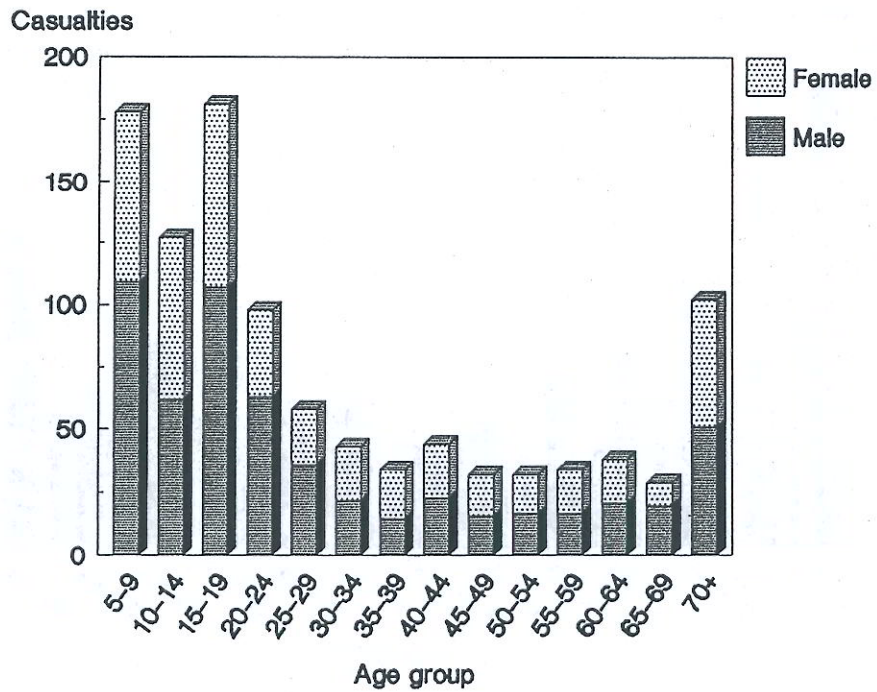


Figure TR32  
 Number of pedestrians injured in reported injury accidents per million hours travelled

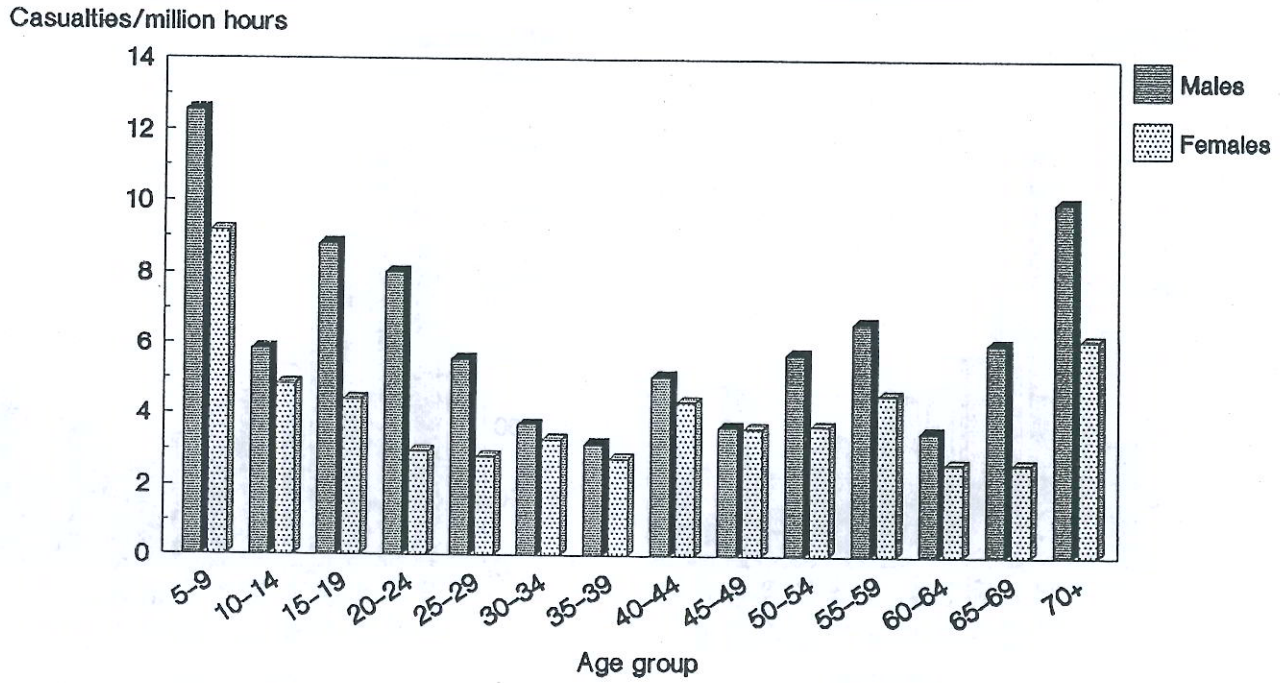
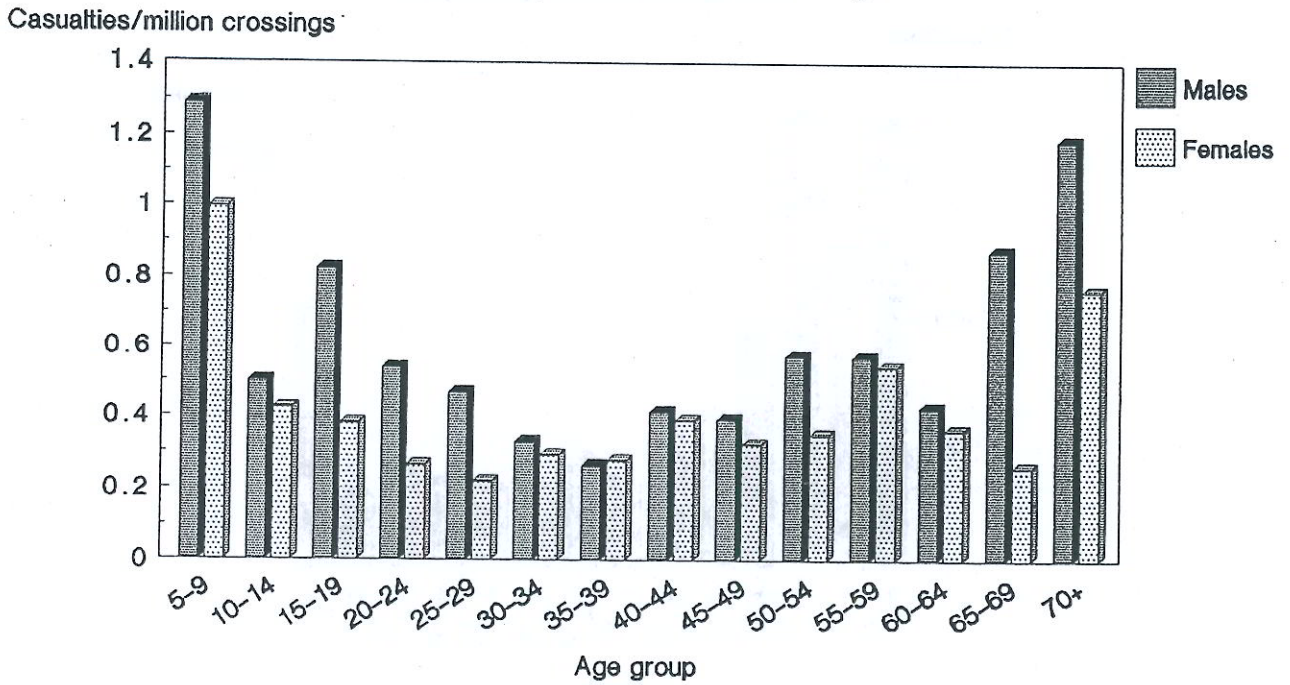


Figure TR33  
 Number of pedestrians injured in reported injury accidents per million road crossings



## 7. Comparison of reported and digitised distances

Travel survey respondents were asked to record their estimates of trip distance. In this section these **reported** distances are compared to the **digitised** distances which were obtained by measuring the distance on a map.

