

## **A review of motorcycle trends and background data**

**Nich Brown,  
Director of Research and Statistical Services  
The Motor Cycle Industry Association Limited  
Starley House, Eaton Road, Coventry, CV1 2FH**

### **Background Data and Sources**

This section aims to provide useful baseline data to illustrate both the generality and specifics of motorcycle use across a wide-range of circumstances. Key sources of data from official and other reliable sources, with web-links, can be found at the end of this section. Among these, a useful collection of data illustrating some of the main trends and explaining the background to the treatment of motorcyclists and motorcycle users in mainstream sources can be found in the 2004 National Statistics publication *Transport Statistics Bulletin – Compendium of Motorcycle Statistics*.

Fundamentally, it is the actions of motorcyclists and other road users that determine the safe and efficient use of the highway network they must share, but it is the highways and traffic system itself which sets the boundaries and risks within which they must operate. Factors such as time-of-day, day-of-week, season, etc. combine with circumstances such as journey purpose, traffic and road conditions, location, etc. to produce both positive and negative effects in key aspects such as mobility, congestion and danger.

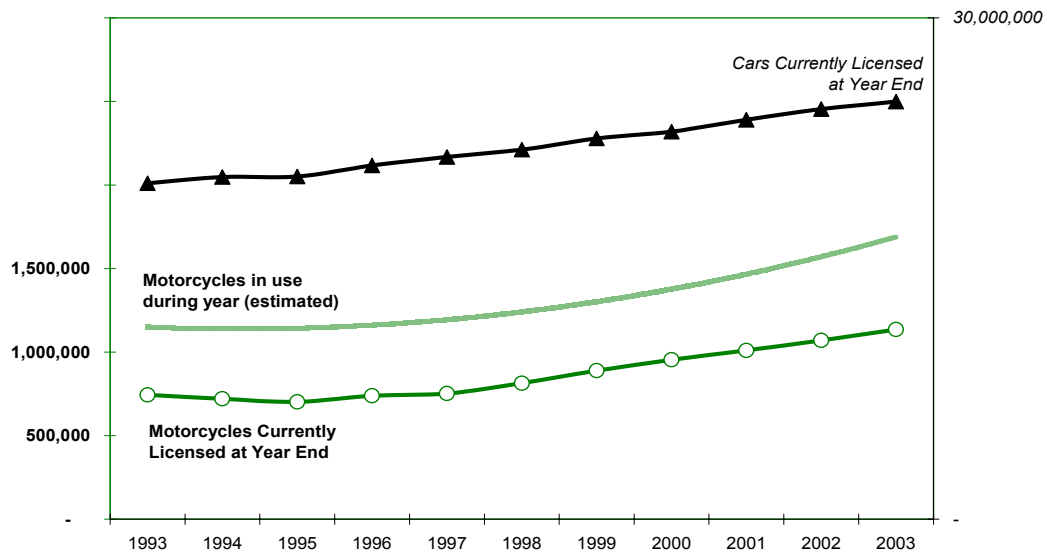
Motorcycling comprises a highly diverse set of activities which need to be understood in their own right. The majority of these activities take place on the highway and the majority of motorcycles of a single-track wheelplan, but beyond this the characteristics of the vehicles and their usage are best understood and provided for as separate but interconnecting considerations.

Ironically, it may be the very flexibility both of motorcycles and their users that has lead to their specific requirements being neglected or subsumed over many years. In terms of traffic volumes and journey purpose motorcycles can be compared to pedal-cycles and public transport vehicles, two modes which have received far more focussed attention in the past. It may well be that the disparity of treatment explains to some degree the relatively higher casualty rate among motorcycle users.

### **Motorcycle Use**

Motorcycle use has continued to grow over the last decade by all relevant measures. The number of motorcycles in use has grown since 1993. Motorcycle usage is far more seasonal than most other motor vehicle types and the standard measure of vehicles in use taken from an end of year DVLA census does not give an accurate picture of all motorcycles in use, as shown in Chart 1 below.

