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Findings 193

The extent of motorcycle theft

Greg Braun

In 2000, an estimated 36,822 motorcycles were recorded stolen on the Police National Computer (PNC) in England, Scotland and Wales. This Findings summarises an analysis of the estimated 28,957 stolen motorcycles (includes scooters, mopeds and motorbikes) where records of stolen motorcycles on the PNC could be matched (using the vehicle registration mark) to records of licensed motorcycles held by the Driver and Vehicle Licensing Agency (DVLA). Reasons for the scale of motorcycle theft and some recommendations on how individual owners and other agencies involved can tackle the problem of motorcycle theft in future are also discussed.

Key points

- In 2000, an estimated 25 motorcycles were stolen for every 1,000 registered with the DVLA (see Methodological note).
- Mopeds and scooters are at much greater risk of being stolen than motorbikes – they made up just 26% of the total of motorcycles registered but accounted for 56% of all thefts. The theft rate for mopeds and scooters was 53 per 1,000 registered compared with 15 per 1,000 motorbikes registered. Generally, low capacity motorbikes were also shown to have a high risk of theft.
- Age of motorcycles is also relevant – those first registered in 1999 (i.e., were one-year-old) faced the greatest risk of being stolen, with a theft rate of 39 per 1,000 registered. This contrasts with car theft in 2000 which peaked for vehicles registered in 1987 and 1988 (12- and 13-years-old) in the same year.
- The recovery rate for motorcycles (32% in 2000) was lower than that for cars at 65%. Mopeds and scooters had a slightly higher recovery rate of 37%, compared with 26% for motorbikes.
- Suggestions for reducing the rates of motorcycle theft include manufacturers improving the security on motorcycles and the recording of model codes; owners increasing the marking of motorcycle parts and using more secure parking; and the police improving the recording of motorcycle thefts.

The theft of motorcycles is not only an inconvenience to the individual victims (in 2000, over 35,000 people in England, Wales and Scotland) but it is part of the serious social and economic problem of vehicle crime generally. It is calculated that overall vehicle crime costs around £3.5 billion each year (Brand and Price, 2000) when insurance claims, investigation costs and immediate personal costs are considered. Although statistics on car theft are well developed (Home Office, 2002a), until now there have been no comprehensive statistics on motorbike, scooter and moped theft (Home Office, 2002b).

The views expressed in these findings are those of the authors, not necessarily those of the Home Office (nor do they reflect Government policy)

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Table 1 Number and rate of theft of groups stolen according to engine capacity in 2000

Motorcycle group (engine capacity cc)	No. of thefts	No. registered	Theft rate per 1,000 registered
Moped / Scooter	16,151	304,260	53
Motorbikes:			
101–200cc	5,043	106,682	47
201–300cc	1,001	58,059	17
301–400cc	1,024	60,818	17
401–500cc	390	61,595	6
501–600cc	2,139	167,410	13
601–700cc	393	49,345	8
701–900cc	1,318	154,693	9
901–1050cc	900	94,522	10
>1050cc	598	101,070	6
Motorbike total	12,806	854,194	15
Motorcycle total	28,957	1,158,454	25

Note: Due to difficulties in defining scooters and mopeds, some of these types of motorcycles may be included in the lower cc motorbike groups. They may often include bikes designed for 'off-road'.

Numbers stolen and theft rates

Between 1 January 2000 and 31 December 2000, there were 1,158,454 motorcycles registered on the road in England, Wales and Scotland. Over this period, it was estimated from the PNC that 36,822 (3.2%) motorcycles were stolen. (Note: the figure is an estimate as thefts reported onto the PNC that are recovered the same day or weekend period are not recorded. The estimates are derived using adjustments based on separate theft figures from five police forces.) This was the equivalent of one motorcycle stolen for every 40 on the road – almost twice the theft rate of cars at one car in 77 (Home Office, 2001).

The results presented here relate to the estimated 28,957 thefts where records of stolen motorcycles on the PNC could be matched (using the vehicle registration mark) to records of licensed motorcycles held by the DVLA. The DVLA information is needed to identify the type, engine capacity and age of each motorcycle. The discrepancy between the two figures could be due to:

- the vehicle registration details being reported incorrectly to or by the police or put onto the PNC incorrectly
- the vehicle not being registered with DVLA and being used illegally.