Table D1 shows the national, annual estimates of travel distance from those trips which had a reported distance (about 90% of driver trips).

Figures D1 to D5 compare the reported and digitised distances by trip length. The data is divided into groups with equal numbers of trips. For each group the 10 percentile, median and 90 percentile reported distances are plotted against the median digitised distance for the group.

**Table D1: Comparison of reported and digitised distances.**  
(Distance estimates only from trips where the respondent reported a trip distance estimate.)

|  | Reported distance<br>(100 million km) | Digitised distance<br>(100 million km) | Percent<br>difference |
|--|---------------------------------------|--|-----------------------|
| <b>Motor vehicle drivers</b>                     |                                       |  |                       |
| Male   | 134.1                                 | 125.8                                  | 6.6%                  |
| Female   | 54.9                                  | 50.3                                   | 9.0%                  |
| Total  | 189.0                                 | 176.2                                  | 7.3%                  |
| <b>Drivers - light 4 wheeled<br/>vehicles</b>    |                                       |  |                       |
| Male   | 120.0                                 | 112.9                                  | 6.3%                  |
| Female   | 54.2                                  | 49.7                                   | 9.1%                  |
| Total  | 174.2                                 | 162.6                                  | 7.0%                  |
| <b>Passengers - light 4<br/>wheeled vehicles</b> |                                       |  |                       |
| Male   | 36.8                                  | 34.6                                   | 6.4%                  |
| Female   | 50.1                                  | 46.9                                   | 6.9%                  |
| Total  | 86.9                                  | 81.5                                   | 6.7%                  |
| <b>Motorcyclists</b>                             | 2.87                                  | 2.53                                   | 13.4%                 |
| <b>Cyclists</b>                                  | 3.4                                   | 3.0                                    | 11.3%                 |

**Note:** These digitised distances should not be compared to annual distance estimates elsewhere in the report as this table includes only those trips for which there was a reported distance (about 90% of driver trips).

Figure D1  
 Comparison of reported and digitised distances  
 for drivers of light 4 wheeled vehicles

Median Reported Distance (km)

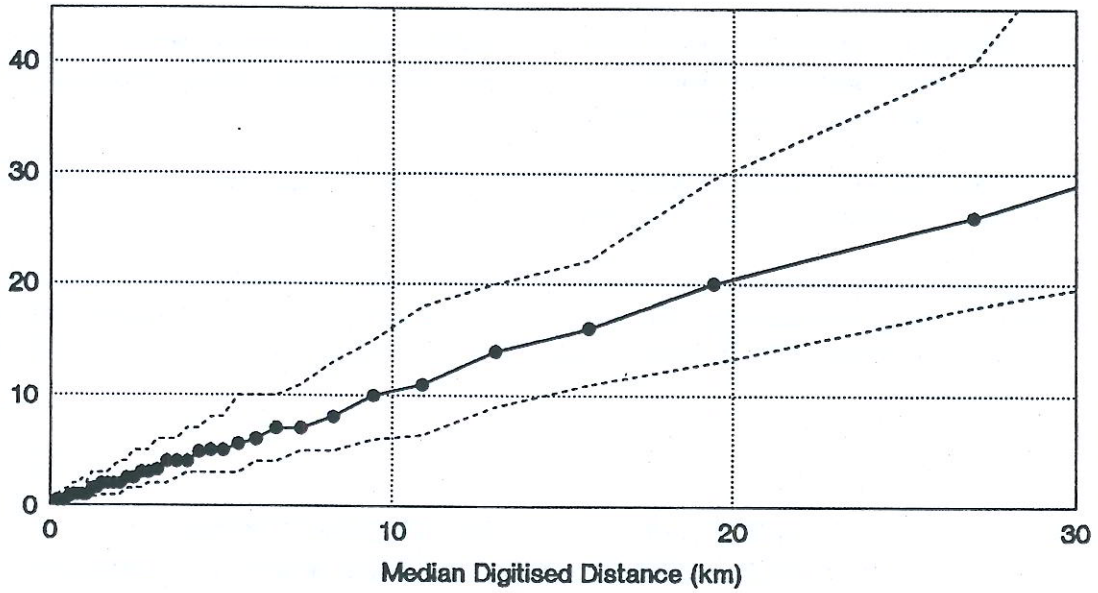
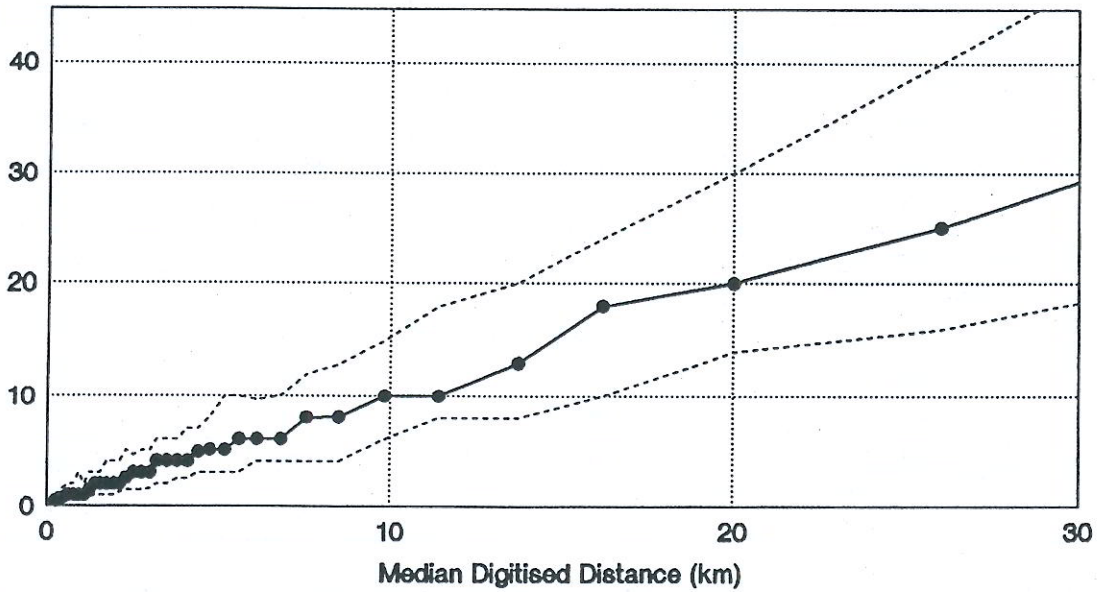