**Chart 1: Motorcycles in use 1993-2003**

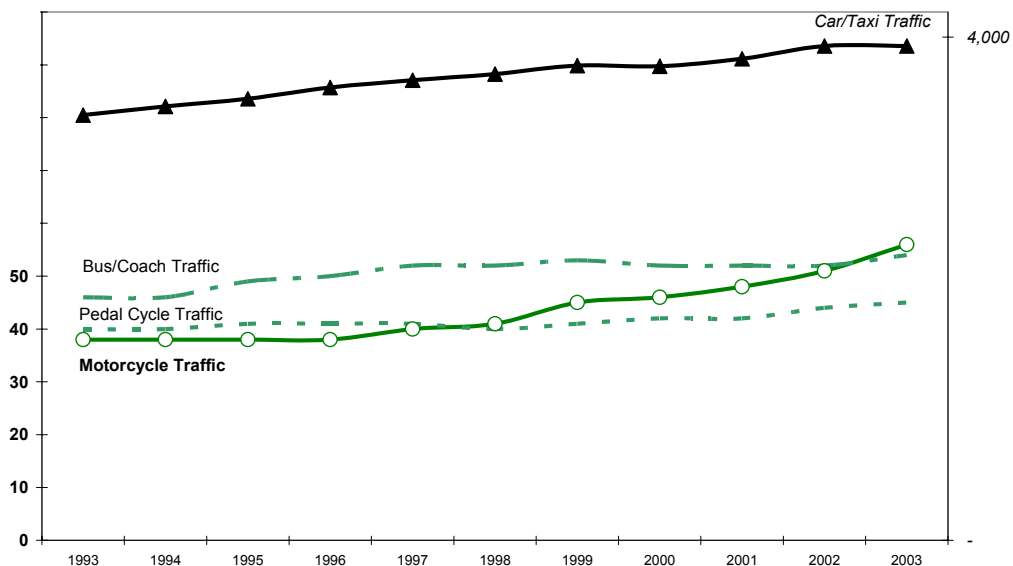


Source: Based on DVLA, DfT and SMMT data.

The growing number of motorcycles in use has meant a significant rise in the level of motorcycle traffic, *Transport Statistics Bulletin – Road Traffic Statistics: 2003* (DfT 2004) shows how the index of motorcycle traffic has grown more than that of other vehicle types (47% between 1993-2003).

This rise in motorcycle traffic can be compared to an increase in other motor vehicle traffic of 19% and an increase in road-length of just 1.8% over the same period. This suggests that increased motorcycle use is a response to traffic congestion alongside increased use of pedal-cycles and public transport.

**Chart 2: Motorcycle Traffic (100 million kms) 1993-2003**



Source: *Road Traffic Statistics: 2003*, DfT 2004

The evidence available suggests that, where growth in motorcycling has resulted from modal switch, this appears to have been mainly from adoption of the motorcycle as an alternative to car use, with most motorcycle users having access to a car.

### Characteristics of motorcycle use.

Where motorcycle use appears to have found a niche is for journeys longer than 5 miles or routes not well served by public transport. National Travel Survey data demonstrates how the majority of motorcycle journeys have a practical purpose, with the highest proportion of motorcycle trips related to work, business and education. Although there is a perception that motorcycling is predominantly a leisure activity, NTS data shows that this accounts for just 21% of total motorcycle mileage.

**Table 1: Motorcycle travel: number and length of trips by purpose, 1996-2003 average**

	Work, business, education	Shopping	Escort, other personal	Visit friends	Other leisure	<b>All trips</b>
Trips per rider per week	5.2	0.8	0.5	1.1	0.7	<b>8.3</b>
<i>As a percentage of all trips</i>	<i>63</i>	<i>10</i>	<i>6</i>	<i>13</i>	<i>8</i>	
Average trip length (miles)	8.9	6.8	7.6	8.7	23.7	<b>9.7</b>
Miles per rider per week	45.4	4.6	4.2	9.7	16.7	<b>79.9</b>
<i>As a percentage of all trips</i>	<i>57</i>	<i>6</i>	<i>5</i>	<i>12</i>	<i>21</i>	

Source: Based on National Travel Survey, DfT published in *Compendium of Motorcycle Statistics* (National Statistics 2004).

The trend toward longer journeys and more time spent travelling can also be seen in the pattern of motorcycle use over the past decade, however, an obvious advantage of motorcycle use can be seen in the fact that whilst distance travelled per week has risen by a third, time spent has grown by an eighth.

