# Hit and Run accidents, 1990-2002

## Prepared for Road Safety Division, Department for Transport

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# Executive Summary

It is an offence for a driver or rider to 'Hit and Run' after an accident, i.e. to leave the scene of the accident prematurely. Moreover, there must be a suspicion that many of those who commit this offence do so out of a fear of coming into contact with the police because they had been acting illegally. Consequently, Hit and Run accidents are of particular concern, and this report presents the results of a study commissioned by the Department for Transport.

The British national accident database (STATS19) records whether a driver or rider Hit and Ran following an accident, so data from 1990-2002 have been analysed to investigate the incidence and character of these accidents in recent years.

These analyses have found that Hit and Run accidents tend to be less severe than other accidents, probably because a vehicle that is capable of being driven away after an accident can only have sustained relatively light damage. These accidents occur mainly on Built-Up roads (those with a speed limit of at most 40mph): seven out of eight Hit and Run accidents occurred on these roads in 2001. Hit and Run accidents formed a constant fraction of the accident total until 1998, but this fraction has risen rapidly since then for non-fatal accidents on Built-Up roads; however, there were only slight increases on Non Built-Up roads and no increases on motorways. Hit and Run accidents formed the following proportion of accidents in 2002:

| | *Fatal accidents* | *Serious accidents* | *Slight accidents* |
|---|---|---|---|
| Built-Up roads (speed limit ≤40mph) | 8.0% | 11.3% | 14.7% |
| Non Built-Up roads (excluding motorways) | 2.7% | 4.6% | 5.8% |
| Motorways | 1.1% | 4.4% | 6.8% |
| All roads | 4.8% | 8.8% | 12.4% |

The proportion of casualties injured in Hit and Run accidents varied by road user type, with pedestrians and pedal cyclists being affected worst because they tend to be injured on Built-Up roads where these accidents are concentrated. The casualty proportions rose in line with the accident proportions after 1998, and the proportion of casualties in 2002 who were injured in Hit and Run accidents was:

| | *Killed* | *Seriously injured* | *Slightly injured* |
|---|---|---|---|
| Pedestrians | 12.9% | 15.0% | 18.8% |
| Pedal cyclists | 6.9% | 14.4% | 17.7% |
| Car drivers | 3.0% | 8.0% | 10.0% |
| Car passengers | 0.9% | 4.7% | 9.6% |
| Motorcyclists | 2.3% | 4.8% | 8.3% |
| Others | 1.7% | 4.0% | 6.9% |
| All road users | 4.5% | 8.1% | 10.9% |

The fact that Hit and Run vehicles generally sustain only light damage is likely to contribute to the relatively high proportions for pedestrians and pedal cyclists. A number of more specific factors also affect these Hit and Run proportions. There were regional differences, with the proportion being lowest in Scotland (e.g. 8.1 per cent of slight accidents between 1997-2001) and highest in the West Midlands (where the corresponding figure was 13.8 per cent). Time of day had a notable effect; for example, 8 per cent of the slight accidents occurring between 8am and noon on BU roads between 1997-2001 were Hit and Run, rising to 20 per cent between midnight and 3am. Road class is another, with the proportion being greatest on unclassified roads. By 2001, 29 per cent of the accidents that occurred between 10pm and 4am on Unclassified Built-Up roads were Hit and Run.

The proportion of casualties injured in Hit and Run accidents varied by age. The proportion peaked for serious and slight casualties in the 10-14 age group, being approximately one quarter greater than the average for all ages; the proportion then fell steadily until the age of 80. There was no consistent variation with age among fatal casualties. The proportion of casualties who were injured in Hit and Run accidents was slightly higher for men than for women.

The increasing trend for Hit and Run accidents on Built-Up roads may have implications for progress towards the national casualty reduction target in 2010, although the STATS19 accident data cannot be used to check this as they give little indication of accident causation. If the earlier proportion had continued until 2002 then there would have been fewer Hit-and-Run accidents, but would there have been any fewer accidents overall? If the increase has arisen because extra accidents have occurred then progress towards the target would have been delayed. On the other hand, the increasing trend may simply indicate a greater willingness among drivers to Run after an accident, in which case these accidents would have occurred anyway. In order to understand the implications, the causes of the increasing trend need to be investigated in greater detail than is possible with the STATS19 data.

Most of the Hit and Run drivers were driving cars. This simply reflects the large number of cars involved in accidents, and in fact van drivers were proportionately more likely to Hit and Run. 6.5 per cent of van drivers involved in accidents between 1997 and 2001 Hit and Ran compared with 5.4 per cent of car drivers. Most of these van drivers are likely to have been travelling in the course of work, so this could indicate some reluctance among professional drivers to report accidents to their employers. Young men were the group most likely to Hit and Run: making allowance for accident-involved drivers whose age or sex was not recorded, it appears that nearly 12 per cent of male drivers up to 20 years old Hit and Ran, and over 10 per cent of those aged 21-30. The percentages rose rapidly for these groups between 1997 and 2001.

Although the accident data give little indication of drivers' reasons for Hitting and Running, the involvement of alcohol is one factor that can be investigated. The report finds that Hit and Run drivers who could be breath-tested were far more likely to fail the test than other drivers.

Alcohol cannot be the only factor that influences drivers' propensity to Hit and Run, however, since there are major differences between the patterns of drink/drive and Hit and Run accidents. The former occur equally on Built-Up and Non Built-Up roads, while the latter occur mainly on Built-Up roads. Also, there are far fewer drink/drive accidents during the daytime than Hit and Run accidents, although the rates on Built-Up roads in the 10pm-4am period are similar. Finally, drink/drive accidents tend to be more severe than other accidents, while the reverse is true of Hit and Run accidents.

Another potential reason for drivers Hitting and Running is that they were unaware that an accident had occurred. The possibility that poor visibility may affect the level of Hit and Run accidents is examined in two ways, via the weather and light condition recorded by the police. Both analyses suggest that very few of these cases can be explained by poor visibility.

# 1 Introduction

A 'Hit and Run' accident is one in which one or more of the drivers or riders vehicles involved left the scene of an accident prematurely, i.e. they 'Hit and Ran'. It seems to be reasonable to suspect that many of them did so because they had been acting illegally and feared to come into contact with the police, so these accidents are of particular concern. This report presents the results of a study commissioned by the Department for Transport (DfT).

The principle source of road accident statistics in Great Britain is the information supplied to the Department for Transport by individual police forces. This is known as the STATS19 database after the report form that is used. The annual publication that presents statistics from the database (e.g. DfT, 2002) does not refer to Hit and Run accidents. Thus, there is no generally accessible source of national information about these accidents. This report presents various analyses of STATS19 data from 1990-2002 that explore their incidence and character. The analyses were completed in 2002, and the trend analyses were updated when the accident data for 2002 became available.

The basis of these analyses is the Hit and Run variable (2.24) on the STATS19 Vehicle Record. This can have three values:

0 Other

1 Hit and Run

2 Non-stop vehicle, not hit

so a Hit and Run accident is one that includes a vehicle for which a value of 1 was recorded for this variable. The instructions to the police for completing the STATS19 forms acknowledge that most information about these vehicles and drivers will be unknown, although it may become available later if – for example – the driver is pursued and caught. Hence, the database does contain personal details of some but not all of these drivers. Other details also tend to be recorded less well for these accidents, so it will be necessary to make several estimations in the course of the analyses to make allowance for missing details of Hit and Run drivers and accidents.

Section 2 examines the trends in the proportion of accidents and casualties that are Hit and Run between 1990 and 2002. Section 3 focuses on the 1997-2001 period and examines the characteristics of the drivers who Hit and Ran, of the accidents and of the people injured in these accidents. These analyses give little indication of why drivers who Hit and Run, so Section 4 examines two possible contributory factors: alcohol and poor visibility. Section 5 brings together the conclusions that can be drawn.

# 2 Trends between 1990 and 2002

In 2002, the police recorded 151 fatal Hit and Run accidents in the STATS19 database. In addition, there were many non-fatal Hit and Run accidents: 2,673 were serious (i.e. no-one was killed but at least one person was seriously injured) and 23,401 were slight (i.e. no-one was killed or seriously injured but at least one person was slightly injured). These basic numbers need to be put into context: in that year the police reported 3,125 fatal accidents, 30,521 serious accidents and 188,106 slight accidents in total. The principle means of analysing the incidence of Hit and Run accidents will be to express the number as a proportion of the total number of accidents, by severity. This highlights the circumstances under which drivers Hit and Run, so should help to understand their reasons for doing so. It also makes allowance for the underreporting that affects the STATS19 system – as well as all equivalent systems in other countries.

The speed limit is one of the main influences on the incidence of Hit and Run accidents. Built-Up (BU) roads are defined as those with limits up to 40mph, while Non Built-Up (NBU) roads have higher limits.

Figure 2.1 shows the proportion of accidents that were Hit and Run between 1990 and 2002, by road type and accident severity. In this case, motorways are analysed separately so NBU roads exclude motorways. The relatively low number of fatal accidents, especially on motorways, probably accounts for the greater variability of the fatal proportions. A number of significant points emerge:

- the proportion is least for fatal accidents and most for slight accidents, so Hit and Run accidents are less likely than other accidents to involve death or serious injury;
- the proportion has been consistently higher on BU roads than on motorways or NBU roads;
- the proportion on BU roads began to rise in 1999 for non-fatal accidents, but there has been little or no increase on motorways and NBU roads;
- the proportion for fatal accidents on BU roads has tended to rise since 1995.

The low average severity of Hit and Run accidents is probably caused by the fact that a vehicle can only sustain relatively light damage in an accident if it is to be capable of being driven away afterwards.

Certain details of the STATS19 form were revised in 1999, as summarised by an article in DETR (2000a). The Hit and Run variable 2.24 was not affected, so the increasing trend on BU roads from 1999 must be real and not an unintended consequence of this revision.

As a result of the increasing trend for Hit and Run accidents on BU roads in recent years, these accidents have become increasingly concentrated in urban areas. This is confirmed by Table 2.1, which compares their distribution by road type in 1990 and 2002. In terms of absolute numbers, the

**Table 2.1 Distribution of Hit and Run accidents by road type, 1990 and 2002**

| | *Fatal accidents* | | *Serious accidents* | | *Slight accidents* | |
|---|---|---|---|---|---|---|
| *Road type* | *1990* | *2002* | *1990* | *2002* | *1990* | *2002* |
| Motorways | 3.8% | 1.3% | 1.6% | 1.6% | 1.7% | 2.2% |
| Non Built-Up | 28% | 29% | 16% | 13% | 13% | 10% |
| Built-Up | 68% | 70% | 82% | 86% | 86% | 88% |
| N=100% | 184 | 151 | 2685 | 2673 | 16485 | 23401 |