Figure D2  
 Comparison of reported and digitised distances  
 for passengers of light 4 wheeled vehicles

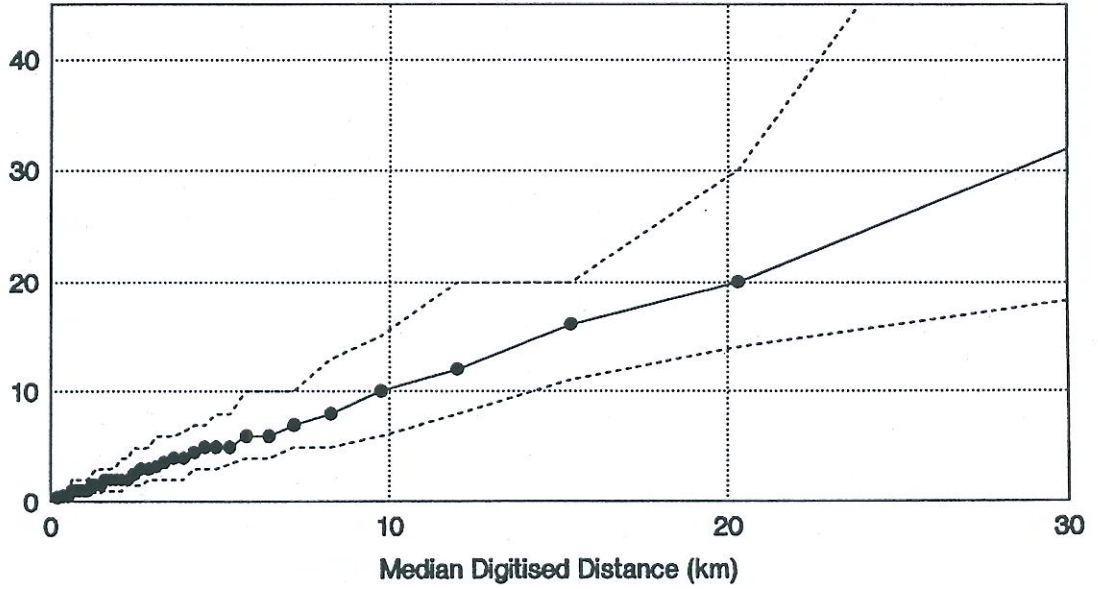
Median Reported Distance (km)





**Figure D3**  
**Comparison of reported and digitised distance**  
**for female drivers (light 4 wheeled vehicles).**

Median Reported Distance (km)



**Figure D4**  
**Comparison of reported and digitised distance**  
**for male drivers (light 4 wheeled vehicles)**

Median Reported Distance (km)

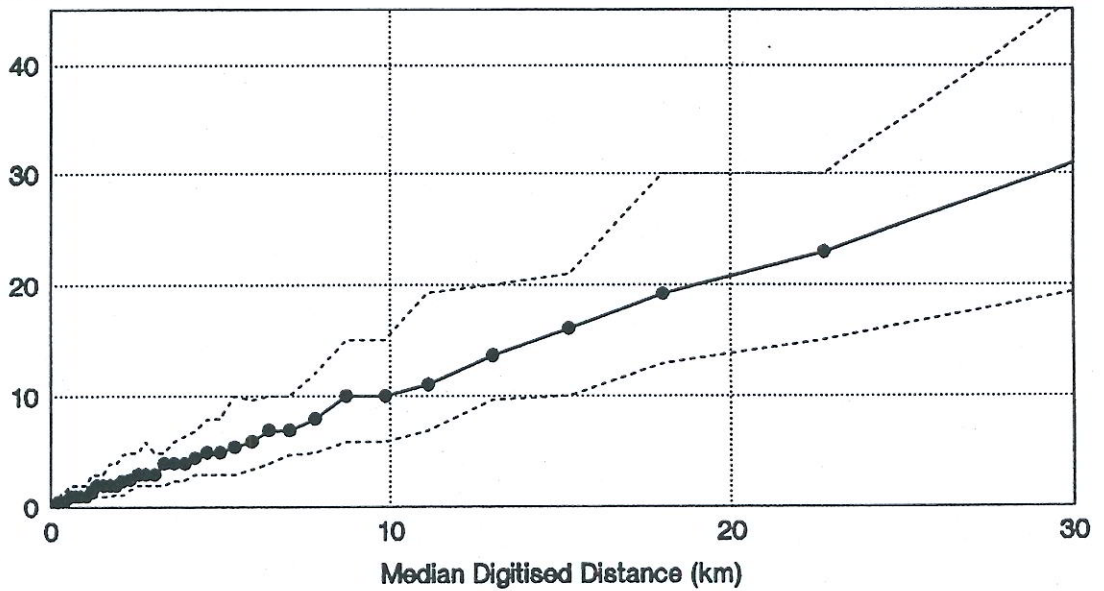
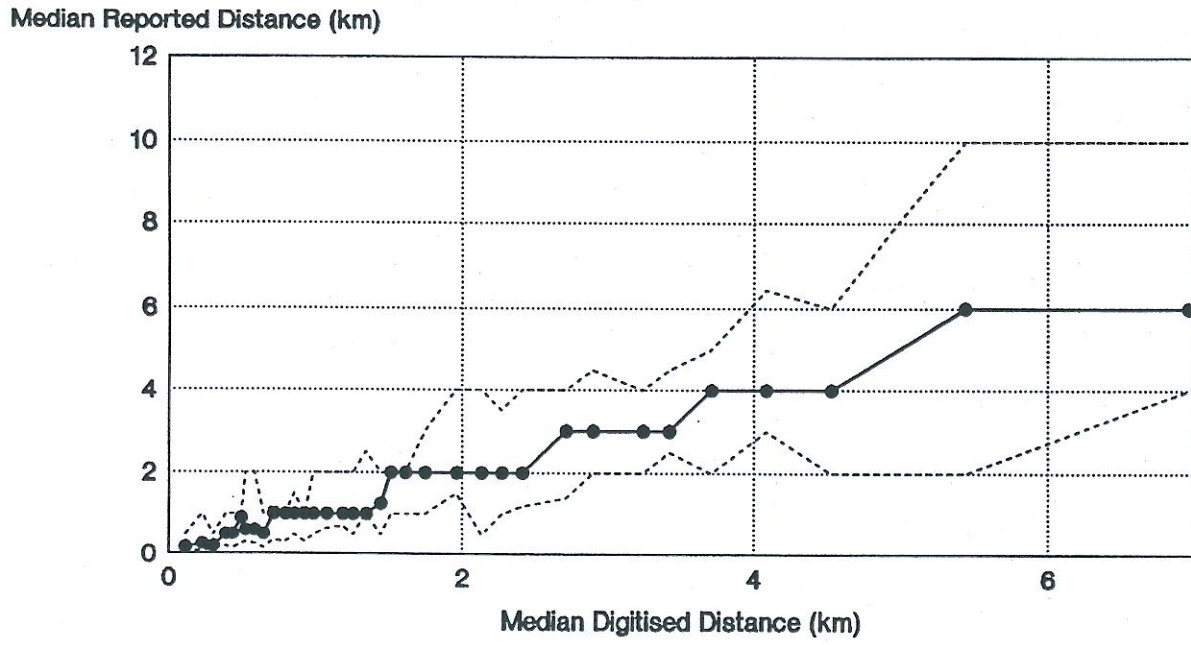