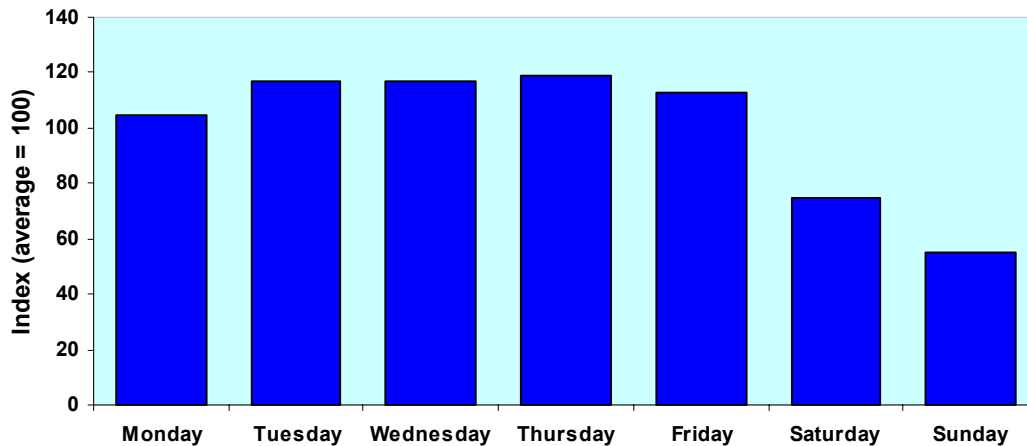
**Table 2: Motorcycle travel trends, 1992/94 - 2003**

	<b>1992/94</b>	<b>1998/00</b>	<b>2003</b>
Trips per rider per week (number)	9.7	8.4	8.5
As a percentage of all trips	39	35	39
Distance travelled per rider per week (miles)	66.6	76.4	88.8
As a percentage of total distance travelled	37	41	45
Time spent travelling by motorcycle per week (hours)	3.0	3.3	3.4
As a percentage of total travelling time	37	38	42

Source: National Travel Survey, DfT published in *Compendium of Motorcycle Statistics* (National Statistics 2004).

Motorcycle trips are highest during the working week, although for many people the weekend is also a working-period this is also when motorcycles are used for leisure purposes

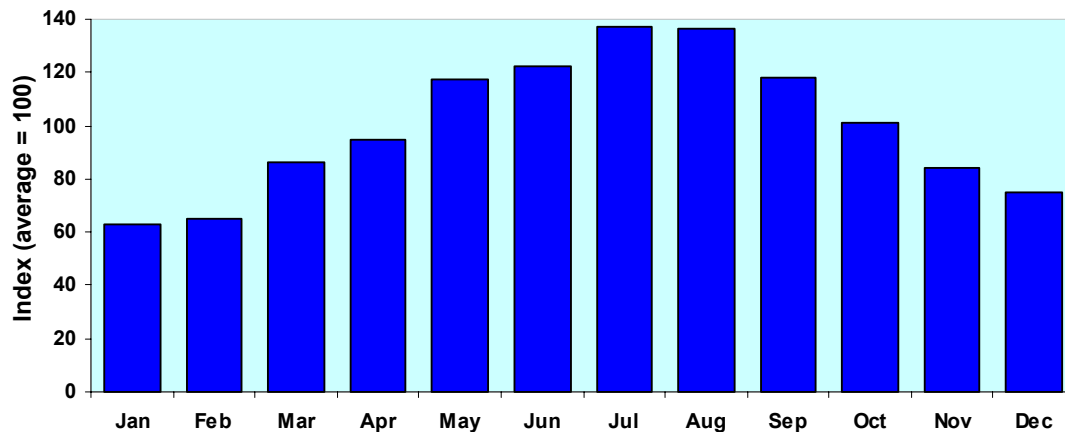
**Chart 3: Motorcycle travel: trips by day of the week, 1996-2003 average**



Source: National Travel Survey, DfT published in *Compendium of Motorcycle Statistics* (National Statistics 2004).

As noted above, motorcycling is affected by seasonal variations as weather conditions can have a marked effect on motorcycle use for all journey purposes. Thus, there is markedly less activity in winter months and higher than average motorcycle traffic levels in the 6 months May to October.