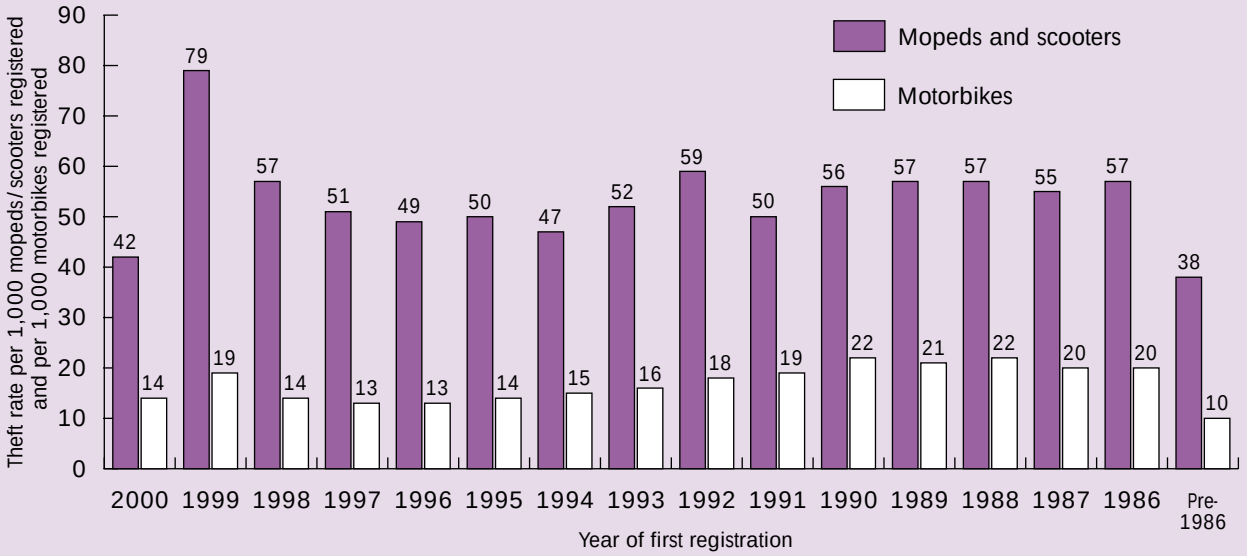
Theft by type

Mopeds and scooters are at much greater risk of being stolen than motorbikes. 16,151 mopeds and scooters were reported stolen in 2000 – a theft rate of 53 per 1,000 compared with 12,806 motorbikes – a theft rate of 15 per 1,000 registered (Table 1). Motorbikes with an engine capacity of between 101–200cc have the highest theft rate of all motorbike groups (47 per 1,000 registered on the road) but further analysis shows that it is the lower capacity motorbikes within this group that are at a higher risk of theft. For example, 101–125cc motorbikes had a theft rate of 51 per 1,000 registered, while 126–200cc motorbikes had a theft rate of 17 per 1,000 registered. Motorbikes with engines >1,050cc had an estimated theft rate of only six per 1,000 registered.

It has been suggested anecdotally that motorcycles with larger engines (over 500cc) account for a large proportion of thefts. However, the results show that motorcycles at the 'lower capacity' end of the market (engines less than 500cc) accounted for over 82% of all motorcycle thefts although only 51% of the total registered. Mopeds and scooters made up just 26% of the total registered but accounted for 56% of all thefts. Motorbikes up to 500cc made up 25% of the total registered but accounted for 26% of all motorcycle thefts.

Figure 1 Risk of theft by first year of registration for all motorcycles stolen in 2000 (expressed as a number per 1,000 registered)

Figure 2 Risk of theft by first year of registration of all motorbikes and mopeds/scooters stolen in 2000 (expressed as number per 1,000 registered)



Motorbikes with an engine capacity of more than 500cc accounted for 49% of those registered but only 18% of the total stolen.

Theft by year of registration

Age also appears to be a significant determinant of risk of theft. Newer motorcycles such as those up to two years' old were at a particularly high risk of theft. Figure 1 shows the distribution of theft by year of first registration between 1986 and 2000, with a definite peak in risk for one-year-old bikes. This contrasts with car theft in 2000, which peaked for vehicles registered in 1987 and 1988 – 12- and 13-year-old cars (Home Office, 2001).