Figure D5  
Comparison of reported and digitised distances  
for cyclists



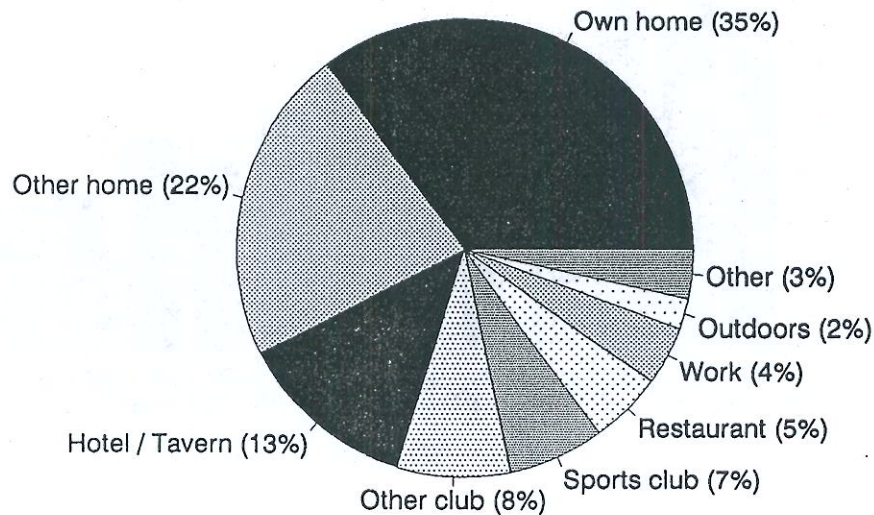
## 8. Alcohol

Survey respondents were asked to record all occasions that they consumed any alcohol during the 2 days of the survey. The duration of each session was recorded, but no estimate was made of the amount of alcohol consumed.

**Table AL1: Drinking sessions by venue (Daily average).**

| Venue                    | Sessions in the survey | National daily average |                   |                   |
|--------------------------|------------------------|------------------------|-------------------|-------------------|
|                          |                        | Sessions (Thousands)   | Hours (Thousands) | Hours per session |
| Own home                 | 1367                   | 270                    | 350               | 1.3               |
| Other home               | 442                    | 88                     | 219               | 2.5               |
| Hotel / Tavern           | 343                    | 64                     | 126               | 2.0               |
| Sports club              | 144                    | 30                     | 68                | 2.2               |
| Other club               | 147                    | 30                     | 79                | 2.6               |
| Restaurant               | 135                    | 24                     | 51                | 2.1               |
| Work                     | 147                    | 30                     | 42                | 1.4               |
| Sports event or outdoors | 43                     | 9                      | 21                | 2.4               |
| Other                    | 67                     | 13                     | 33                | 2.5               |
| <b>Total</b>             | <b>2835</b>            | <b>558</b>             | <b>989</b>        | <b>1.8</b>        |

Figure AL1: Percentage of time spent in drinking sessions by venue



**Table AL2: Drinking sessions by age and sex  
(National daily average)**

| Age group    | Male                    |                      | Female                  |                      |
|--------------|-------------------------|----------------------|-------------------------|----------------------|
|              | Sessions<br>(Thousands) | Hours<br>(Thousands) | Sessions<br>(Thousands) | Hours<br>(Thousands) |
| 15-19        | 12                      | 29                   | 10                      | 24                   |
| 20-24        | 47                      | 109                  | 23                      | 54                   |
| 25-29        | 43                      | 96                   | 23                      | 51                   |
| 30-34        | 44                      | 86                   | 20                      | 42                   |
| 35-39        | 38                      | 69                   | 20                      | 38                   |
| 40-44        | 40                      | 75                   | 28                      | 41                   |
| 45-49        | 39                      | 70                   | 21                      | 29                   |
| 50-54        | 25                      | 33                   | 12                      | 20                   |
| 55-59        | 24                      | 30                   | 11                      | 10                   |
| 60-64        | 19                      | 28                   | 9                       | 9                    |
| 65-69        | 18                      | 18                   | 5                       | 3                    |
| 70+          | 15                      | 15                   | 11                      | 9                    |
| <b>Total</b> | <b>365</b>              | <b>660</b>           | <b>193</b>              | <b>329</b>           |