**Chart 4: Motorcycle traffic by month, 1999-2003 average**

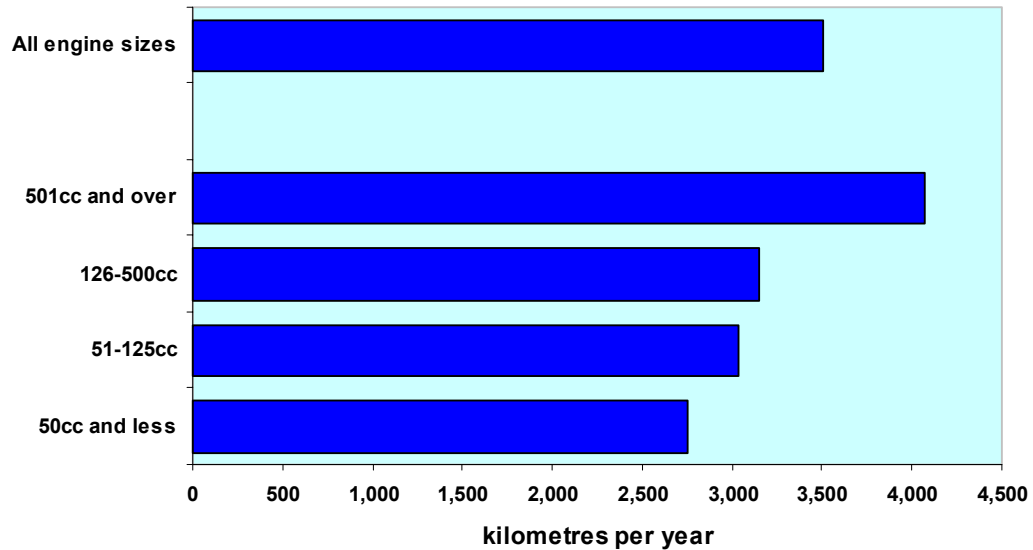


Source: DfT traffic surveys published in *Compendium of Motorcycle Statistics* (National Statistics 2004).

Of the 5.6 billion kilometres travelled by motorcycle in 2003, most (54%) was on urban roads, with a further 39% on rural roads and the remainder on motorways. *Transport Statistics Bulletin – Road Traffic Statistics: 2003* (DfT 2004).

Not surprisingly, motorcycles with larger engines record higher annual total distances, reflecting their ability to complete journeys of a greater length in addition to being used for the same sort of trips as smaller capacity machines.

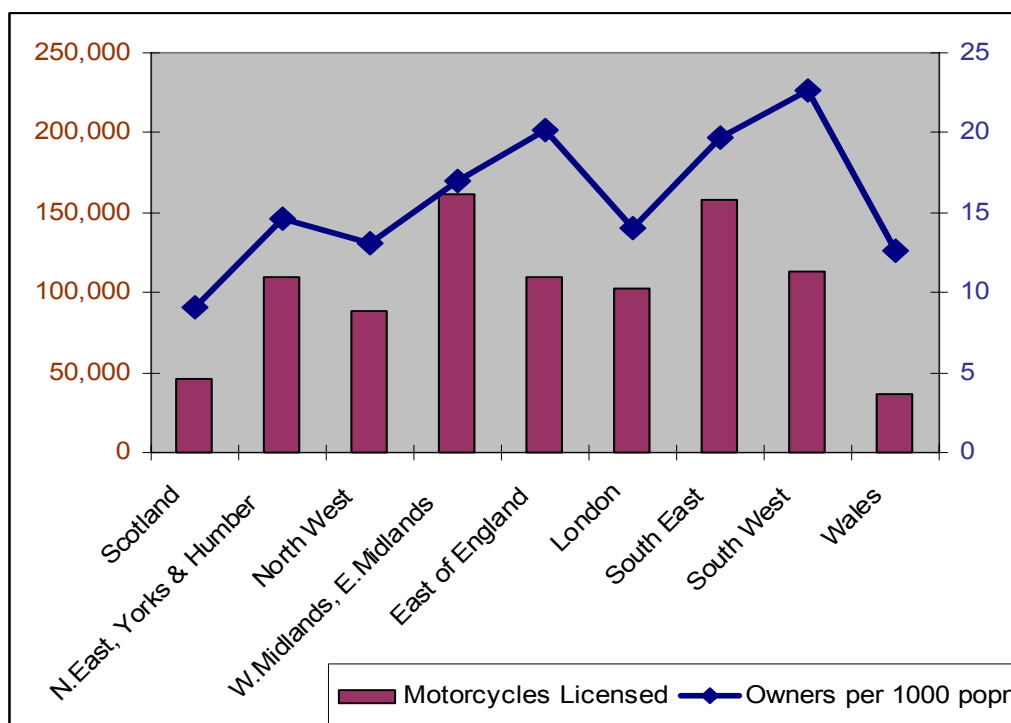
**Chart 5: Annual distance travelled by engine size (1996 - 2003 average)**