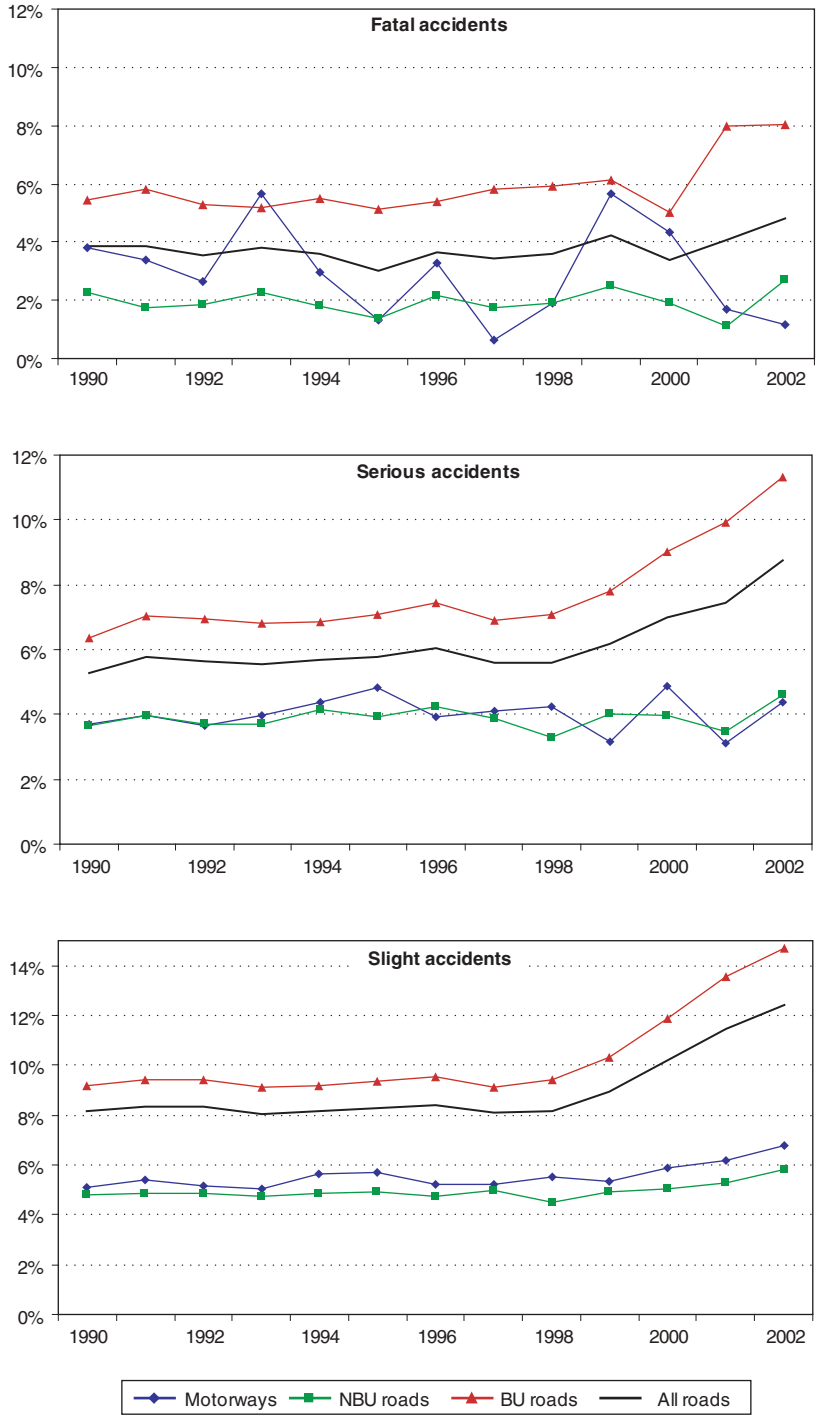


**Figure 2.1** Proportion of accidents that were Hit and Run, 1990-2002

table shows that there were slightly fewer fatal and serious Hit and Run accidents in 2002 than in 1990, but more slight accidents. The increase in slight accidents occurred mainly on Built-Up roads, where the number rose by 6383.

Figure 2.2 shows the proportion of casualties who were injured in Hit and Run accidents between 1990 and 2002, by severity; road users are divided into six types. The figure shares many of the features of Figure 2.1: in particular, the serious and slight trends began to rise in 1999, while any increase in the fatal trend has been much slower. Also, the proportion of casualties injured in Hit and Run accidents is least for fatal casualties and most for slight casualties, so casualties tend to be less severely injured in Hit and Run accidents than in other accidents. Other significant points that emerge are:

- proportionately, pedestrians and pedal cyclists suffer most in Hit and Run accidents. This is partly explained by the fact that they tend to be injured on BU roads, where these accidents are more common than on NBU roads. The fact that Hit and Run vehicles generally sustain only light damage is also likely to contribute to their relatively high proportions;
- by 2002, over one-sixth of all pedestrian and pedal cyclist casualties were injured in Hit and Run accidents (the proportions are slightly lower in fatal and serious accidents);

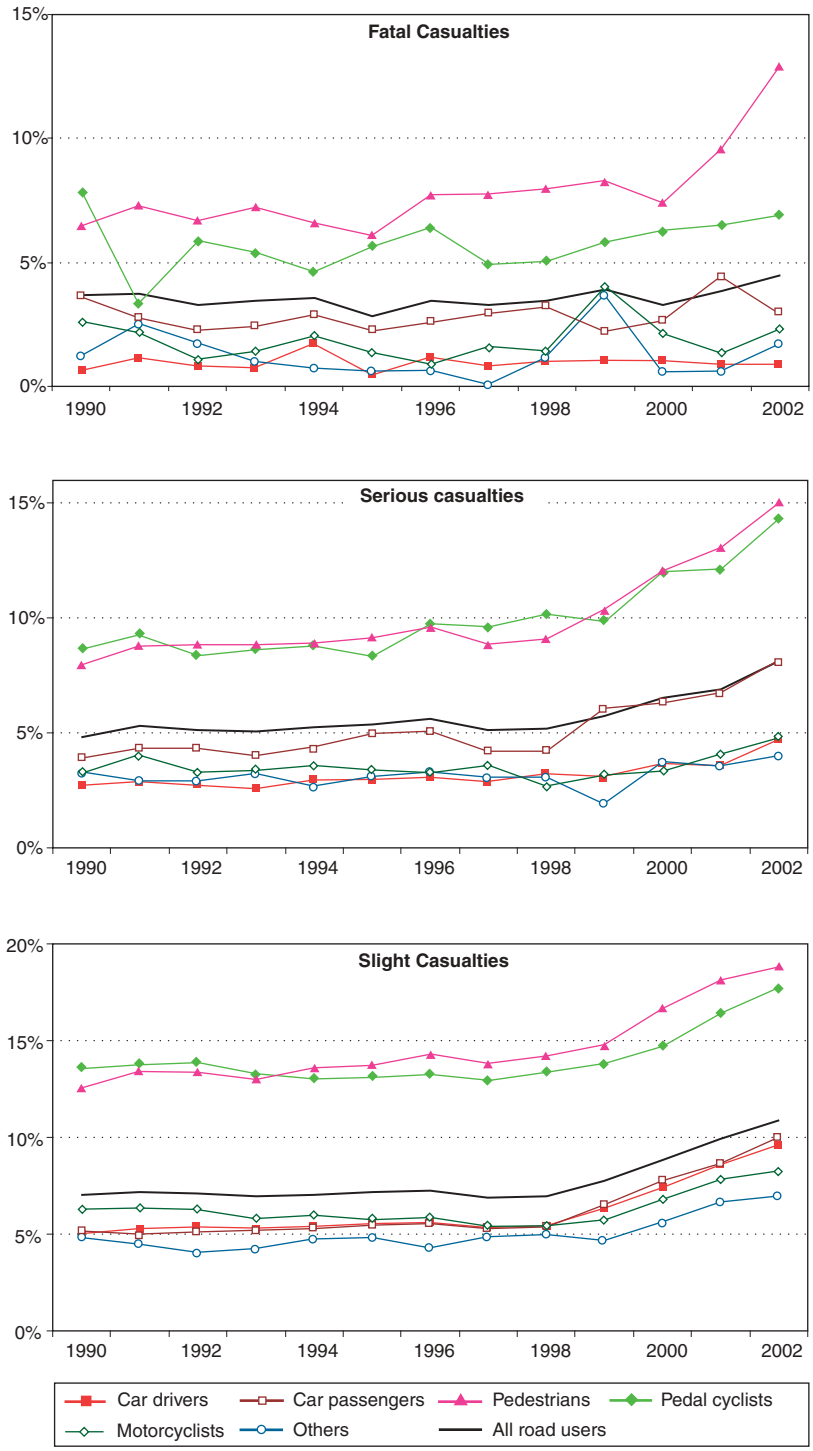


**Figure 2.2** Proportion of casualties injured in Hit and Run accidents, 1990-2002

- all road user types have been affected by the increasing trend among slight casualties since 1999;
- the proportion of pedestrians fatally injured in Hit and Run accidents has tended to increase throughout the period.

Table 2.2 compares the distribution of casualties in Hit and Run accidents by road user type in 1990 and 2002. In addition to the changing incidence of Hit and Run accidents, notable changes in the general casualty distribution have also contributed to the changes shown in the table over this period. The slight pedestrian and pedal cyclist casualty totals have fallen, so their contributions to the slight casualty total in Hit and Run accidents have fallen in spite of the rising trends shown in Figure 2.2. In terms of absolute numbers, the table shows that there were fewer fatal and serious casualties in Hit and Run accidents in 2002 than in 1990, but more slight casualties. The increase in slight casualties occurred mainly among car drivers (133%) and car passengers (79%).

These results have shown that Hit and Run accidents formed a proportion of the accident total that was broadly stable until about 1998 but has since risen. Section 3 will focus on the period from 1997 to 2001.

**Table 2.2 Distribution of casualties in Hit and Run accidents, 1990 and 2002**

| | *Killed* | | *Seriously injured* | | *Slightly injured* | |
|---|---|---|---|---|---|---|
| *Road user type* | *1990* | *2002* | *1990* | *2002* | *1990* | *2002* |
| Car drivers | 5% | 6% | 14.7% | 17.5% | 24.7% | 39.0% |
| Car passengers | 18% | 12% | 14.2% | 16.6% | 17.5% | 21.3% |
| Pedestrians | 57% | 65% | 42.9% | 40.4% | 27.8% | 19.8% |
| Pedal cyclists | 10% | 6% | 12.8% | 11.4% | 15.4% | 9.1% |
| Motorcyclists | 9% | 9% | 11.8% | 11.4% | 9.1% | 6.0% |
| Others | 2% | 2% | 3.6% | 2.8% | 5.5% | 4.8% |
| N=100% | 192 | 154 | 2933 | 2924 | 19374 | 28649 |

### 2.1 Casualty reduction target

In 2000, the Government announced a casualty reduction target for the year 2010 (DETR, 2000b). The numerical context for the new target was provided by casualty forecasts derived from analyses of casualty trends from the 1983-98 period (Broughton *et al.,* 2000), so it was unable to take account of the increase in Hit and Run accidents that began in 1999. The possible implications of this increase for the likelihood of attaining the target will now be examined.

The most optimistic interpretation of the increase is that, although drivers became more willing to drive off after accidents, their driving behaviour did not change in other respects. With this interpretation, these extra Hit and Run accidents would still have occurred even if the proportion had not increased, so the earlier casualty forecasts should still apply. A pessimistic interpretation of the increase would be that it is indicative of a wider deterioration in driver behaviour, so there would have been fewer accidents without this change and the earlier casualty forecasts need to be revised upwards. Table 2.3 shows how the casualty data in 2002 would have changed under the extreme assumption that all of the extra accidents would have been avoided if the pre-1999 proportion had been maintained. For example, if the proportion had not increased then the 2002 KSI total would have been 2.8% less than the actual figure.

**Table 2.3 Casualty reduction in 2002 if proportion of Hit and Run accidents had not increased**

| | *Car drivers* | *Car passen -gers* | *Pedes -trians* | *Pedal cyclists* | *Motor-cyclists* | *Others* | *Total* |
|---|---|---|---|---|---|---|---|
| KSI | 1.5% | 3.3% | 6.5% | 5.3% | 1.5% | 1.0% | 2.8% |
| Slight casualties | 4.4% | 4.8% | 5.7% | 5.3% | 2.7% | 2.3% | 4.1% |

*Calculations assume that 1994-98 proportions had applied in 2002.*

These results provide the upper limit to the possible implications for overall casualty numbers of the increase in Hit and Run accidents since 1999. Research into the underlying causes of the increase is needed in order to assess the implications more realistically. The accident statistics record what happened but not why, so are unable to provide any further information.