**Figure AL2  
Average time per drinking session**

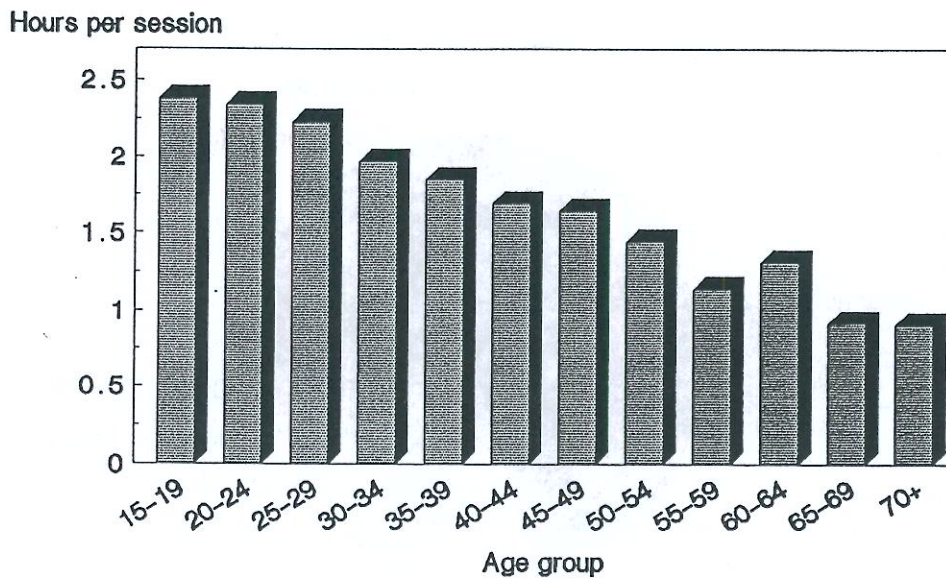


Figure AL3  
Average time spent in drinking sessions per person per week

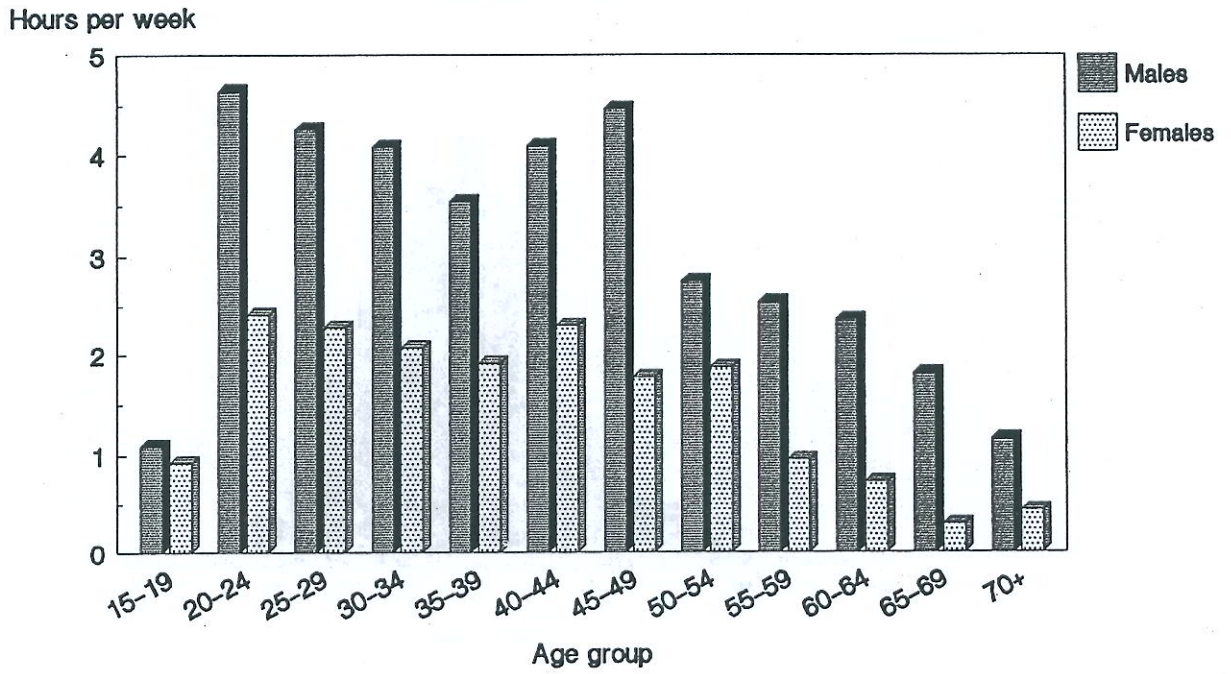


Figure AL4  
Percentage of drinking session time by day of week

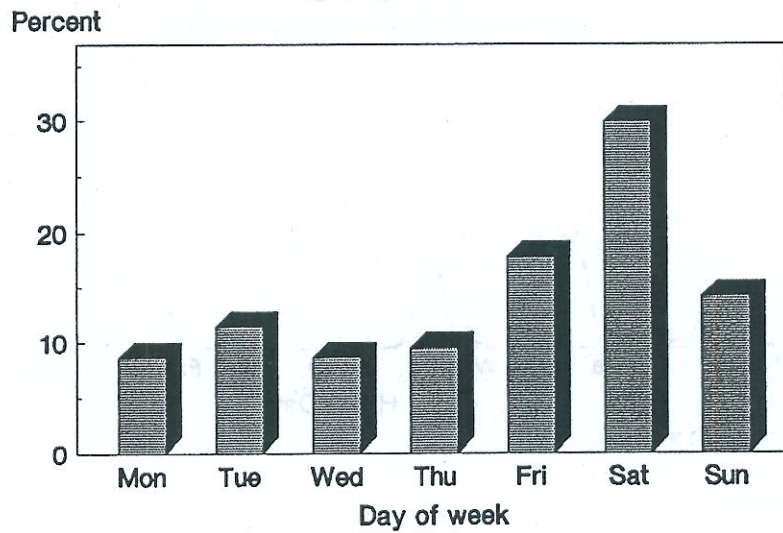


Figure AL5  
 Percentage of drinking time by hour of day  
 (6:00am to 5:59am)

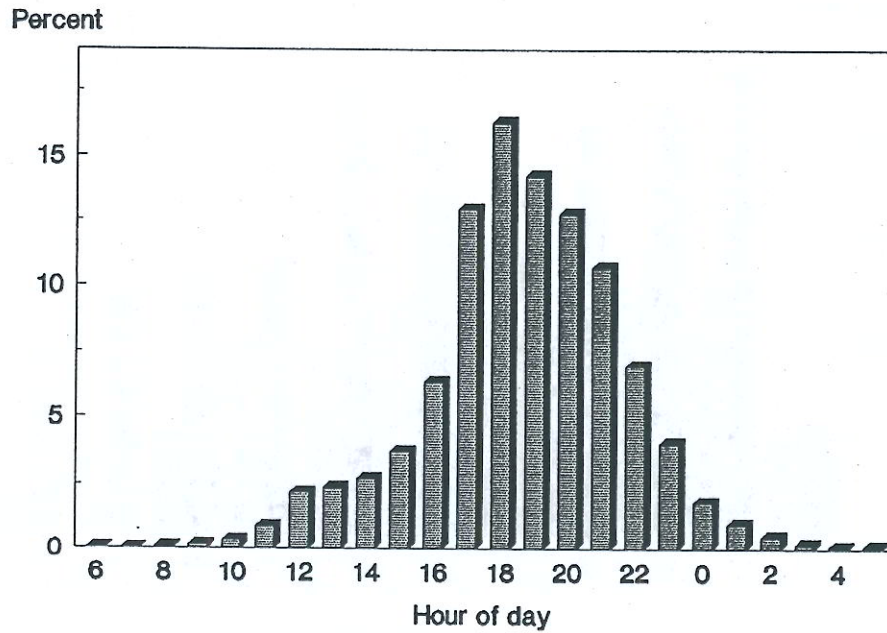
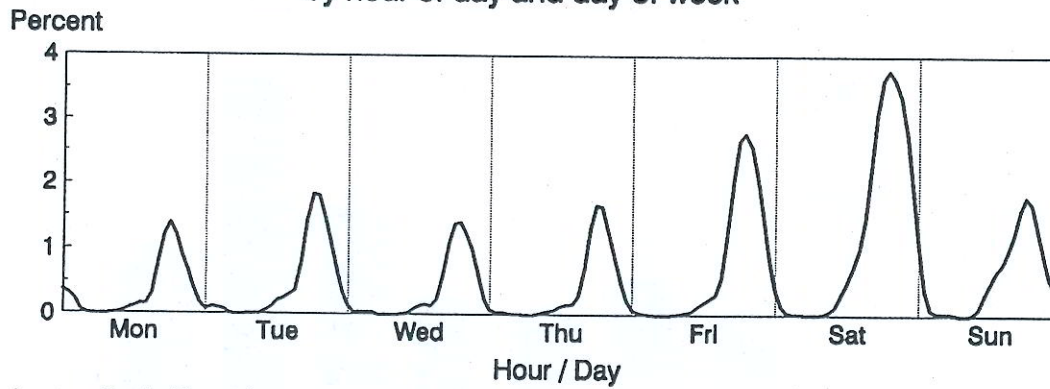


Figure AL6  
 Percentage of time spent in drinking sessions  
 by hour of day and day of week



The data is smoothed with a 3 hour moving average.  
 Vertical lines at midnight.