Motorcycles first registered from 1998 onwards made up around 40% of the total registered, yet they contributed to just under half (48%) of total motorcycle thefts. Motorcycles that were first registered in 1999 faced the greatest risk of being stolen, with a theft rate of 39 per 1,000 motorcycles registered. Those least likely to be stolen were registered between 1995–1997 with just 19 thefts per 1,000 registered.

It should be noted that the low theft rate pre-1986 is likely to be due to the 'one-off' and vintage nature of many of the bikes registered in those years. It is possible that these bikes are used less and are kept more secure than those registered in more recent years – therefore lessening opportunities to steal these bikes.

Further analysis was undertaken to assess whether the theft rate distribution by year of registration was the same for mopeds and scooters as it was for motorbikes (Figure 2). Mopeds and scooters overall faced the greatest risk of being stolen. This was particularly apparent in 1999 when the risk of theft was 79 per 1,000 registered on the road. In all other years, mopeds and scooters faced a risk

Table 2 Top ten mopeds/scooters and motorbikes, split by type, most at risk of theft in 2000

Moped scooter type	No. of thefts	No. registered	Theft rate per 1,000 registered	Motorbike type	No. of thefts	No. registered	Theft rate per 1,000 registered
Motor Hispania Moped	16	136	121	Kawasaki 101–125cc	564	6,715	84
PGO <101cc	12	100	118	Easy Rider 101–125cc	33	408	81
Piaggio <101cc	80	763	105	Aprilia 101–125cc	659	9,294	71
Gilera Scooter	856	8,324	103	Yamaha 101–125cc	1,193	21,082	57
ADLY Moped	35	369	96	Cagiva 101–125cc	115	2,478	47
Cagiva Scooter	13	144	90	Hyosung 101–125cc	9	203	46
ADLY Scooter	19	243	78	Jialing 101–125cc	7	155	46
Gilera Moped	490	6,869	71	Suzuki 301–350cc	87	1,954	45
Derbi Moped	192	2,702	71	CZ 101–125cc	26	590	44
Malaguti Moped	128	1,960	66	Honda 101–125cc	1,416	32,871	43

at least twice as high as motorbikes in the same year. Results also show that there is a slight trend for motorbikes to be more at risk of theft if registered between 1987 and 1990. Further research is needed into why the risk of theft, particularly for scooters/mopeds, is so high for those registered in 1999. Reasons could be:

- in 2000, these bikes had been on the road for a full 12-month period whereas some of those registered in 2000 may have only been on the road for a few months. It is expected that the same analysis carried out on 2001 data would show the figure for those registered in 2000 to be greater. At the same time, those registered in 1999 were still relatively new and potentially more attractive to thieves
- anecdotal evidence suggests that insurance fraud may be involved. This could be linked with the provision of free first-year insurance to purchasers of new bikes by many motorcycle manufacturers and importers.

Theft by makes and type of motorcycle

Table 2 shows that, as for cars (Home Office, 2002a), make and type are major determinants of risk of theft. It highlights further the extremely high theft rates for mopeds and scooters, which are consistently much higher than those experienced amongst even the most 'at risk' motorbikes.

This table confirms that the types of motorbikes most at risk are those with lower engine capacities, typically ranging between 101–125cc. Suzuki 301–350cc is the only exception to this (in 8th position with 45 stolen per 1,000 registered) but these bikes can still be considered to be in the lower end of the 'power' market. It should be noted that the Kawasaki 101–125 and Suzuki 301–350 bikes are almost exclusively bikes designed for 'off-road' purposes.

The top 20 motorcycles account for 97,360 of those registered on the road in 2000 (8%) but 21% of the total stolen. In the Bike Theft Index (Home Office, 2002b) there were 64 'most at risk' types of motorcycles (i.e., more than 50 in every 1,000 on the road stolen). These constitute 170,114 (15%) motorcycles on the road in 2000 and accounted for 39% of all motorcycles stolen.