Source: National Travel Survey, DfT published in *Compendium of Motorcycle Statistics* (National Statistics 2004).

Motorcycle ownership varies by region, with the highest concentrations of licensed machines in largely urbanised regions (West Midlands and East Midlands, South East). Two largely rural regions (East of England, South West) have concentrations per head of population that are not only the highest for any of the regions but also, unusually high in relation to the number of licensed machines.

**Chart 6: Motorcycles Licensed and Ownership by Region (2002)**

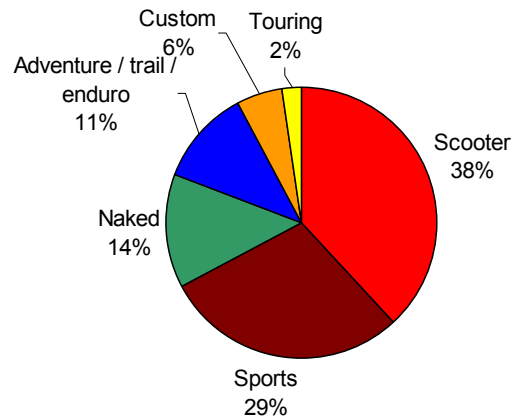


Source: Based on *Vehicle Licensing Statistics: 2002*, DfT and data published in *Compendium of Motorcycle Statistics* (National Statistics 2004)

Motorcycles are available in a variety of configurations to suit the needs and purposes of a wide-range of riders. The main attributes are found in the combination of engine size and style but these are further enhanced by the selection of additional features, eg; for load-carrying or rider comfort. The various styles of machine are generally available with a wide-choice of engine size depending on the range required.

DVLA records do not contain comprehensive body-type or 'style' data, but this can be seen in the MCRIS new motorcycle registration reports. The Scooter style ('step-through' frame design, generally with leg-shields, comprising both restricted 50cc mopeds and also motorcycle-scooters of typically 125cc) was by far the most popular sector, accounting for nearly 40 per cent of registrations. Sports machines (typified by highly efficient aerodynamic bodywork and available in almost all engine sizes) have also traditionally made up a large proportion of registrations. Naked machines (unfaired and also available with the full-range of engines) have become less prevalent over the years as the remaining styles have grown to account for almost a fifth of registrations.