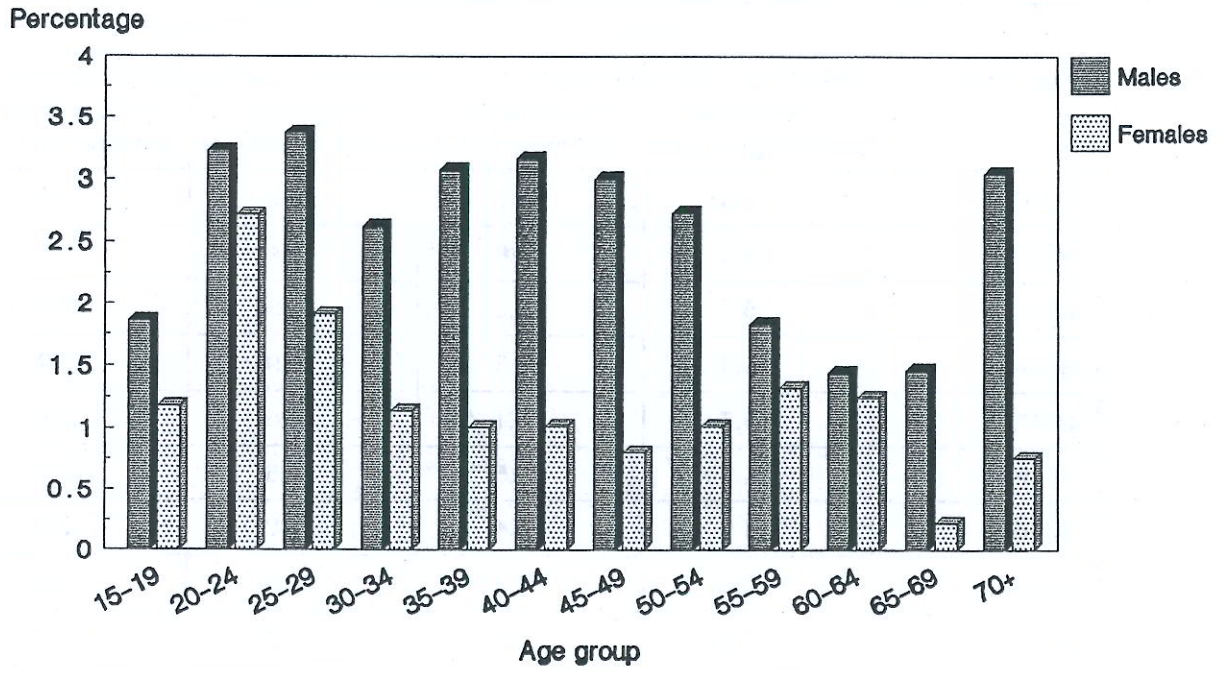
**Table AL3: Driver trips after drinking sessions by age and sex  
(National annual total)**

| Age group    | Male   |   | Female   |   |
|--------------|--|---|--|---|
|              | Million trips within 1 hour after a drinking session | Million trips within 4 hours after a drinking session | Million trips within 1 hour after a drinking session | Million trips within 4 hours after a drinking session |
| 15-19        | 1.3  | 2.1   | 0.5  | 1.1   |
| 20-24        | 5.8  | 8.8   | 2.4  | 3.7   |
| 25-29        | 5.7  | 8.2   | 2.2  | 3.9   |
| 30-34        | 5.0  | 7.8   | 1.9  | 2.9   |
| 35-39        | 5.7  | 9.1   | 1.5  | 2.8   |
| 40-44        | 4.9  | 8.5   | 1.5  | 2.2   |
| 45-49        | 4.6  | 6.4   | 0.8  | 2.0   |
| 50-54        | 2.9  | 4.8   | 0.6  | 1.2   |
| 55-59        | 1.6  | 2.2   | 0.6  | 0.9   |
| 60-64        | 1.4  | 2.1   | 0.5  | 1.3   |
| 65-69        | 1.0  | 2.1   | 0.04   | 0.13  |
| 70+          | 1.7  | 2.2   | 0.3  | 0.8   |
| <b>Total</b> | <b>41.6</b>  | <b>64.3</b>   | <b>12.9</b>  | <b>23.0</b>   |

Notes: The fact that someone drove within a certain time of a drinking session does not mean that he or she was over the legal limit.

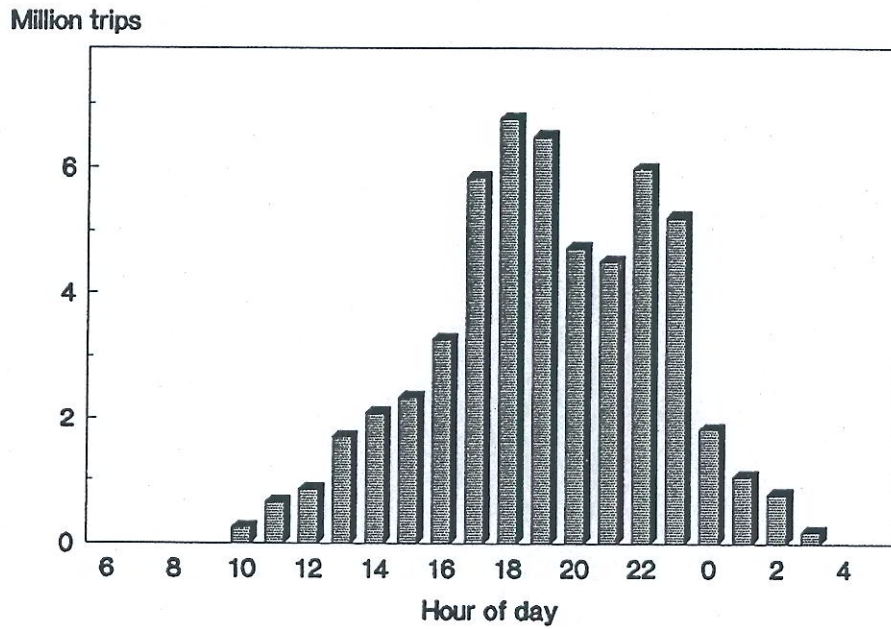
2.2% and 3.4% of all driver trips were within 1 hour or 4 hours respectively of a drinking session. For males the percentages are 2.7% and 4.2% and for female drivers 1.3% and 2.3% respectively.

Figure AL7  
Percentage of driver trips that were within 1  
hour after a drinking session

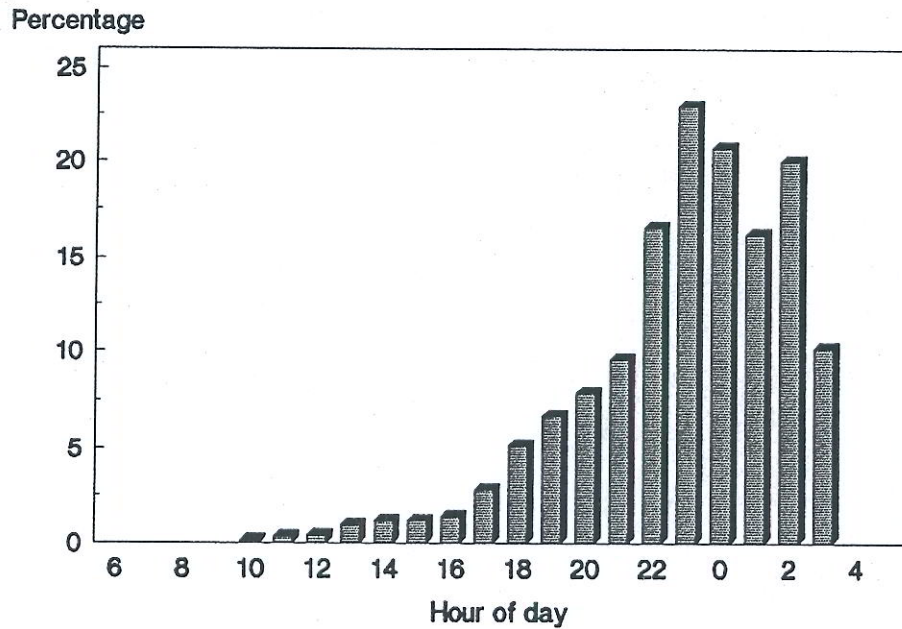




**Figure AL8**  
**Million driver trips within 1 hour after a drinking session, by hour of day.**



**Figure AL9**  
**Percentage of driver trips within 1 hour after a drinking session, by hour of day.**



The lower graph shows the percentage of all trips that began in the hour, that had their beginning within one hour of the end of the drivers last drinking session.