The next stage of the analysis was to combine the variables of type, make and year of registration to examine which of these factors put a motorcycle most at risk of theft. The results showed that for motorbikes, certain makes and engine capacities were consistently more at risk of theft than others despite their relative age. The results also illustrated a peak of risk for one-year-old mopeds/scooters in 1999 and that:

- mopeds and scooters most at risk were those that were relatively new, 1997 and onwards. Over half were first registered in 1999
- motorbikes manufactured by Kawasaki made up eight of the top ten motorbikes that were most at risk of theft in 2000 (these are bikes that are characterised by low engine capacities).

The years of first registration are much more widely spread for motorbikes than for mopeds/scooters. This could be due in part to the increasing popularity of mopeds and scooters for commuting purposes. Very regular usage of these newer mopeds/scooters may, in part, explain their higher rates of theft relative to motorbikes.

Theft by police force area

Geographical analysis of motorcycle theft was carried out to assess whether the risk of theft varied across regions (Table 3). Given that lower capacity motorcycles are typically used as commuter transport it might be expected

Table 3 The ten police force areas with the highest rates of theft for all motorcycles in 2000

Police force area	No. of thefts	No. registered	Theft rate per 1,000 registered
City of London	106	1,339	79
Metropolitan	16,067	322,862	50
Greater Manchester	1,361	33,450	41
Merseyside	742	18,870	39
South Yorkshire	794	21,232	37
West Yorkshire	1,513	40,534	37
South Wales	469	13,542	35
Cleveland	320	9,546	34
Northumbria	639	20,199	32
Humberside	742	24,946	30

Note: The theft rate here is based on numbers stolen from the police force area in which the registered keeper of the stolen vehicle lives and not necessarily the police force area in which the bike was stolen. The term 'Metropolitan/Urban areas' is used as an umbrella term in this context. It is recognised that the size of these areas and population differs greatly.

to see their high theft risk reflected in this analysis. However, although the rate of thefts in the City of London is relatively high in contrast to other areas it should be noted that the actual number of motorcycles registered in this area is very low.

The geographical profile of these police force areas is predominantly large metropolitan/urban areas.

Highest risk police force areas

Interestingly, mopeds and scooters made up on average 71% of all motorcycles stolen within the top ten police force areas with highest risk. City of London had the largest share of moped and scooter theft (86%) as a percentage of all motorcycle theft in that area. The next greatest number of moped/scooter thefts was in the Metropolitan police area (78%).

While mopeds and scooters account for a large percentage of thefts and high theft rates in the larger metropolitan/urban forces, further analysis has shown that motorbikes in these areas alone still have a theft risk twice as high as those in the more rural areas.

There is a distinct contrast in the theft rates between mopeds/scooters and motorbikes in the top ten most 'at risk' police forces. Theft rates for mopeds/scooters per 1,000 motorcycles registered ranged from 56 (Humberside) to 114 (City of London), compared with motorbike theft rates which ranged from 12 to 28 thefts per 1,000 registered between these same areas.

Lowest risk police force areas

Analysis of the ten forces with the lowest risk of motorcycle theft in 2000 identified these areas as predominately rural including Devon and Cornwall, Dorset, Tayside and Wiltshire. The lowest theft rate was for the Northern area (headquarters in Inverness) with only four thefts per 1,000 registered. Mopeds and scooters made up on average 56% of all motorcycles stolen in these ten areas.

Although these police force areas had far less motorcycle theft compared with the top ten police force areas shown in Table 3, a higher theft rate for mopeds/scooters compared with motorbikes within each force can still be identified.

Points for action

Manufacturers

- Improving vehicle security on motorcycles

  Due to the very high theft rates associated with many of the bikes on the road, manufacturers should continue to develop and fit high specification security measures such as electronic immobilisers, physical security features and parts marking to all models. This may bring about reductions in theft rates similar to those which cars have enjoyed, which is largely believed to be as a result of the compulsory fitting of electronic immobilisers since 1998.

- Improving the recording of model codes

  Manufacturers should work with the DVLA to review and increase the accuracy of the way in which model and body codes of motorcycles are defined and recorded. This would allow a more detailed breakdown of motorcycles, if this exercise were repeated annually.

The Police

Improve the recording of motorcycle thefts

Police need to continue to improve the recording of motorcycle information when reporting thefts onto the Police National Computer. A particular concern for this study was a significant proportion of thefts that could not be matched against DVLA records. This could be partly due to inaccurate information taken from the PNC.