# 3 Analyses for 1997-2001

The analyses reported below group together data from the five years, to reduce the effects of chance. The possibility of trends within the period has also been examined.

### 3.1 Hit and Run vehicles

Table 3.1 presents the distribution of Hit and Run vehicles in this period. The annual distributions varied very little over this period, so the results also apply to the individual years. The five main vehicle categories include most of the STATS19 types, so the 'other' category presumably includes many vehicles that the police could not classify from the description available to them.

The clear majority of Hit and Run vehicles were cars, although on NBU roads more than one-tenth were lorries (presumably few if any in the 'bus, coach or lorry' category were buses or coaches). This may only reflect the general involvement of vehicle types in accidents, so Table 3.2 presents the proportion of accident-involved vehicles that Hit and Ran. Vans have the highest rate of Hitting and Running, followed closely by cars, and the involvement of lorries is also noteworthy. Most of these vans and lorries are likely to have been travelling in the course of work, so these relatively high proportions could arise from some reluctance among professional drivers to report accidents to their employers.

### 3.2 Hit and Run drivers

Age or sex are unknown for just under one half of the drivers who Hit and Ran in fatal accidents, rising to two thirds in slight accidents. This is illustrated by Figure 3.1, which shows the distribution of these details for serious accidents on BU and NBU roads in the 1997 – 2001 period. It demonstrates the importance of making allowance for these unknown data in the analysis, for otherwise the number of these drivers would be underestimated considerably.

The distributions in Figure 3.1 take no account of the total number of drivers involved in accidents. This is done in Figure 3.2, which distributes cases where either age or sex are unknown among the other groups *pro rata.* This is the natural method for taking account of these unknown data, but it is important to realise that the preparation of these graphs involved considerable estimation. Figure 3.2 shows that the incidence of Hitting and Running was greatest among young men driving on BU roads, and fell rapidly with age. Rates among women were lower, and varied less with age.

These rates are five-year averages. The year-on-year changes have been relatively steady, and Table 3.3 presents the average annual increase for each group of drivers (there are too few fatal accidents to present results for these). For example, Figure 3.2 shows that 11.5 per cent of men up to 20 years old Hit and Ran in slight accidents in BU areas between 1997 and 2001. In fact, this rate rose by an average of 1.7 per cent per year, and reached an estimated 15.1 per cent in 2001.

These results cannot be precise, in view of the large proportion of Hit and Run drivers whose sex or age is

**Table 3.1 Distribution of Hit and Run vehicles, 1997 - 2001**

| | *BU roads* | | | *NBU roads (inc. motorways)* | | | *All roads* | | |
|---|---|---|---|---|---|---|---|---|---|
| | *Fatal* | *Serious* | *Slight* | *Fatal* | *Serious* | *Slight* | *Fatal* | *Serious* | *Slight* |
| Car | 85% | 83% | 84% | 69% | 75% | 76% | 80% | 82% | 83% |
| Van | 7% | 5% | 6% | 7% | 6% | 7% | 7% | 5% | 6% |
| Motorcycle | 3% | 5% | 3% | 3% | 4% | 2% | 3% | 5% | 3% |
| Pedal cycle | 0% | 2% | 2% | 2% | 1% | 1% | 1% | 2% | 2% |
| Bus, coach or lorry | 3% | 4% | 4% | 13% | 11% | 11% | 6% | 5% | 5% |
| Other | 2% | 2% | 1% | 6% | 3% | 3% | 3% | 2% | 2% |
| N=100% | 424 | 9124 | 83397 | 183 | 1784 | 13260 | 607 | 10908 | 96657 |

**Table 3.2 Proportion of vehicles that Hit and Ran, 1997 - 2001**

| | *BU roads* | | | *NBU roads (inc. motorways)* | | | *All roads* | | |
|---|---|---|---|---|---|---|---|---|---|
| | *Fatal* | *Serious* | *Slight* | *Fatal* | *Serious* | *Slight* | *Fatal* | *Serious* | *Slight* |
| Car | 5.6% | 6.1% | 6.8% | 1.1% | 1.8% | 2.5% | 2.7% | 4.5% | 5.6% |
| Van | 5.9% | 6.0% | 8.5% | 1.4% | 2.0% | 3.6% | 3.0% | 4.3% | 6.9% |
| Motorcycle | 1.1% | 2.2% | 2.9% | 0.3% | 0.6% | 1.5% | 0.6% | 1.6% | 2.6% |
| Pedal cycle | 0.2% | 1.2% | 1.6% | 0.8% | 0.5% | 1.4% | 0.5% | 1.1% | 1.6% |
| Bus,coach or lorry | 0.8% | 3.3% | 4.6% | 0.9% | 2.1% | 3.9% | 0.9% | 2.8% | 4.4% |
| Other | 5.5% | 8.4% | 10.5% | 3.7% | 3.1% | 5.6% | 4.3% | 5.7% | 8.6% |
| All | 4.2% | 5.2% | 6.2% | 1.0% | 1.7% | 2.7% | 2.2% | 3.8% | 5.2% |

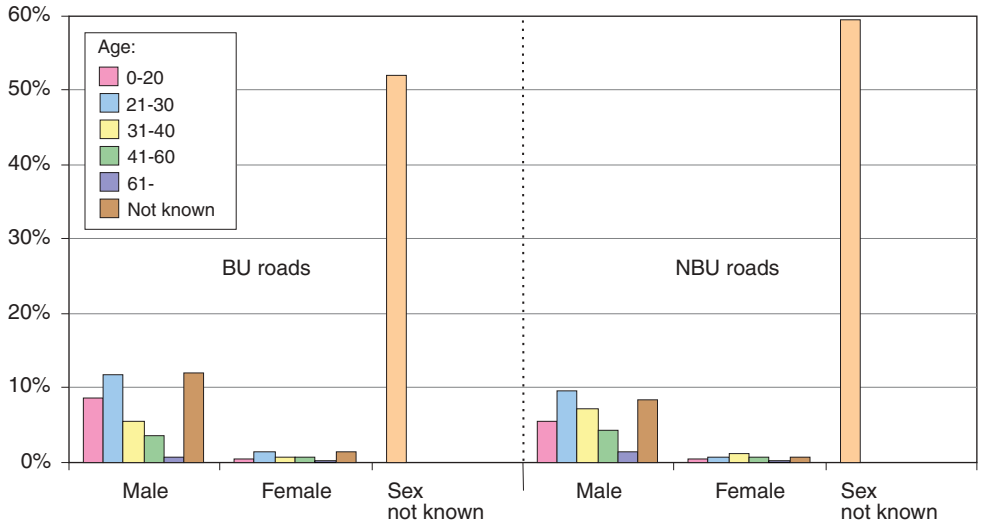


**Figure 3.1** Age and sex of Hit and Run drivers, serious accidents, 1997-2001

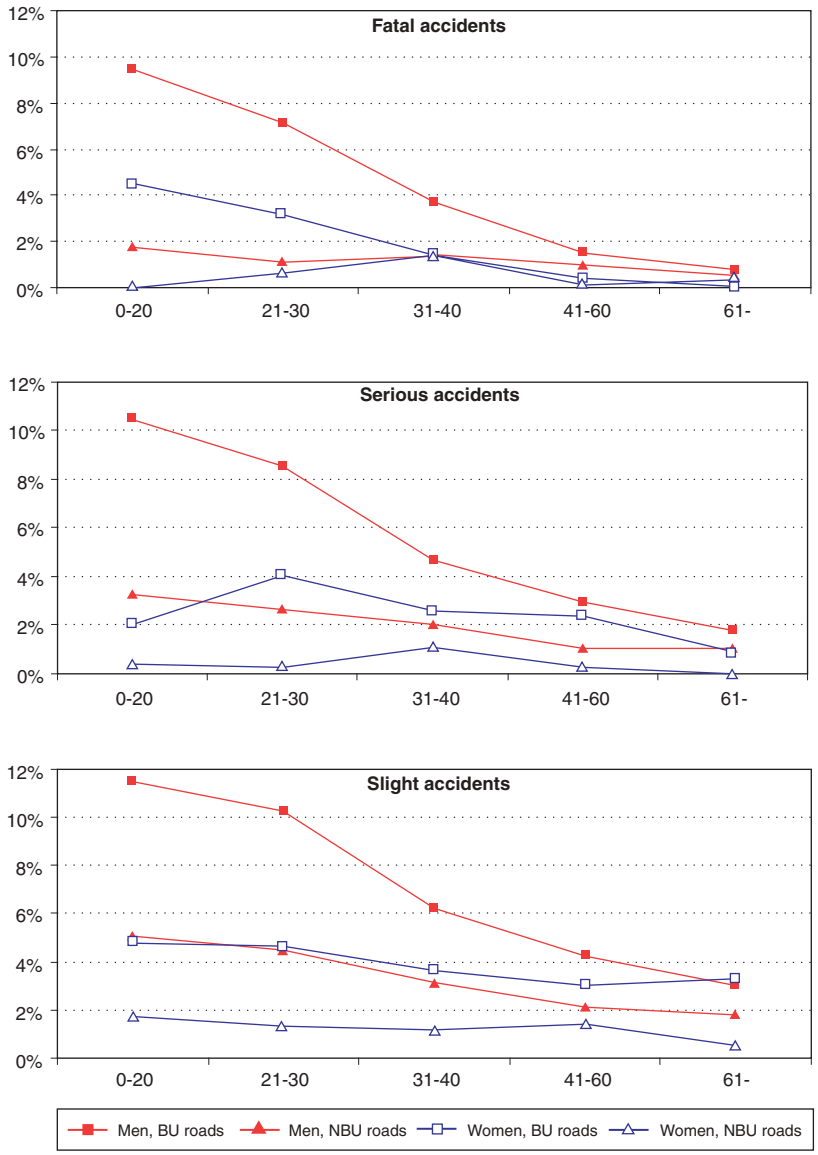


**Figure 3.2** Proportion of drivers who Hit and Ran, 1997-2001

**Table 3.3 Average annual increase of proportion of drivers who Hit and Ran between 1997 and 2001**

| *Accident severity* | *Road type* | *Age* 0-20 | 21-30 | 31-40 | 41-60 | 61- |
|---|---|---|---|---|---|---|
| ***Serious*** | | | | | | |
| Men | BU | 1.3% | 1.1% | 0.4% | 0.1% | 0.1% |
| | NBU | 0.3% | -0.1% | -0.1% | 0.1% | 0.0% |
| Women | BU | -0.3% | 0.2% | 0.3% | 0.2% | -0.1% |
| | NBU | 0.0% | 0.0% | 0.1% | 0.0% | -0.2% |
| ***Slight*** | | | | | | |
| Men | BU | 1.7% | 1.4% | 0.5% | 0.4% | 0.3% |
| | NBU | 0.3% | 0.3% | -0.1% | 0.1% | 0.1% |
| Women | BU | 0.5% | 0.3% | 0.1% | 0.2% | 0.1% |
| | NBU | 0.1% | 0.1% | 0.0% | 0.1% | -0.1% |

unknown. They do indicate, however, that the high proportions seen in Figure 3.2 for men up to 30 years old are the result of rapid increases since 1997.