## 9. Travel Survey - TAR accident matching

### Accident information in the Travel Survey

The respondents were asked if they had been involved in travel accidents of any kind in the two year period prior to the survey. If they had, the details collected, where they could be remembered, included number of accidents, date, day of week, time of day, location, injury severity, whether a driver/passenger of a motor vehicle / bike / bicycle / walking / not there, if one of the current household vehicles was involved, how many cars / vans / trucks / motor bikes / bicycles / pedestrians / other objects were involved, the first two letters of the number plate of any of the vehicles, accident description (e.g. one vehicle hitting a parked vehicle / head on / etc.), the speed zone (less than 70km/h, greater than 70km/h, car park / not relevant), whether the accident was reported and estimated total vehicle damage cost.

### Methodology

TAR data for the period June 1987 - June 1990 was downloaded into separate datasets for each year and region and sorted into date time order. The TAR regions are shown in figure 1. For each travel survey accident the appropriate year and region dataset was selected by using the date of the accident and matching the area units to urban areas to regions where possible, and sample numbers to regions directly for rural areas.

Where the information was given, the accidents were then matched on month, day and +/- one hour, also +12 hours +/- one hour to catch 10 p.m. accidents entered as 10.00 in the travel survey data.

Accidents where the only information available on the day of the week was whether they occurred at the weekend or on a weekday, were matched on month and time +/- one hour. Where the given date and the given day of the week were inconsistent, the day of the week nearest to the date given was also matched.

Address text was then matched with accident road and side road TAR names for accidents in the same month.

Possible TAR matches for each travel survey accident were printed out; the lists were then manually searched and all relevant variables compared to find the correct matching accident.

This was done separately for each of fatal, serious, and minor injury accidents.

### Success of Matching

The degree of successful matching is shown in table M1.

**Table M1: Matching success by accident severity**

|              | Fatal | Serious | Minor | Non-Injury | Unknown | Total |
|--------------|-------|---------|-------|------------|---------|-------|
| Found        | 6     | 40      | 5     | 28         | -       | 79    |
| Too vague    | -     | 10      | 14    | 62         | 25      | 111   |
| Not found    | 2     | 53      | 51    | 154        | 3       | 263   |
| Not reported | -     | 43      | 206   | 853        | 20      | 1122  |
| Total        | 8     | 146     | 276   | 1097       | 48      | 1575  |

**Table M3: Found/Claimed Reported percentages by accident severity:  
Urban and Rural**

|              |         |                      | Fatal | Serious | Minor | Total | %Found |
|--------------|---------|----------------------|-------|---------|-------|-------|--------|
| Auckland     | Urban   | Found                | 1     | 12      | 4     | 17    |        |
|              |         | Claimed Reported     | 1     | 24      | 24    | 49    | 34.7   |
|              |         | All injury accidents | 1     | 40      | 86    | 127   | 13.4   |
|              | Rural   | Found                | 3     | 7       | -     | 10    |        |
|              |         | Claimed Reported     | 4     | 19      | 6     | 29    | 34.5   |
|              |         | All injury accidents | 4     | 24      | 12    | 40    | 25.0   |
|              | Unknown | Claimed Reported     |       | 10      | 5     | 15    |        |
|              |         | All injury accidents |       | 5       | 3     | 8     |        |
|              |         |                      |       |         |       |       |        |
| Wellington   | Urban   | Found                | -     | 6       | 1     | 7     |        |
|              |         | Claimed Reported     | -     | 16      | 7     | 23    | 30.4   |
|              |         | All injury accidents | -     | 25      | 40    | 65    | 10.8   |
|              | Rural   | Found                | 1     | 3       | -     | 4     |        |
|              |         | Claimed Reported     | 1     | 7       | 3     | 11    | 36.4   |
|              |         | All injury accidents | 1     | 7       | 12    | 20    | 20.0   |
|              | Unknown | Claimed Reported     |       | 2       | 5     | 7     |        |
|              |         | All injury accidents |       | 2       | 2     | 4     |        |
|              |         |                      |       |         |       |       |        |
| Christchurch | Urban   | Found                | -     | 10      | -     | 10    |        |
|              |         | Claimed Reported     | 1     | 18      | 14    | 33    | 30.3   |
|              |         | All injury accidents | 1     | 34      | 100   | 135   | 7.4    |
|              | Rural   | Found                | 1     | 2       | -     | 3     |        |
|              |         | Claimed Reported     | 1     | 7       | 2     | 10    | 30.0   |
|              |         | All injury accidents | 1     | 9       | 18    | 28    | 10.7   |
|              | Unknown | Claimed Reported     |       |         | 4     | 4     |        |
|              |         | All injury accidents |       |         | 3     | 3     |        |
|              |         |                      |       |         |       |       |        |
| N.Z. Total   | Urban   | Found                | 1     | 28      | 5     | 34    |        |
|              |         | Claimed Reported     | 2     | 58      | 45    | 105   | 32.4   |
|              |         | All injury accidents | 2     | 99      | 226   | 327   | 10.4   |
|              | Rural   | Found                | 5     | 12      | -     | 17    |        |
|              |         | Claimed Reported     | 6     | 33      | 11    | 50    | 34.0   |
|              |         | All injury accidents | 6     | 40      | 42    | 88    | 19.3   |
|              | Unknown | Claimed Reported     |       | 12      | 14    | 26    |        |
|              |         | All injury accidents |       | 7       | 8     | 15    |        |
|              |         |                      |       |         |       |       |        |

### Number of Matching variables

It is possible that some of the travel survey accidents that could not be matched are in fact in the TAR system. But because people's memories are not perfect, some of the details given in the travel survey may be wrong so they cannot be matched. Even for fatal accidents there was one reported that was found to have occurred in the previous year to that stated, outside the time frame for survey accidents, so it was excluded from the tables. More effort was put into searching for the remaining unmatched fatal accidents. Note that the names of people involved were not available as a match variable. Mainly for this reason, it can be very difficult to confirm matches in doubtful cases, and if we start changing the given details too much and find more matches it can be a matter of speculation whether or not any new matches may be correct. However, the logic in the matching program has been designed to allow some flexibility in the matching process, and the final decision on whether or not an accident matches has not been left to the computer.

An analysis of the number of variables matched yields the results in table M4.