Motorcyclists

- Using vehicle security

  Owners of motorcycles should ensure that their vehicles are adequately secured and should if necessary fit and routinely use after-market security devices as recommended by recognised test houses such as Sold Secure or Thatcham.

- Parts marking

  Putting security marking on as many parts of a motorcycle as possible will make motorcycles less attractive to opportunistic thieves and will increase the owner's chance of getting the machine back if it is stolen and then recovered.

- High-risk groups

  Owners of motorcycles that are at high risk of theft should take extra security precautions (see Home Office, 2002b). The Bike Theft Index can also be accessed online at: www.secureyourmotor.gov.uk

- Parking

  Making use of motorcycle parking provision where available would improve security options with no extra cost to the motorcyclist using them. Wherever possible, riders should use spaces that have stands or security loops to secure the vehicle to but it should always be secured to something that cannot be moved. Owners should look for secured motorcycle parking spaces in public car parks and make use of the Police approved 'Secured Car Parks' scheme. Further information can be found at www.securedcarparks.com

Recovery rates

Statistics on recovery rates for motorcycles show that the chances of having a stolen motorcycle recovered are very low, compared to the rates for stolen cars. The recovery rate for motorcycles in England, Scotland and Wales was 32% in 2000 compared to 65% for cars (Home Office, 2000). The cost of spare parts for motorcycles is very high and may be a reason for the very low recovery rates, as stolen vehicles may be broken up for parts. Furthermore, anecdotal evidence suggests that low recovery rates of, in particular, high-capacity bikes may be due to organised criminal activity. The work of the Organised Vehicle Crime Section within the National Criminal Intelligence Service is a positive contribution to dealing with this problem and this is currently being independently evaluated.

Mopeds/scooters had a higher rate of recovery (37%) compared to 26% for motorbikes.

Of the motorbike groups, 401–500cc had the highest recovery rate (37%), while motorbikes with an engine capacity >1050cc had the lowest recovery rate at only 9%. Bikes of this type usually have a high value in the motorcycle market, which may be one reason for their very low recovery rate. It has also been suggested that bikes of this type are particularly prone to professionally organised crime for parts, export or ringing.

Further research

Figure 1 showed that for motorcycles first registered in 1999 there was a particularly high theft rate (39 per 1,000 registered and, when separated by type, 79 per 1,000 for scooters/mopeds), compared to other years. A number of possible reasons for this particularly high theft rate have been suggested but to examine this more fully, further research would be required.

Methodological note

To provide reliable results about the comparative risk of thefts for individual motorcycles, only makes and groups (defined by engine capacity e.g. 101cc–200cc).of motorcycles with over 100 vehicles registered by DVLA were separately identified in this analysis. (There are many motorcycle makes with less than 100 registered. They tend to be vintage, rare and one-off customised motorcycles and their inclusion would skew results and give a misleading picture about the risk of theft for less specialised motorcycles.)

'Motorbike' is taken to mean all motorcycles other than those defined as scooters or mopeds by the registration information provided by DVLA or defined by manufacturers' comments and descriptions taken from the *Glass's Guide Motorcycle Checkbook* and the *CAP Green Book*. Due to the difficulties in defining differences between some scooters and motorbikes, it is possible that a small number of these types of motor cycles may be included in some lower cc motorbike groups. These may often include bikes used 'off-road'.

In 1999, an estimated 25% of motorcycles on the road were unlicensed compared with around 4% of cars (DofETR, 2000). This report is based upon motorcycles that had some period of licensing activity during 2000, so the figures are not directly comparable. However, it should be recognised that a proportion of the 25% unlicensed motorcycles may not have been licensed at any point throughout the year and so would not have been included in the figures contained in this report. Inclusion of these 'extra' motorcycles in this analysis may have had a significant impact on the theft rates. DVLA have issued a consultation paper to examine ways to reduce the high number of unlicensed vehicles – due for publication in 2003.

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For a more detailed report see *An analysis of the extent of motorcycle theft in 2000* by Greg Braun which will be be available on the Home Office RDS website: http://www.homeoffice.gov.uk/rds/

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