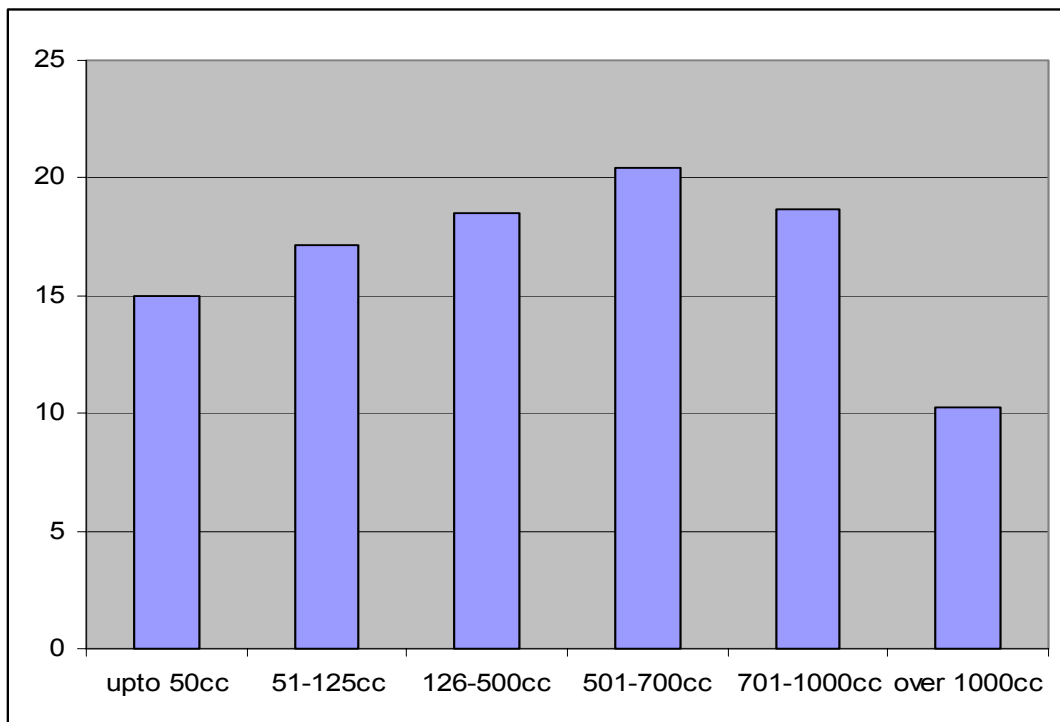
**Chart 7: Registrations by style (2003)**



Source: Motor Cycle Registration Information Service, MCIA published in *Transport Statistics Bulletin – Compendium of Motorcycle Statistics* (National Statistics 2004).

The stock of motorcycles in use is split between machines under 500cc (51%) and those over 500cc. As can be seen from Chart 5 below, the most popular engine size is around 600cc with relatively few machines over 1000cc.

**Chart 8: Proportion of motorcycle stock by engine size (2003)**

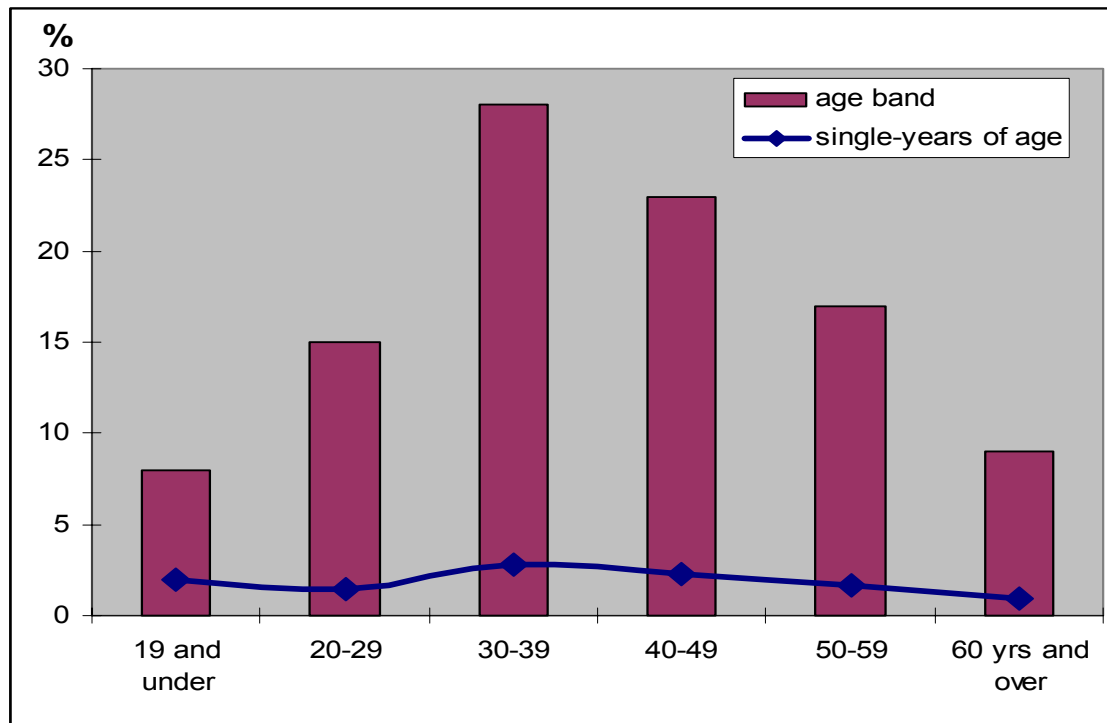


Source: DVLA, DfT data

Unfortunately, it is more difficult to stratify motorcycle users to the same level of detail, but NTS data collected over the period since 1993 gives a picture which agrees