### 3.3 Hit and Run casualties

The age or sex of the casualties in Hit and Run accidents are known in most cases, so the problems of incomplete data of the previous section scarcely arise. Casualty and population statistics can be linked to calculate Hit and Ran rates per million population. The overall rates in the 1997-2001 period were 2.05 killed, 38.3 seriously injured and 368 slightly injured per million. In order to compare the three rates directly, each has been divided by the overall rate so that 1.00 denotes the average rate for all ages. Figure 3.3 shows the results. The peak rate for each severity occurs in the 20-24 age group, although the fatality rate is equally high for the eldest casualties.

These distributions are influenced by the overall age distribution of road accident casualties. Figure 3.4 expresses the number of casualties in Hit and Run

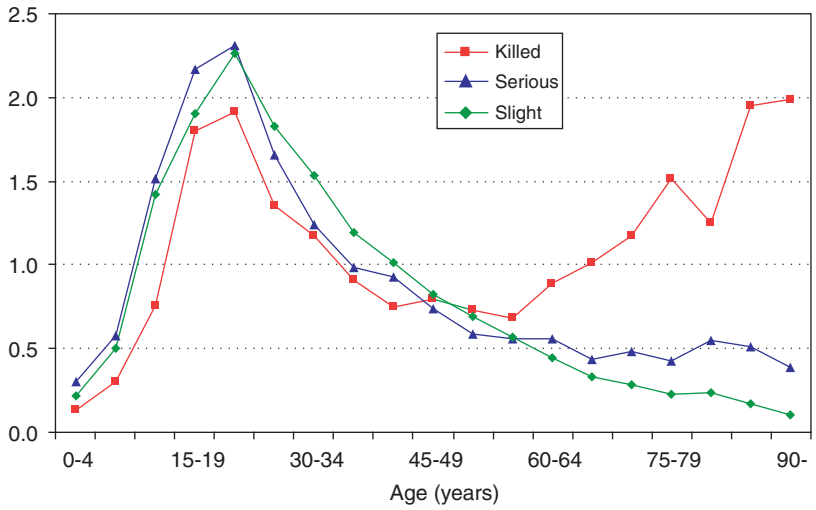


**Figure 3.3** Normalised casualty rates in Hit and Run accidents, 1997-2001
*(1.0 represents mean number of casualties per million population)*

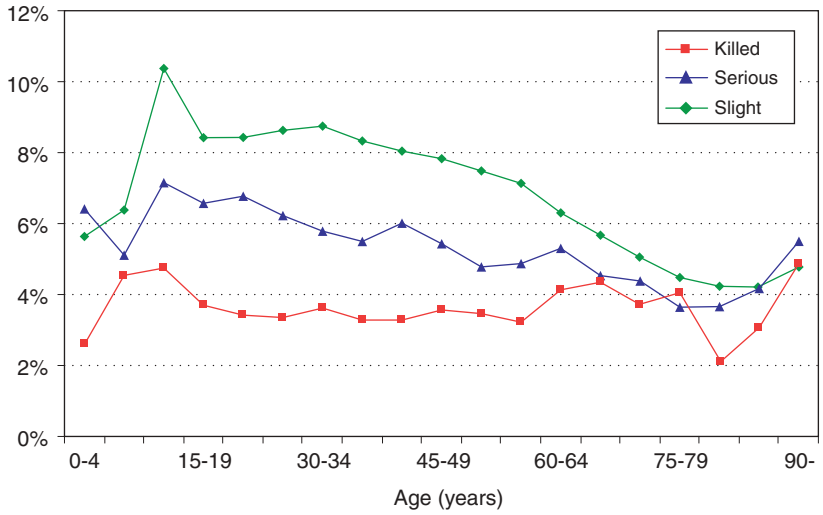


**Figure 3.4** Hit and Run casualties as a proportion of all casualties

accidents as a proportion of casualties in all accidents and shows that, relative to the overall distribution, the peak involvement for all severities occurs in the 10-14 age group. The peak is especially marked for slight casualties.

When casualty rates in Hit and Run accidents are calculated separately for males and females, male rates are found to be higher than female rates. Table 3.4 shows that the difference is largely a consequence of higher male casualty rates generally.

The annual growth of the proportion of casualties injured in Hit and Run accidents between 1997 and 2001 has been largely uniform when analysed by age and sex. Thus, all parts of the population have suffered similarly from the increase in Hit and Run accidents. The detailed results are presented in Appendix A

Variations in the incidence of Hit and Run accidents by time of day are now examined, comparing the proportion of casualties injured in these accidents by time of day and by day of week. Variations can be seen most clearly by taking the four periods: 4am-noon, noon-6pm, 6-10pm and 10pm-4am and linking the midnight-4am period to the previous day (in effect, each day is assumed to start at 4am). The profiles for Monday-Thursday are very similar, so these weekdays have been combined.

**Table 3.4 Male and female casualty rates in Hit and Run accidents, 1997-2001**

| | *Hit and Run casualty rates per million population per year* | | | *Hit and Run casualties as a proportion of all casualties* | | |
|---|---|---|---|---|---|---|
| | *Fatal* | *Serious* | *Slight* | *Fatal* | *Serious* | *Slight* |
| Male | 3.1 | 54 | 440 | 3.7% | 6.5% | 9.3% |
| Female | 1.0 | 23 | 297 | 3.6% | 5.7% | 8.1% |
| Ratio | 2.9 | 2.3 | 1.5 | | | |

Figure 3.5 presents the results. There is a similar pattern for each day, with a relatively low proportion during the day (4am - 6pm) followed by a peak at night (10pm-4am). The profiles are broadly consistent between Friday and Sunday, with slightly lower levels between Monday and Thursday. Although the levels are much lower on NBU roads, there is the same general pattern.

Figure 3.6 presents the proportion of casualties injured in Hit and Run accidents by month, and shows only minor variations. On BU roads, the proportion of serious and slight casualties is slightly higher in the summer than the winter, but there is no clear pattern for fatal casualties. On NBU roads, by contrast, the proportion of slight casualties scarcely changes, while the proportion of serious casualties is highest between September and January.

It appears possible that proximity to a junction might affect the incidence of Hit and Run accidents. Appendix A shows, however, that this does not appear to be true: the proportion of casualties injured in Hit and Run accidents at or near a junction is very similar to the proportion away from any junction.

### 3.4 Hit and Run accidents

Various aspects of the circumstances of Hit and Run accidents are studied using data from 1997-2001. First, regional variations are examined, comparing the proportions of accidents that are Hit and Run in the nine Government Office Regions in England, plus Wales and Scotland. Table 3.5 shows the proportions on BU and NBU roads, in diminishing order of the proportion in slight accidents. The table also includes the average annual change between 1997 and 2001, to summarise the changes that occurred over the period.

There are clear differences between regions, with the average rates in the worst regions approaching twice the rates in the best. The patterns of change have also differed for BU accidents, with rapid increases in the West Midlands and the North East yet little change in the South East. On the other hand, most of the rates for NBU accidents have scarcely changed.

Variations in the proportion of accidents that are Hit and Run are now studied by road type and time of day. It is useful at first to use the simple division of the day into four periods introduced previously. Figure 3.7 compares the proportion of accidents that are Hit and Run on seven types of road. The difference between BU and NBU roads seen before reappears, but the problem of Hit and Run accidents is clearly greatest on unclassified roads, especially on BU roads and at night. By contrast, the proportion scarcely varies by time of day on motorways.

Table 3.6 summarises the changes that occurred between 1997 and 2001. Only small changes occurred on NBU roads, so results are only presented for BU roads. Increases have generally been greatest where the average rates were greatest, but the proportion has also increased rapidly on BU A-roads where the average was relatively low. The highest proportion seen in the annual data is for Unclassified roads in BU areas, where 29 per cent of the slight accidents that occurred in 2001 between 10pm and 4am were Hit and Run.