Thirteen matched variables represents a perfect match in every variable down to the exact minute the accident occurred. A maximum of nine TAR variables were available for matching non-injury accidents. The numbers near the bottom of the table are starting to represent doubtful matches.

**Table M4: Number of matched variables by accident severity.**

| Number of matched variables | Fatal    | Serious   | Minor    | Non-Injury |
|-----------------------------|----------|-----------|----------|------------|
| 13                          | -        | 1         | -        |            |
| 12                          | -        | 2         | -        |            |
| 11                          | 1        | 2         | 2        |            |
| 10                          | 1        | 10        | -        |            |
| 9                           | 2        | 5         | 1        | 2          |
| 8                           | 2        | 7         | -        | 3          |
| 7                           | -        | 5         | -        | 12         |
| 6                           | -        | 5         | 1        | 6          |
| 5                           | -        | 2         | 1        | 4          |
| 4                           | -        | 1         | -        | 1          |
| <b>Total</b>                | <b>6</b> | <b>40</b> | <b>5</b> | <b>28</b>  |

**Accident severity and cost of vehicle damage by accident type.**

Tables M5 and M6 give a breakdown of accident type by accident severity and cost of vehicle damage.

**Table M5: Accident type by accident severity**

| Accident Severity | None        |           | Minor      |          | Serious    |           | Fatal    |          |
|-------------------|-------------|-----------|------------|----------|------------|-----------|----------|----------|
|                   | Total       | Matched   | Total      | Matched  | Total      | Matched   | Total    | Matched  |
| Pedestrian        | 6           | .         | 19         | .        | 16         | 3         | .        | .        |
| Push Cycle        | 76          | 1         | 128        | .        | 30         | 4         | .        | .        |
| Motor Cycle       | 30          | .         | 42         | .        | 25         | 4         | 1        | 1        |
| Hit at an angle   | 254         | 10        | 52         | 3        | 37         | 16        | 4        | 4        |
| Head on           | 17          | 1         | 2          | 1        | 9          | 4         | 2        | 1        |
| Rear end          | 244         | 7         | 22         | .        | 14         | 6         | 1        | .        |
| Hit object        | 329         | 9         | 36         | .        | 17         | 2         | .        | .        |
| Lost control      | 79          | .         | 42         | .        | 16         | 3         | .        | .        |
| Other             | 141         | 1         | 69         | 1        | 36         | 9         | 1        | 1        |
| <b>Total</b>      | <b>1064</b> | <b>28</b> | <b>223</b> | <b>5</b> | <b>129</b> | <b>40</b> | <b>8</b> | <b>6</b> |

**Table M6: Accident type by accident cost**

| Damage Cost     | 0          |          | <= \$1,000 |           | \$1,000 - \$5,000 |           | > \$5,000  |           |
|-----------------|------------|----------|------------|-----------|-------------------|-----------|------------|-----------|
|                 | Total      | Matched  | Total      | Matched   | Total             | Matched   | Total      | Matched   |
| Pedestrian      | 26         | 1        | 9          | 2         | 3                 | .         | .          | .         |
| Push Cycle      | 137        | .        | 77         | 2         | 8                 | 3         | .          | .         |
| Motor Cycle     | 28         | 1        | 43         | .         | 20                | 3         | 9          | 1         |
| Hit at an angle | 20         | .        | 124        | 2         | 141               | 11        | 67         | 20        |
| Head on         | .          | .        | 4          | .         | 13                | 6         | 12         | 1         |
| Rear end        | 21         | .        | 140        | 2         | 96                | 6         | 30         | 5         |
| Hit object      | 51         | .        | 240        | 3         | 77                | 4         | 18         | 4         |
| Lost control    | 44         | 1        | 47         | .         | 28                | .         | 19         | 2         |
| Other           | 86         | 2        | 119        | 5         | 32                | 3         | 6          | 2         |
| <b>Total</b>    | <b>222</b> | <b>3</b> | <b>674</b> | <b>12</b> | <b>387</b>        | <b>30</b> | <b>152</b> | <b>34</b> |

**Tables from the NRB Economic Appraisal Manual**

Tables M7 to M10 are in the same format as Tables A6-3(A) and A6-3(B) in the NRB Economic Appraisal Manual (TR9). However, because the ratios were produced using very small numbers of matched accidents (32 out of the 54 ratios had denominators of 5 or less) they are not reliable indicators of the true ratios of all accidents in New Zealand. There are cells without numbers because there were no matched TAR accidents for those cells.

There is a big discrepancy between these reporting rates and those at present in the TR9 Manual. This could be due to factors such as possible changes in reporting rate since TR9 was written and the high rate of Travel Survey accidents claimed as reported by the respondent which could not be matched. This failure to match is connected to lack of precise location and time information from the respondents.

**Table M7: Reporting rates by accident type: Urban**

| Urban           | Ratio of travel survey injury accidents to TAR matched accidents | Ratio of travel survey non injury accidents to injury accidents | Ratio of all travel survey accidents to TAR matched accidents |
|-----------------|--|---|---|
| Pedestrian      | 10.67  | 0.16  | 12.33   |
| Push Cycle      | 33.25  | 0.52  | 41.60   |
| Motor Cycle     | 17.00  | 0.49  | 25.33   |
| Hit at an angle | 5.14   | 3.11  | 12.33   |
| Head on         | 1.40   | 2.14  | 3.67  |
| Rear end        | 7.00   | 7.25  | 21.00   |
| Hit object      | 39.00  | 7.51  | 41.50   |
| Lost control    | 12.33  | 1.05  | 25.33   |
| Other           | 12.29  | 1.23  | 24.00   |
| <b>Total</b>    | <b>7.91</b>  | <b>3.27</b>   | <b>19.15</b>  |

**Table M8: Reporting rates by accident type: Rural**

| Rural           | Ratio of travel survey injury accidents to TAR matched accidents | Ratio of travel survey non injury accidents to injury accidents | Ratio of all travel survey accidents to TAR matched accidents |
|-----------------|--|---|---|
| Pedestrian      | .  | 1.00  | .   |
| Push Cycle      | .  | 0.15  | .   |
| Motor Cycle     | 8.00   | 0.31  | 10.50   |
| Hit at an angle | 2.22   | 1.45  | 5.44  |
| Head on         | 6.00   | 0.33  | 8.00  |
| Rear end        | 4.50   | 4.22  | 23.50   |
| Hit object      | 14.00  | 2.29  | 15.33   |
| Lost control    | .  | 2.05  | .   |
| Other           | 5.33   | 2.13  | 16.67   |
| Total           | 5.25   | 2.07  | 14.33   |

**Table M9: Reporting rates by accident severity: Urban**

|                           | Ratio Travel Survey injury<br>Accidents to TAR matched<br>accidents |
|---------------------------|---|
|                           | <u>Urban</u>  |
| Fatal                     | 2.00  |
| Serious Injury            | 2.86  |
| Minor Injury - Motorcycle | .   |
| - other                   | 29.20   |

**Table M10: Reporting rates by accident severity: Rural**

|                           | Ratio Travel Survey injury<br>Accidents to TAR matched<br>accidents |
|---------------------------|---|
|                           | <u>Rural</u>  |
| Fatal                     | 1.25  |
| Serious Injury            | 3.17  |
| Minor Injury - Motorcycle | .   |
| - other                   | .   |