broadly with other sources. Generally, the age profile of the motorcycle user population reflects that of the adult population general with most riders being over 30 years of age. Although it would appear there are proportionately far fewer riders under 20 or over 60 years, it is not possible to obtain a licence to ride before 16 years old so the 16-19 age band is far smaller – by looking at the proportions for single-year of age we get a different picture of moped and motorcycle use among young people. For older riders, issues such as comfort and fitness may be more decisive.

**Chart 9: Proportion of motorcycle users by age-band and single years of age (1993-2003 average)**



Source: Based on National Travel Survey, DfT published in *Compendium of Motorcycle Statistics* (National Statistics 2004).

### Key Issues - Safety

Safety is without doubt the single issue most commonly associated with motorcycle use. Although still rare events in absolute terms (one rider is killed every 8 million kilometres travelled by motorcycle), riders are many times more likely to be killed than occupants of enclosed, multi-track vehicles which offer far more protection in the event of a collision. Ironically, it is the very effectiveness of safety design in larger vehicles which is most often injurious to motorcycle users (and others).

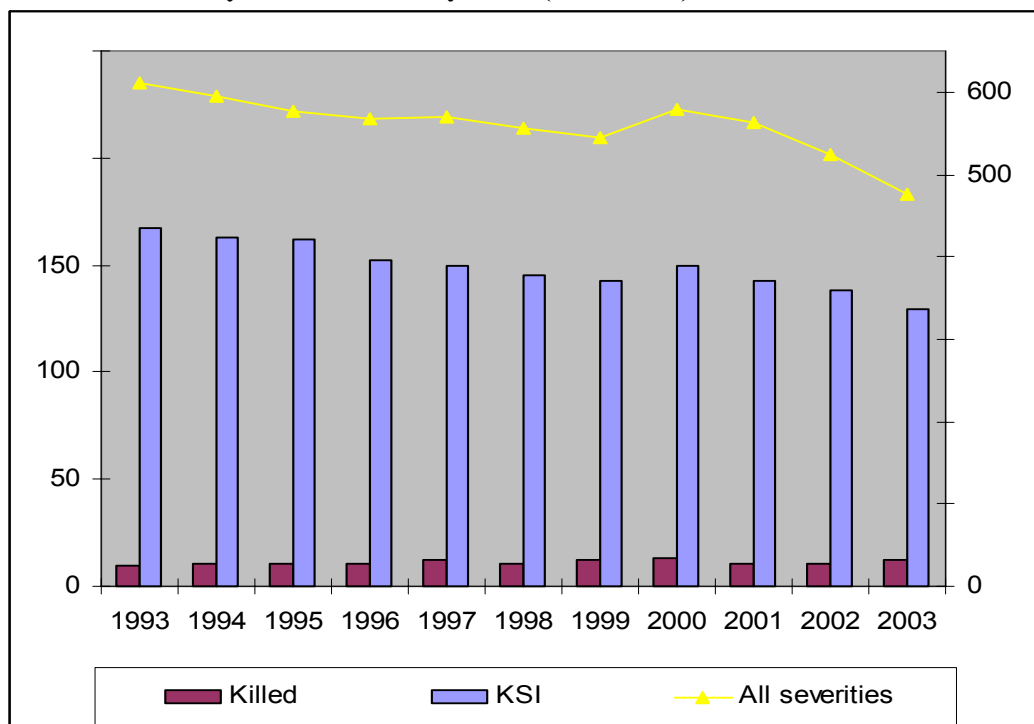
In 2003, of 693 motorcycle users killed, 73% (n=508) died after collision with a larger vehicle (*Road Casualties Gt Britain 2003*, DfT 2004). The single largest grouping of such collisions were the 38% (n=263) in collision with a single car.