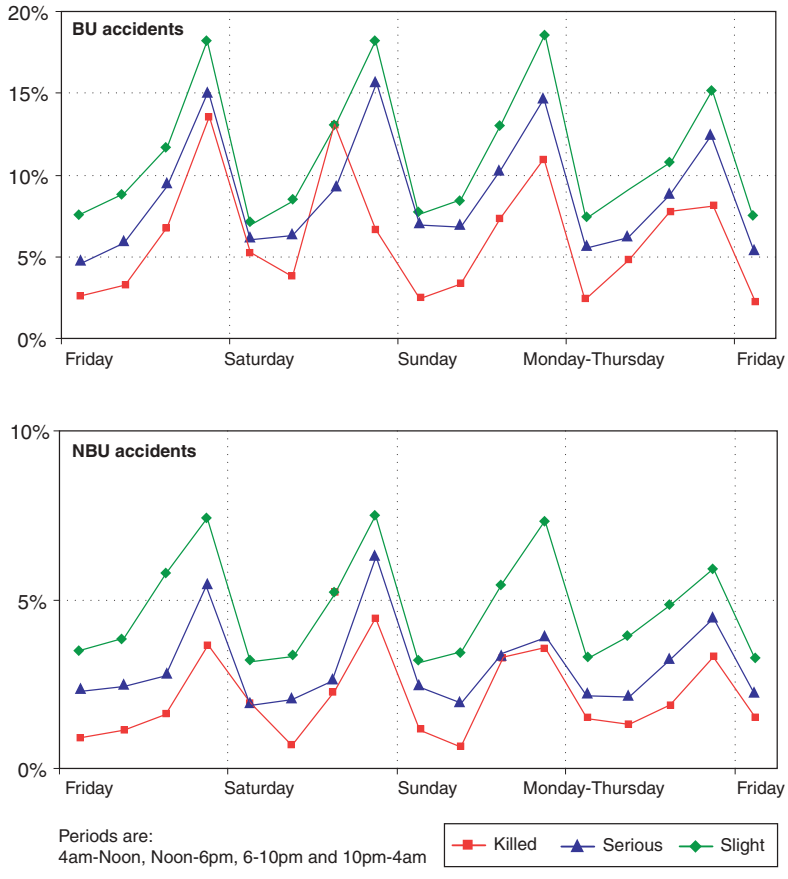


**Figure 3.5** The proportion of casualties injured in Hit and Run accidents, by time of week

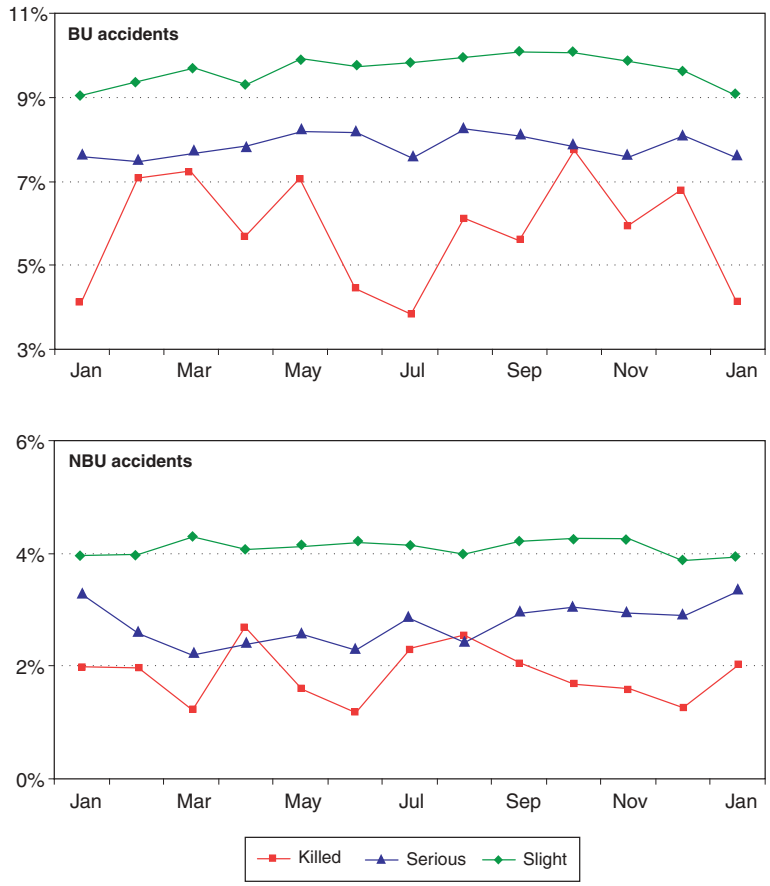


**Figure 3.6** The proportion of casualties injured in Hit and Run accidents, by month

**Table 3.5 Proportion of accidents that are Hit and Run, by region**

| | *1997-2001 average rate* | | *Average annual increase* | |
|---|---|---|---|---|
| | *Fatal and serious* | *Slight* | *Fatal and serious* | *Slight* |
| ***BU accidents*** | | | | |
| West Midlands | 10.0% | 13.8% | 1.5% | 1.9% |
| North East | 9.0% | 12.0% | 0.9% | 1.1% |
| Yorkshire & Humberside | 8.7% | 11.6% | 0.5% | 1.1% |
| North West | 9.2% | 11.4% | 0.9% | 1.2% |
| East | 7.6% | 11.1% | 0.5% | 0.9% |
| East Midlands | 8.4% | 10.9% | 0.1% | 0.5% |
| London | 8.1% | 10.6% | 1.4% | 1.7% |
| Wales | 6.3% | 10.1% | 0.4% | 1.2% |
| South East | 6.4% | 9.5% | 0.1% | 0.2% |
| South West | 6.3% | 9.5% | 0.2% | 0.9% |
| Scotland | 6.1% | 8.1% | 0.5% | 0.6% |
| ***NBU accidents*** | | | | |
| North East | 3.8% | 7.0% | 0.1% | 0.3% |
| Yorkshire & Humberside | 3.2% | 6.1% | -0.3% | -0.1% |
| North West | 2.9% | 6.0% | 0.0% | 0.2% |
| West Midlands | 2.9% | 5.4% | -0.1% | 0.4% |
| East | 3.1% | 5.0% | 0.0% | 0.2% |
| Wales | 2.2% | 4.9% | 0.2% | 0.1% |
| South East | 2.9% | 4.9% | 0.1% | 0.0% |
| South West | 2.4% | 4.3% | -0.1% | -0.1% |
| East Midlands | 2.6% | 4.0% | -0.1% | 0.1% |
| Scotland | 2.2% | 3.6% | 0.0% | 0.0% |

*There are no entries for NBU accidents in London because of the small number of these accidents.*

**Table 3.6 Average annual increase in the proportion of accidents that are Hit and Run**

| ***Accident severity*** *Road type* | *4am -noon* | *Noon -6pm* | *6-10pm* | *10pm -4am* | *All day* |
|---|---|---|---|---|---|
| ***Fatal and serious*** | | | | | |
| A(BU) | 0.6% | 0.6% | 1.0% | 1.3% | 0.8% |
| B/C(BU) | 0.6% | 0.6% | 1.2% | 0.6% | 0.8% |
| Unclassified (BU) | 0.3% | 0.6% | 0.8% | 0.8% | 0.7% |
| All roads | 0.3% | 0.4% | 0.6% | 0.8% | 0.5% |
| ***Slight*** | | | | | |
| A(BU) | 0.7% | 1.0% | 1.6% | 1.7% | 1.1% |
| B/C(BU) | 0.6% | 0.9% | 1.2% | 1.4% | 0.9% |
| Unclassified (BU) | 0.9% | 1.2% | 1.5% | 2.1% | 1.3% |
| All roads | 0.5% | 0.9% | 1.2% | 1.4% | 0.9% |

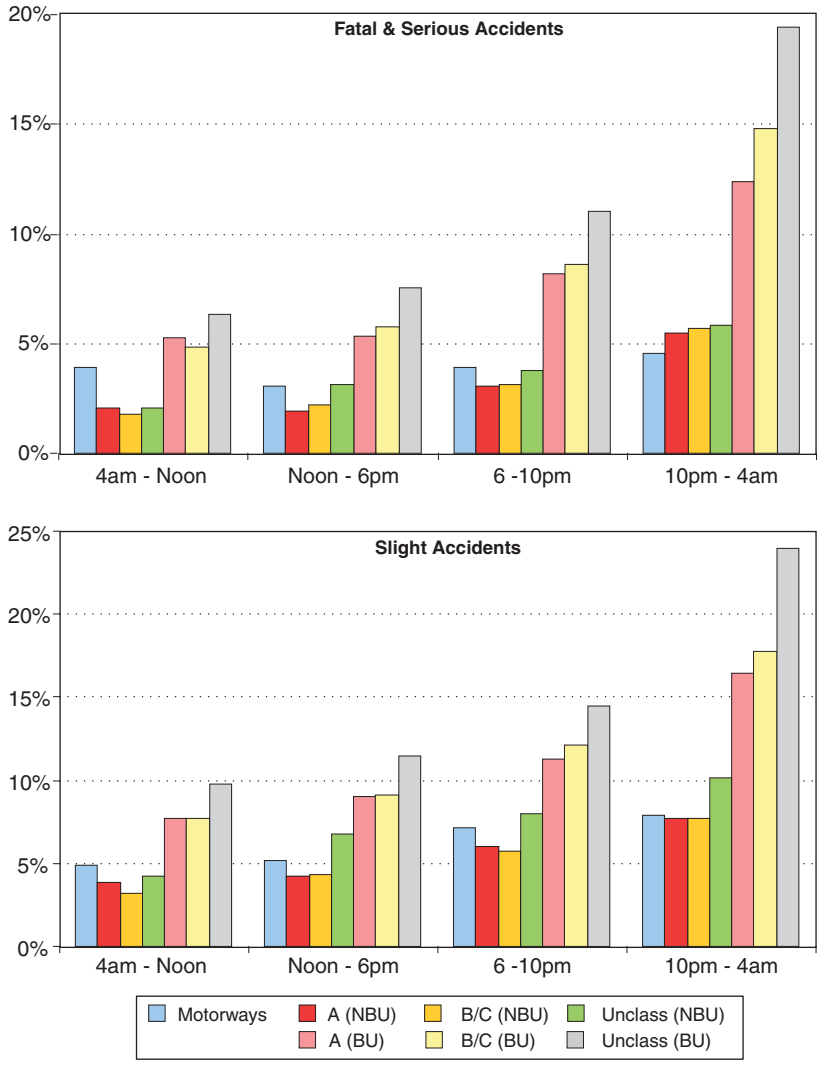


**Figure 3.7** Proportion of accidents that are Hit and Run, by type of road and time of day

Figure 3.8 looks in more detail at the proportion by time of day, taking intervals of one hour. The proportion of serious and slight accidents increases slowly from a minimum around 8 in the morning, then increases more rapidly from 6 in the evening until shortly after midnight. The pattern is less clear for fatal accidents, probably because of the smaller numbers.

Table 3.7 examines the proportion by type of weather. Two STATS19 codes have been combined to form the 'other' category, other and unknown, and the high proportions recorded for this category are probably caused by lack of information about Hit and Run accidents. Otherwise, the proportions are generally greatest in fine weather.

It appears possible that drivers may Hit and Run because poor visibility meant that they did not realise that there had been an accident. In order to check this explanation in the case of adverse weather, Table 3.8 examines the incidence of Hit and Run accidents *in daylight* by type of weather.

**Table 3.7 Proportion of accidents that are Hit and Run, by type of weather**

| ***Road type*** | | | | | | |
|---|---|---|---|---|---|---|
| *Accident severity* | *Fine* | *Rain* | *Snow* | *Fog or mist* | *Other* | *Any* |
| ***BU*** | | | | | | |
| Fatal | 6.2% | 6.6% | 0.0% | 0.0% | 2.4% | 6.2% |
| Serious | 8.2% | 6.9% | 7.9% | 7.0% | 12.7% | 8.1% |
| Slight | 11.0% | 9.3% | 8.9% | 9.1% | 13.7% | 10.8% |
| ***NBU*** | | | | | | |
| Fatal | 1.9% | 1.6% | 0.0% | 3.4% | 2.7% | 1.9% |
| Serious | 3.1% | 2.3% | 1.8% | 3.0% | 3.4% | 3.0% |
| Slight | 5.3% | 4.1% | 2.7% | 3.8% | 5.4% | 5.0% |

**Table 3.8 Proportion of daylight accidents that are Hit and Run, by type of weather**

| ***Road type*** | | | | | | |
|---|---|---|---|---|---|---|
| *Accident severity* | *Fine* | *Rain* | *Snow* | *Fog or mist* | *Other* | *Any* |
| ***BU*** | | | | | | |
| Fatal | 4.3% | 4.0% | 0.0% | 0.0% | 0.0% | 4.2% |
| Serious | 6.5% | 4.6% | 8.0% | 3.4% | 10.9% | 6.3% |
| Slight | 9.8% | 7.7% | 6.3% | 6.9% | 11.9% | 9.6% |
| ***NBU*** | | | | | | |
| Fatal | 1.0% | 0.5% | 0.0% | 2.0% | 2.1% | 1.0% |
| Serious | 2.4% | 1.6% | 1.7% | 2.2% | 2.6% | 2.3% |
| Slight | 4.7% | 3.3% | 2.7% | 2.7% | 5.1% | 4.4% |

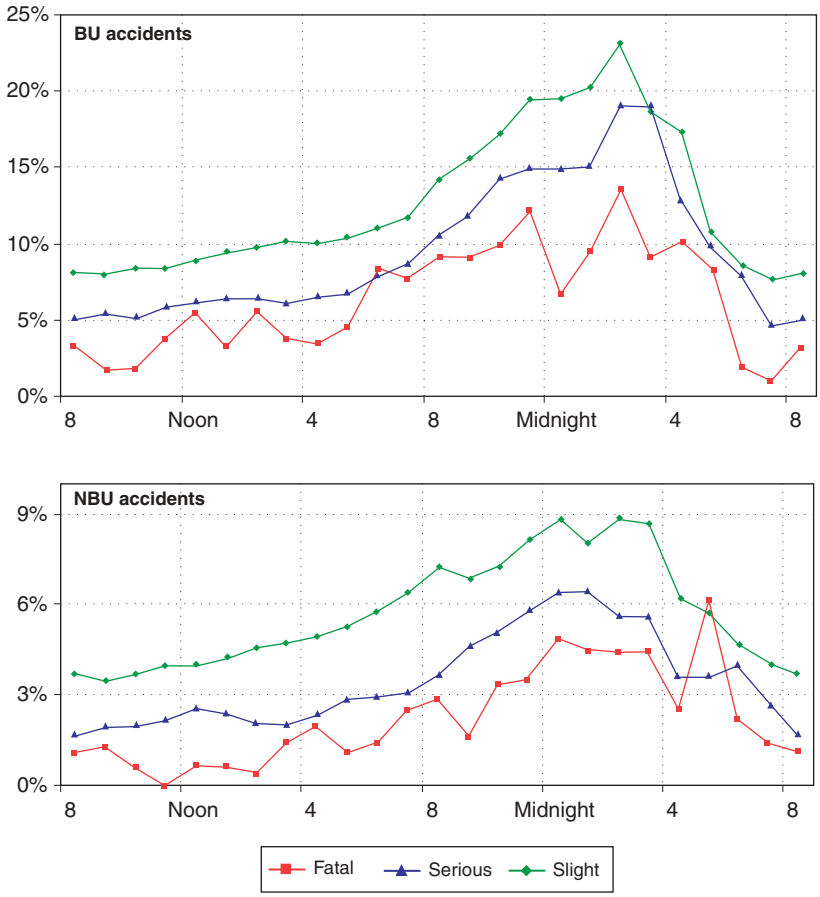


**Figure 3.8** The proportion of accidents that are Hit and Run, by hour of day

As with Table 3.7, the proportions are generally greatest in fine weather, so the explanation does not appear to apply in the case of adverse weather. The possibility is examined in more detail in Section 4.3.

# 4 Possible influences

The STATS19 data give little indication of accident causation, so they provide few clues about the factors that may influence drivers to Run following an accident. It seems reasonable to suspect that in many cases they feared to come into contact with the police because they had been acting illegally, and the STATS19 data do provide some information about the role of alcohol. On the other hand, many Hit and Run accidents are minor nighttime accidents, which may suggest that some drivers may not have been aware that an accident had occurred. Both aspects are considered below.

## 4.1 Drink/driving

The STATS19 data record whether a driver was breath-tested. In some cases, including Hit and Run accidents, the police are not able to contact a driver, and other reasons may prevent a test from being carried out (including death in the case of fatal accidents). Hence, while these data provide invaluable information about the involvement of alcohol in accidents, they underestimate the actual level to some extent. Table 4.1 compares the proportion of drivers who Hit and Ran after an accident with the proportion who failed a breath test, focusing on car and van drivers since Table 3.2 showed that the former proportion is greatest among these groups.

These results suggest that Hit and Run accidents and drink/drive accidents have different patterns. Hit and Ran

**Table 4.1 Breath test results, car and van drivers, 1997-2001**

| | | | *Breath test result* | | | |
|---|---|---|---|---|---|---|
| *Road type* | *Accident severity* | *Hit and Run* | *Positive*[1] | *Negative* | *Driver not contacted* | *Other* |
| ***Car drivers*** | | | | | | |
| BU | Fatal | 5.6% | 3.9% | 53% | 11% | 32% |
| | Serious | 6.1% | 3.4% | 56% | 14% | 27% |
| | Slight | 6.8% | 1.9% | 45% | 22% | 31% |
| NBU | Fatal | 1.1% | 2.1% | 42% | 5% | 52% |
| | Serious | 1.8% | 3.4% | 54% | 6% | 37% |
| | Slight | 2.5% | 2.0% | 55% | 11% | 32% |
| ***Van drivers*** | | | | | | |
| BU | Fatal | 5.9% | 3.0% | 62% | 10% | 24% |
| | Serious | 6.0% | 3.0% | 55% | 16% | 26% |
| | Slight | 8.5% | 1.6% | 44% | 25% | 30% |
| NBU | Fatal | 1.4% | 1.7% | 53% | 6% | 39% |
| | Serious | 2.0% | 1.9% | 58% | 7% | 33% |
| | Slight | 3.6% | 1.3% | 57% | 13% | 29% |

[1] *Includes drivers who failed to supply a specimen.*

accidents are less severe than other accidents, since drivers are involved in a smaller proportion of fatal and serious accidents than of slight accidents. Conversely, drink/drive accidents tend to be more severe than other accidents. Car driver involvement in Hit and Run accidents is greater on BU than NBU roads, whereas it appears to be similar among drink/drive accidents (although it has been seen that the breath-test data tend to underestimate the incidence of drink/drive accidents).

Another important difference between the two types of accident concerns those who are injured. Figure 4.1 compares the casualties in Hit and Run accidents in 2000 with the estimated casualties in drink/drive accidents. The latter are official figures (DfT, 2002) which use the method described in Section 4.1.1 to estimate the number of Hit and Run accidents which were also drink/drive accidents. The figure shows that far more pedestrians and pedal cyclists are injured in Hit and Run accidents than in drink/drive accidents; the reverse is true for car drivers and passengers KSI, although the numbers of slight casualties are more similar.

Moreover, Figure 4.2 demonstrates that the levels of the two types of accident differ by time of day. It develops Figure 3.5, adding the proportion of casualties in drink/drive accidents (as shown by the breath test failures) but dropping the data for fatal accidents because of the number of drivers who could not be breath-tested for medical reasons. The proportion is more variable in drink/drive accidents than in Hit and Run accidents on BU roads, and the differences are much greater on NBU roads.

Thus, drink/driving is clearly an important factor that leads drivers to Run following accidents at night on BU roads, but on NBU roads and at other times of the day there must be other significant factors. There is no obvious explanation for the much lower propensity of drink/drivers to Run following accidents on NBU than on BU roads.

Table 4.2 includes data from those cases where the police were able to 'contact' a Hit and Run driver sufficiently soon after an accident to carry out a test, and demonstrates the major role of alcohol. It shows, for example, that 77 (21 per cent) of the Hit and Run drivers involved in fatal BU accidents were tested; 51 per cent of the 77 failed, i.e. they were over the legal limit or failed to supply a specimen. By comparison, only 6 per cent of other drivers involved in these accidents failed.

**Table 4.2 Breath test results for Hit and Run and other drivers, 1997-2001**

| *Accident severity* | *BU accidents* | | | *NBU accidents* | | |
|---|---|---|---|---|---|---|
| | *Test rate* | *Number tested* | *Failure rate* | *Test rate* | *Number tested* | *Failure rate* |
| ***Fatal*** | | | | | | |
| Hit and Run driver | 21% | 77 | 51% | 31% | 39 | 38% |
| Other driver | 59% | 3638 | 6% | 44% | 5164 | 5% |
| ***Serious*** | | | | | | |
| Hit and Run driver | 11% | 870 | 44% | 15% | 203 | 47% |
| Other driver | 62% | 71859 | 5% | 58% | 43117 | 6% |
| ***Slight*** | | | | | | |
| Hit and Run driver | 7% | 4964 | 47% | 12% | 1199 | 42% |
| Other driver | 50% | 482825 | 4% | 59% | 225370 | 3% |

The test rate for Hit and Run drivers is higher in fatal than in non-fatal accidents, probably because of the priority that the police attach to these accidents. Similarly, they may well make greater efforts to 'contact' those suspected of being drink/drivers, so the cases for which there are breath test results may well not be representative. Nonetheless, Hit and Run drivers are clearly several times more likely than other drivers to exceed the legal limit on alcohol. The table may exaggerate the difference since many of the other drivers were tested at times of the day when drink/drive levels are low. Consequently, Table 4.3 considers variations through the day; fatal accidents are excluded because of the low number of breath tests of Hit and Run drivers in these accidents.

The fact that the lowest failure rates among Hit and Run drivers (during the daytime) exceed the rates for other drivers during the peak drink/drive period from 10pm-4am is striking confirmation that drivers frequently run after accidents from a justified fear of being breath-tested.

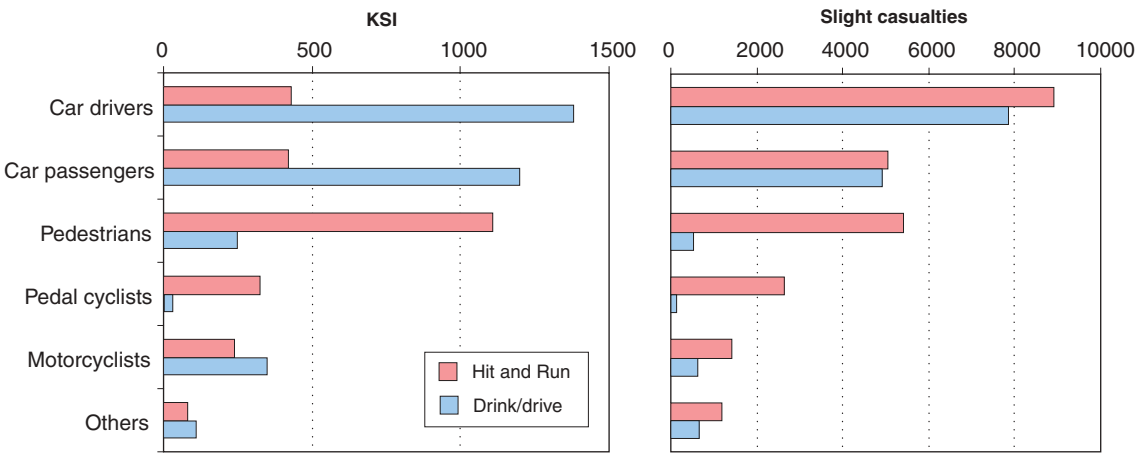


**Figure 4.1** Casualties in Hit and Run and drink/drive accidents, 2000

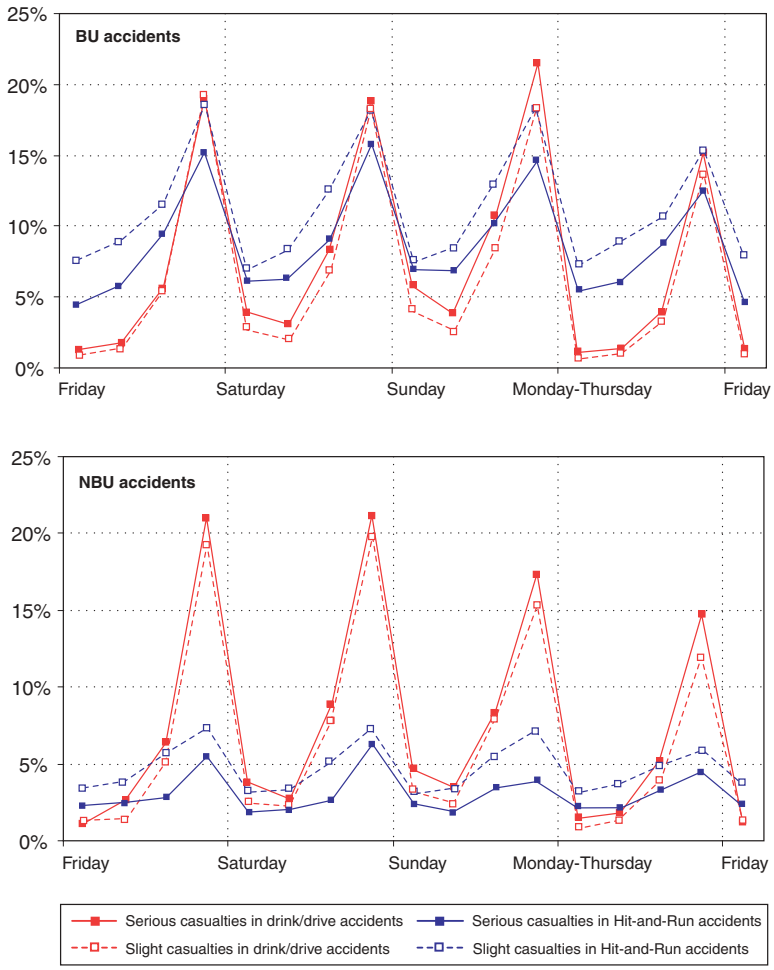


**Figure 4.2** The proportion of casualties injured in Hit and Run and drink/drive accidents, by time of week

**Table 4.3 Breath test results by time of day**

| | | *BU accidents* | | | *NBU accidents* | | |
|---|---|---|---|---|---|---|---|
| ***Accident severity*** | | | *Num* | *Fail* | | *Num* | *Fail* |
| *Time of day* | | *Test rate* | *-ber tested* | *-ure rate* | *Test rate* | *-ber tested* | *-ure rate* |
| ***Serious*** | | | | | | | |
| 4am-noon | Hit and Run driver | 9% | 109 | 27% | 10% | 25 | 36% |
| | Other driver | 57% | 15365 | 2% | 52% | 11256 | 3% |
| Noon-6pm | Hit and Run driver | 9% | 204 | 24% | 14% | 57 | 25% |
| | Other driver | 62% | 29044 | 2% | 58% | 17357 | 2% |
| 6-10pm | Hit and Run driver | 11% | 215 | 43% | 19% | 62 | 50% |
| | Other driver | 66% | 17480 | 6% | 61% | 9412 | 6% |
| 10pm-4am | Hit and Run driver | 16% | 342 | 63% | 16% | 59 | 71% |
| | Other driver | 64% | 9970 | 19% | 65% | 5092 | 23% |
| ***Slight*** | | | | | | | |
| 4am-noon | Hit and Run driver | 4% | 584 | 27% | 9% | 209 | 17% |
| | Other driver | 46% | 119916 | 1% | 55% | 70405 | 1% |
| Noon-6pm | Hit and Run driver | 5% | 1363 | 28% | 9% | 335 | 26% |
| | Other driver | 48% | 206809 | 2% | 58% | 94888 | 1% |
| 6-10pm | Hit and Run driver | 8% | 1290 | 49% | 13% | 307 | 49% |
| | Other driver | 54% | 105494 | 4% | 62% | 41699 | 5% |
| 10pm-4am | Hit and Run driver | 15% | 1727 | 66% | 22% | 348 | 66% |
| | Other driver | 63% | 50606 | 16% | 73% | 18378 | 17% |