In terms of danger to other road users, figures for 2003 show 3.0% (n=23) of pedestrian road deaths and 1.8% (n=2) of cycle user deaths followed collision with a motorcycle.

There is also concern over the 24% (n=167) of riders killed in crashes where no other road-user was recorded as being involved. However, it should be noted that this compares to an even larger figure for occupants of cars where 35% (n=614) died in such crashes during 2003 and even higher proportions for other larger vehicles.

A number of improvements in motorcycle design and rider training have taken place over the last decade and the casualty rate (number of casualties per kilometre) has generally improved, especially for non-fatal injuries, despite the largely urban nature of motorcycle use and greater volume of larger vehicles within the same road space.

**Chart 10: Motorcycle rider casualty rates (1993-2003)**



Source: Based on *Road Casualties Gt. Britain 2003 – the casualty report* Table 8 (DfT 2004)

Typical situations in which riders are killed or injured comprise; Junction collisions the most prevalent accident type (67% of all motorcycles involved in accidents during 2003 were listed as ‘at a junction’) and according to studies are most likely to be precipitated by another road user.

Overtaking a moving or stationary vehicle (15% of motorcycle accidents) may lead to an accident precipitated by either the rider or other vehicle driver.

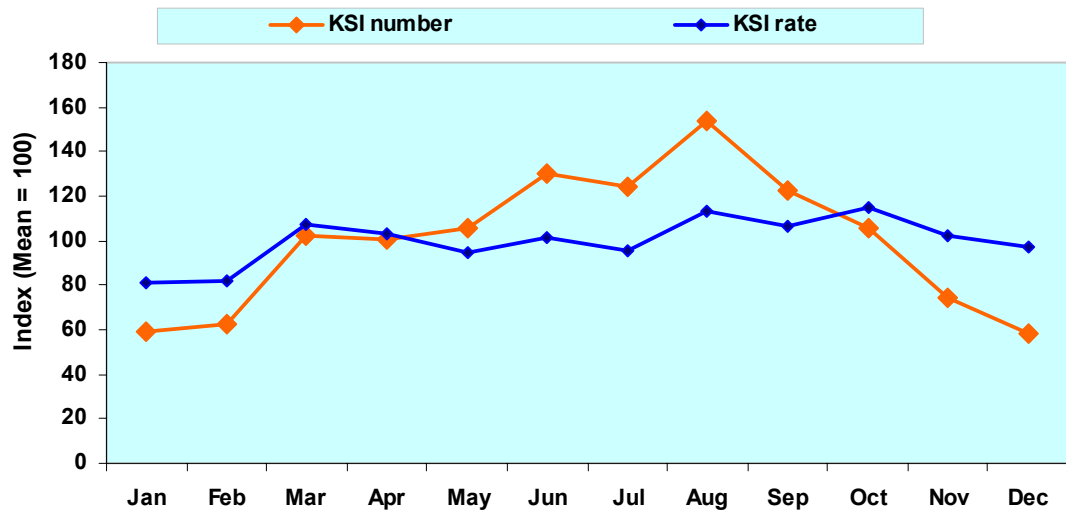
Bend accidents (12% of motorcycles were recorded as ‘going ahead on bend’) are most likely to be judged the rider’s fault, often involving no other road users.

Urban and Rural areas see different patterns of motorcycle crash involvement. The severity of these crashes also tends to vary with the type and concentration of hazards encountered, or combined impact speed of vehicles involved. Thus, while the rural

accident involvement rate (per 100 million kms ridden) was 36% lower than for urban road in 2003, the motorcycle user fatality rate was three times higher on rural roads.

Casualty numbers also vary according to time of year. As noted above, motorcycle activity rises between spring and autumn, and the number of KSI casualties among riders also rises. However, motorcycle traffic volume also rises so that the rate of casualties can be lower than at other times of the year. To some extent, the effect of changes in traffic volume on the published rate disguises the particular hazards faced by all-year / all-weather riders during winter months.

**Chart 11: Motorcyclist KSIs: number and rate by month of year (indexed), 2003**



Source: *Road Accident Statistics, DfT in Compendium of Motorcycle Statistics* (National Statistics 2004).