### *4.1.1 Estimated number of drink/drivers*

The fact that the police cannot test all drivers involved in accidents means that the number of drivers known from STATS19 data to have failed a breath test under-estimates the number of drink/drivers involved in accidents. Hit and Run drivers form a minority of drivers who were 'not contacted at time of accident'[1] in the STATS19 terminology, but most of the others were not contacted because of the way the accident was reported (e.g. many are reported at police stations) rather than any deliberate attempt to evade the police. Consequently, the under-estimation of the number of drink/drivers is likely to arise mainly as result of drivers who Hit and Ran. This section tries to estimate the number of drinking Hit and Run drivers involved in accidents, and hence the number of drink/drivers. The results will help to show whether the increasing proportion of drivers who Hit and Run may have obscured the recent trend in drink/driving.

Broughton (1993) described a method that makes use of the available data from Hit and Run accidents to estimate the actual number of drink/drive accidents. It assumes that if all Hit and Run drivers could be tested then their failure rate would be $\Delta$ times the rate among those Hit and Run drivers

[1] *Only about one third of these drivers involved in serious accidents in 1997-2001 were recorded as Hit and Run, and one quarter in fatal and slight accidents.*

who were tested. The value of Δ is unknown, but probably lies between ½ and 1. The method is applied here, with the minor refinement that BU and NBU accidents are analysed independently, as are accidents in the four periods of the day. In the absence of better information about Δ the value of ¾ will be used (this value and method are used to prepare Table 2a from DfT (2002)).

The results for car drivers involved in serious and slight accidents are shown in Figure 4.3. 'known' data are the numbers of drivers who failed a breath-test, 'adjusted' data include the estimated number of Hit and Run drink/drivers. Fatal accidents are excluded because of the relatively large number of drivers who died and could not be tested; it is possible to make allowance for these as well (as explained in DfT (2002)) but this additional step has not been taken. The results are restricted to car drivers because they form the great majority of drink/drivers.

Clearly, the adjusted data are not precise, and are sensitive to the value assumed for Δ, but the figure should indicate the actual trends reasonably well. Since the proportion of Hit and Run accidents is greatest for slight accidents on BU roads, the under-estimation is also greatest for these accidents. By 2001, about one half of car drink/drivers involved in slight accidents on BU roads appear to have avoided detection by Running. While the number of drivers failing a breath test following a BU accident rose only slightly after 1998, the actual number of drink/drivers appears to have risen more rapidly. The figure also shows that drink/driving has become increasingly concentrated in urban areas: by 2001: about 70 per cent of serious drink/drive accidents occurred on BU roads, and about 80 per cent of slight.

### 4.2 Daylight and darkness

One possible explanation for a driver's failure to stop following an accident could be ignorance that an accident had occurred. This seems more credible when visibility is poor, so the effect of daylight and darkness on the incidence of Hit and Run accidents will be examined.

Section 3.4 has already shown that Hit and Run accidents are most common in the hours around midnight, which are also hours of darkness. The high level of Hit and Run accidents could, however, be caused by the type of driving behaviour at that time rather than of the lack of light. In order to isolate the effect of 'light' from the effect of 'time of day', those parts of the day which are in daylight or darkness at different times of the year will be examined. Since there are relatively few Hit and Run accidents in the morning, hourly accident data from the 4-10pm period have been analysed so that the proportion of accidents that are Hit and Run could be related to the 'light condition'. The seven STATS19 codes for light condition have been grouped:

Daylight,

Darkness with streetlighting,

Darkness without streetlighting.

A Generalised Linear Model (GLIM) was fitted to the accident data to relate the proportion of accidents that are Hit and Run in an hour to the light condition, the 'reference level' being daylight. The analysis compares the proportion of accidents that are Hit and Run when an hour is in daylight with the proportion when it is in darkness, and the results are presented in Table 4.4. Percentages are accompanied by their 95% confidence intervals when the effects are significant (i.e. the likelihood that the difference is real rather the result of chance exceeds 0.975). For example, while it appears that the proportion is 12 per cent greater for fatal BU accidents in darkness with streetlighting than in daylight, the confidence interval is so wide that this probably occurred by chance.

The results on BU and NBU roads differ markedly. On BU roads, darkness with streetlighting is associated with increases in the Hit and Run proportion that are so small that they could well have occurred by chance. Darkness without streetlighting is associated with increase of about 7 per cent in the Hit and Run proportion for slight accidents, but a greatly reduced proportion for fatal accidents. On NBU roads, by contrast, darkness with streetlighting is associated with increased Hit and Run proportions. Darkness without streetlighting is associated with an increased Hit and Run proportion in fatal accidents, but only non-significant changes for serious and slight accidents.

The differing pattern of results on BU and NBU roads suggests that visibility and conspicuity have different roles

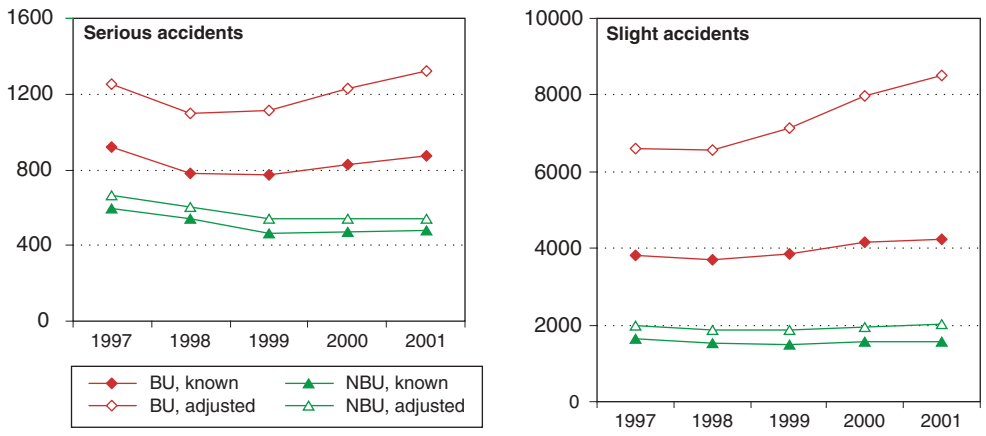


**Figure 4.3** Estimated number of drinking car drivers involved in accidents, 1997-2001

**Table 4.4 The increase in the proportion of accidents that are Hit and Run in darkness, relative to daylight**

| *Road type* / *Lighting* | *Fatal accidents* | | *Serious accidents* | | *Slight accidents* | |
|---|---|---|---|---|---|---|
| ***BU*** | | | | | | |
| With street lighting | 12% | * | 6% | * | 1% | * |
| Without street lighting | -87% | (-98%, -4%) | -12% | * | 7% | (0%, 14%) |
| ***NBU*** | | | | | | |
| With street lighting | 143% | * | 99% | (55%, 157%) | 15% | (6%, 25%) |
| Without street lighting | 140% | (27%, 354%) | 20% | * | -4% | * |

*95% confidence intervals shown in brackets.*
** Indicates that effect not significant.*

on the two types of road. On BU roads, the proportion of slight accidents that are Hit and Run rises slightly in the dark on unlit streets, but there is no other indication that drivers may Hit and Run as a result of poor visibility. The level of Hit and Run accidents is lower on NBU roads, but the table shows that it tends to increase in darkness, especially on roads that are lit. As an illustration, 2.3 per cent of fatal and serious NBU accidents that occurred between 6 and 7pm in daylight were Hit and Run. The percentages were higher for accidents that occurred in darkness, 4.4 per cent of those on lit roads and 2.9 per cent on unlit. If poor visibility were the explanation for this increase in darkness on NBU roads, the increase would be expected to be greater on unlit roads, whereas the reverse has been found. The reason for this pattern of results is unclear.

### 4.3 Weather

Adverse weather can also reduce the visibility of a driver or rider, so the effect of weather on the proportion of accidents that are Hit and Run has also been examined. The nine STATS19 weather codes have been grouped:

Fine

Rain

Snow

Fog or mist

Other

The same type of GLIM analysis was carried out, but there was no need to restrict the analysis to a particular part of the day. The 'reference level' was fine weather, so the results presented in Table 4.5 show the increase in the proportion of accidents that are Hit and Run when the weather is adverse rather than fine. The results are consistent with the proportions in Table 3.7, but express the relative effects more clearly.

The results for BU and NBU roads are generally consistent. There are no clear effects in fatal accidents, but adverse weather is associated with a reduction in the proportion of serious and slight accidents that are Hit and Run. The reduction tends to be greater on NBU roads. These results indicate that drivers tend to be more responsible and less likely to Hit and Run in adverse weather than in fine. There is no evidence that poor visibility resulting from adverse weather may have been contributory factors in the Hit and Run accidents.

**Table 4.5 The increase in the proportion of accidents that are Hit and Run in adverse weather, relative to fine weather**

| *Road type* / *Weather* | *Fatal accidents* | | *Serious accidents* | | *Slight accidents* | |
|---|---|---|---|---|---|---|
| ***BU*** | | | | | | |
| Rain | 6% | * | -17% | (-22%, -11%) | -18% | (-19%, -16%) |
| Snow | -100% | * | -4% | * | -21% | (-31%, -9%) |
| Fog | -100% | * | -15% | * | -20% | (-29%, -9%) |
| ***NBU*** | | | | | | |
| Rain | -20% | * | -25% | (-35%, -13%) | -24% | (-27%, -20%) |
| Snow | -99% | * | -43% | * | -51% | (-62%, -36%) |
| Fog | 81% | * | -3% | * | -29% | (-40%, -17%) |

*95% confidence intervals shown in brackets.*
** Indicates that effect not significant.*

# 5 Conclusions

It is an offence for a driver or rider to 'Hit and Run' after an accident, i.e. to leave the scene of the accident prematurely. Moreover, there must be a suspicion that many of those who commit this offence do so from a fear of coming into contact with the police because they had been acting illegally. Consequently, these accidents are of particular concern, and British accident data from 1990-2002 have been analysed to investigate their incidence.

These analyses have found that Hit and Run accidents tend to be less severe than other accidents, probably because a vehicle that is capable of being driven away after an accident can only have sustained relatively light damage. These accidents occur mainly on Built-Up roads: seven out of eight Hit and Run accidents occurred on these roads in 2002. In the earlier part of the period studied, Hit and Run accidents formed a constant fraction of the accident total, but this fraction began to rise rapidly after 1998 for non-fatal accidents on Built-Up roads; however, there were only slight increases on Non Built-Up roads and no increases on motorways. Hit and Run accidents formed the following proportion of accidents in 2002:

| | *Fatal accidents* | *Serious accidents* | *Slight accidents* |
|---|---|---|---|
| Built-Up roads | 8.0% | 11.3% | 14.7% |
| Non Built-Up roads (excluding motorways) | 2.7% | 4.6% | 5.8% |
| Motorways | 1.1% | 4.4% | 6.8% |
| All roads | 4.8% | 8.8% | 12.4% |

The proportion of casualties injured in Hit and Run accidents varied by road user type, with pedestrians and pedal cyclists being worst affected because they tend to be injured on Built-Up roads where these accidents are concentrated. The casualty proportions rose in line with the accident proportions after 1998, and the proportion of casualties in 2002 who were injured in Hit and Run accidents was:

| | *Killed* | *Seriously injured* | *Slightly injured* |
|---|---|---|---|
| Pedestrians | 12.9% | 15.0% | 18.8% |
| Pedal cyclists | 6.9% | 14.4% | 17.7% |
| Car drivers | 3.0% | 8.0% | 10.0% |
| Car passengers | 0.9% | 4.7% | 9.6% |
| Motorcyclists | 2.3% | 4.8% | 8.3% |
| Others | 1.7% | 4.0% | 6.9% |
| All road users | 4.5% | 8.1% | 10.9% |

The fact that Hit and Run vehicles generally sustain only light damage is likely to contribute to the relatively high proportions for pedestrians and pedal cyclists. A number of more specific factors also affect these Hit and Run proportions. One of the most notable was time of day; for example, 8 per cent of the slight accidents occurring between 8am and noon on BU roads between 1997-2001 were Hit and Run, rising to 20 per cent between midnight and 3am. Road class was another factor, with the proportion being greatest on unclassified roads. By 2001, 29 per cent of the accidents that occurred between 10pm and 4am on Unclassified Built-Up roads were Hit and Run. There were regional differences, with the proportion being lowest in Scotland (e.g. 8.1 per cent of slight accidents between 1997-2001) and highest in the West Midlands (where the corresponding figure was 13.8 per cent).

The proportion of casualties injured in Hit and Run accidents varied by age. The peak age for serious and slight casualties was 10-14, where the proportion was approximately one quarter greater than the average for all ages; the proportion then fell steadily until the age of 80. There was no consistent variation with age among fatal casualties. The proportion of casualties who were injured in Hit and Run accidents was slightly higher for men than for women.

The STATS19 accident data give little indication of the cause of the increasing trend for Hit and Run accidents on Built-Up roads. If the earlier proportion had continued until 2002 then there would have been fewer Hit and Run accidents, but would there have been fewer accidents overall? If the increase has arisen because extra accidents have occurred then progress towards the national casualty reduction target for 2010 would have been delayed. On the other hand, the increasing trend may simply indicate a greater willingness among drivers to Run after an accident, in which case these accidents would have occurred anyway. In order to understand the implications of the increasing trend, its causes need to be investigated in greater detail than is possible with the STATS19 data.

Most of the Hit and Run drivers were driving cars. This simply reflects the large number of cars involved in accidents, and in fact van drivers were proportionately more likely to Hit and Run. 6.5 per cent of van drivers involved in accidents between 1997 and 2001 Hit and Ran compared with 5.4 per cent of car drivers. Most of these van drivers are likely to have been travelling in the course of work, so this could indicate some reluctance among professional drivers to report accidents to their employers. Young men were the group most likely to Hit and Run: making allowance for accident-involved drivers whose age or sex was not recorded, it appears that nearly 12 per cent of male drivers up to 20 years old Hit and Ran, and over 10 per cent of those aged 21-30. The percentages for these groups rose rapidly between 1997 and 2001.

Although the accident data give little indication of drivers' reasons for Hitting and Running, the involvement of alcohol is one factor that could be investigated. It was found that Hit and Run drivers who could be breath-tested were far more likely to fail the test than other drivers. The likelihood that many of the other Hit and Run drivers were also drink/drivers means that the STATS19 breath test data underestimate significantly the involvement of alcohol in road accidents, especially slight accidents on Built-Up roads. Alcohol cannot be the only factor that influences drivers' propensity to Hit and Run, however, since major differences have been found between the patterns of drink/drive and of Hit and Run accidents.

Another potential reason for drivers Hitting and Running is that they may not be aware that an accident has occurred. The possibility that poor visibility may affect the level of Hit and Run accidents was examined in two ways, via the weather and light condition recorded by the police. Fine weather was found to be associated with *more* Hit and Run accidents than adverse weather such as rain and snow, which does not support the hypothesis. The analysis was more complex in the case of light condition, but these findings did not support the hypothesis either. It appears that very few cases of Hitting and Running can be explained by poor visibility.

## 6 Acknowledgements

The work described in this report was carried out in the Safety Group of TRL Limited.

## 7 References

**Broughton J (1993)**. *The actual number of non-fatal drink/drive accidents*. Project Report PR40. Crowthorne: TRL Limited.

**Broughton J, Allsop R E, Lynam D A and McMahon C M (2000)**. *The numerical context for setting national casualty reduction targets*. TRL Report TRL382. Crowthorne: TRL Limited.

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# Appendix A: Additional analyses

This appendix presents details of results that were summarised in the main report.

Section 3.3 reported that all age/sex groups have suffered similarly from the increase in Hit and Run accidents. First, Figure A.1 compares the proportion of male and female casualties injured in Hit and Run accidents, and shows similar patterns for the two sexes.

Six age groups were analysed, and the average annual increase in the difference between the proportion for the age group and the proportion for all ages was calculated. Table A.1 presents the results.

**Table A.1 Average annual increase in the relative proportion, 1997-2001**

| | Age | | | | | |
|---|---|---|---|---|---|---|
| *Casualty severity* | *0-14* | *15-24* | *25-39* | *40-59* | *60-79* | *80-* |
| ***Killed*** | | | | | | |
| Male | 1.3% | -0.1% | -0.2% | 0.0% | -0.1% | 0.1% |
| Female | -0.8% | 0.2% | 0.0% | 1.0% | -0.8% | 0.3% |
| ***Serious*** | | | | | | |
| Male | 0.2% | 0.2% | -0.1% | -0.2% | 0.0% | 0.2% |
| Female | 0.4% | 0.0% | -0.1% | 0.1% | -0.1% | -0.2% |
| ***Slight*** | | | | | | |
| Male | -0.1% | 0.0% | 0.1% | 0.0% | -0.1% | 0.1% |
| Female | -0.1% | 0.0% | 0.1% | 0.0% | -0.3% | 0.0% |

The differences are generally small, and the larger values among the killed are the result of small numbers. For example, 5 of 156 0-14 year old males died in Hit and Run accidents in 1997; this increased to 11 of 145 in 2001.

Section 3.3 mentioned the possibility that proximity to a junction might affect the incidence of Hit and Run accidents. Table A.2 examines the proportion of casualties that are injured in Hit and Run accidents at (or within 20m of) a junction and away from any junction. Differences are small, so this factor does not seem to influence drivers' willingness to Hit and Run.

**Table A.2 Proportion of casualties injured in Hit and Run accidents at junctions, 1997-2001**

| ***Road type*** | *At* | | *Car* | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Casualty severity* | *junc-tion?* | *Car driver* | *pass -enger* | *Motor -cyclist* | *Pedal cyclist* | *Pedes -trian* | *Other* | *All* |
| ***BU*** | | | | | | | | |
| Killed | Yes | 2.5% | 7.5% | 2.6% | 5.3% | 8.7% | 2.8% | 6.3% |
| | No | 0.7% | 5.9% | 2.6% | 7.5% | 9.0% | 1.1% | 5.7% |
| Serious | Yes | 5.2% | 8.4% | 4.2% | 11% | 11% | 4.2% | 7.8% |
| | No | 4.2% | 8.9% | 4.6% | 12% | 10% | 4.4% | 7.9% |
| Slight | Yes | 8.3% | 8.4% | 6.8% | 14% | 16% | 6.7% | 9.5% |
| | No | 8.1% | 9.0% | 7.0% | 16% | 15% | 5.5% | 10.2% |
| ***NBU*** | | | | | | | | |
| Killed | Yes | 0.8% | 0.2% | 1.6% | 1.6% | 2.3% | 2.8% | 1.2% |
| | No | 0.7% | 2.0% | 1.9% | 7.3% | 7.4% | 0.6% | 2.1% |
| Serious | Yes | 1.7% | 2.2% | 2.1% | 5.5% | 7.1% | 1.8% | 2.2% |
| | No | 2.2% | 3.1% | 2.1% | 12% | 11% | 2.0% | 2.9% |
| Slight | Yes | 3.6% | 3.4% | 4.0% | 10% | 15% | 3.0% | 3.8% |
| | No | 3.9% | 3.8% | 4.9% | 20% | 21% | 3.7% | 4.3% |

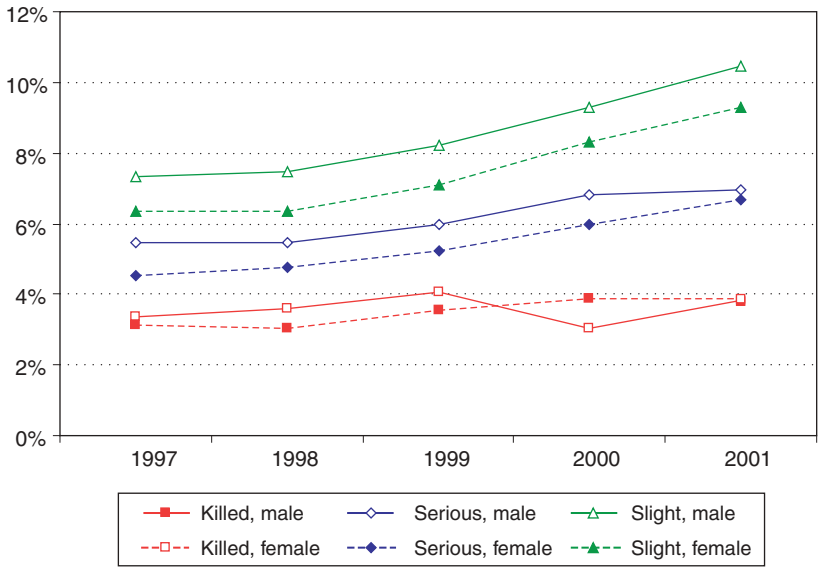


**Figure A.1** Proportion of casualties injured in Hit and Run accidents

## Abstract

Hit and Run accidents are of particular concern, partly because of the suspicion that many drivers who Hit and Run do so because they had been acting illegally. This report presents the results of a study of British accident data from 1990-2002 that investigates the incidence and character of these accidents.

Hit and Run accidents tend to be less severe than other accidents, probably because a vehicle that is capable of being driven away after an accident can only have sustained relatively light damage. They occur mainly on Built-Up roads (those with a speed limit of at most 40mph): seven out of eight Hit and Run accidents occurred on these roads in 2001. Hit and Run accidents formed a constant fraction of the accident total until 1998, but this fraction has since risen rapidly for non-fatal accidents on Built-Up roads; however, there were only slight increases on Non Built-Up roads and no increases on motorways.

Young men were the most likely to Hit and Run: nearly 12 per cent of male drivers up to 20 years old Hit and Ran, and over 10 per cent of those aged 21-30. The percentages rose rapidly for these groups between 1997 and 2001.

## Related publications

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