

Roads Task Force – Technical Note 6

What are the trends and patterns of powered two-wheeler traffic in London?

Introduction

This paper forms one of a series of technical notes, produced to contribute to the Roads Task Force Evidence Base. This paper looks at the topic of powered two-wheeler (PTW) traffic. PTWs (also known as ‘single-track’ vehicles) include mopeds (PTWs with an engine displacement of less than 50 cc) and motorcycles (PTWs with an engine displacement of 50 cc or more).

Summary

- PTWs account for around 2 per cent of motorised traffic on major roads in Greater London.
- PTWs account for 0.4 per cent of personal travel trips by London residents.
- Most PTW trips are made by males aged between 25 and 44.
- 60 per cent of (personal travel) PTW trips are to or from work.
- PTW trips are generally longer than car driver trips; 37 per cent of PTW trips were 10 or more kilometres, compared to 16 per cent of car driver trips.
- PTW traffic in London peaked in 2006. Since then it has declined each year.
- PTW traffic (vehicle kms) in Central and Inner London combined is greater than that for Outer London – the only motorised mode for which this is the case.
- Compared to the 1994-99 base average, PTW traffic in Central and Outer London in 2011 was 14 and 9 per cent lower respectively, but 7 per cent higher in Inner London.
- Riders/passengers of PTWs accounted for 16 per cent of all casualties on London’s roads in 2011, 22 per cent of all serious injuries and 19 per cent of all fatalities.

PTWs – why are they important?

PTWs represent an alternative to the car. They offer a rapid independent mode of road transport and are cheaper to buy and maintain than a car. PTWs can often be parked very near to the user’s final destination, although not always legally. With high collision rates and high levels of noise and air pollution, PTWs also have drawbacks. There are relatively few studies of PTW travel behaviour, which is something that advocates of the mode are keen to address.

Who uses PTWs?

The travel behaviour of Londoners is surveyed annually in depth through TfL’s London Travel Demand Survey (LTDS). Results from this survey provide essential information about how Londoners use the transport system and can therefore provide a useful insight into who uses PTWs, why they use PTWs and what they use PTWs for. However, they do not include travel on employer’s business – such as motorcycle couriers making deliveries. These trends are, however, included in the traffic volume statistics cited in this note.

Table 1 ranks the mode shares of trips in London in 2011/12. It shows that PTWs account for a very small proportion of overall trips at just 0.4 per cent, which is substantially lower than

all other road modes, including the other 'single-track' mode of cycling, which has a mode share of 2.7 per cent (Table 1).

Table 1 2011/12 mode shares for trips in Greater London (personal travel by London residents only).

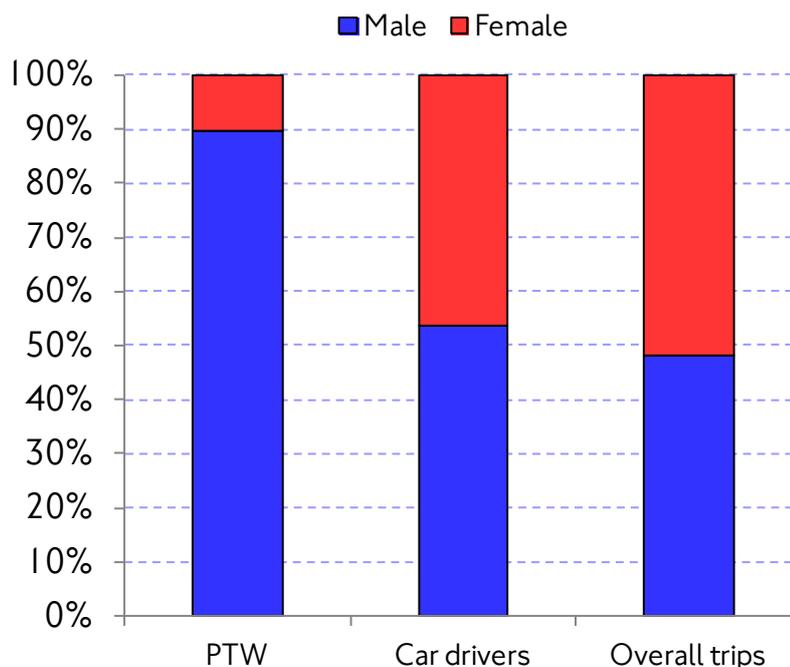
	Mode share (%)
Walk	30.4
Car driver	25.4
Bus/tram	14.8
Car passenger	12.3
Underground/ DLR	7.5
National Rail	4.9
Cycle	2.7
Taxi/ Other	1.3
Motorcycle	0.4

Source: LTDS 2011/12.

Figures 1 to 4 use data from the LTDS database covering seven years (2005 to 2012). Unfortunately LTDS does not distinguish between moped and motorcycle users, however the results remain useful to see the overall makeup of PTW users.

Figure 1 shows that the vast majority (90 per cent) of PTW trips are made by men. This compares to 54 per cent of car driver trips and 48 per cent of trips overall.

Figure 1 Distribution of PTW trips, car driver trips and overall trips by gender (personal travel by London residents only).



Source: TfL Strategy and Planning.

PTW users tend to be young. Figure 2 shows that 57 per cent of PTW trips were made by people aged between 25 and 44, which compares to 46 per cent of car driver trips and 48 per cent of overall trips. In contrast, just 8 per cent of PTW trips were made by people aged 60 and over, compared to 18 per cent of car driver trips and 17 per cent of overall trips.

Figure 2 Distribution of PTW trips, car driver trips and overall trips by age (personal travel by London residents only).

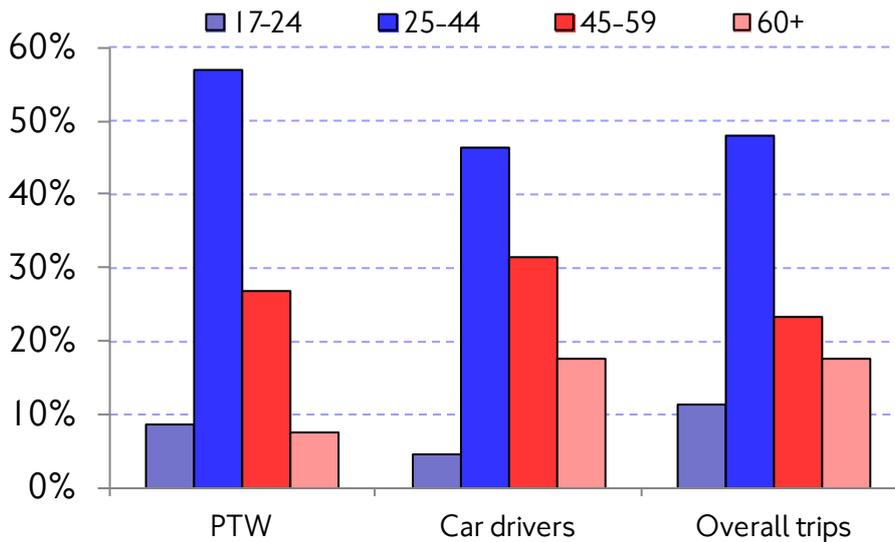
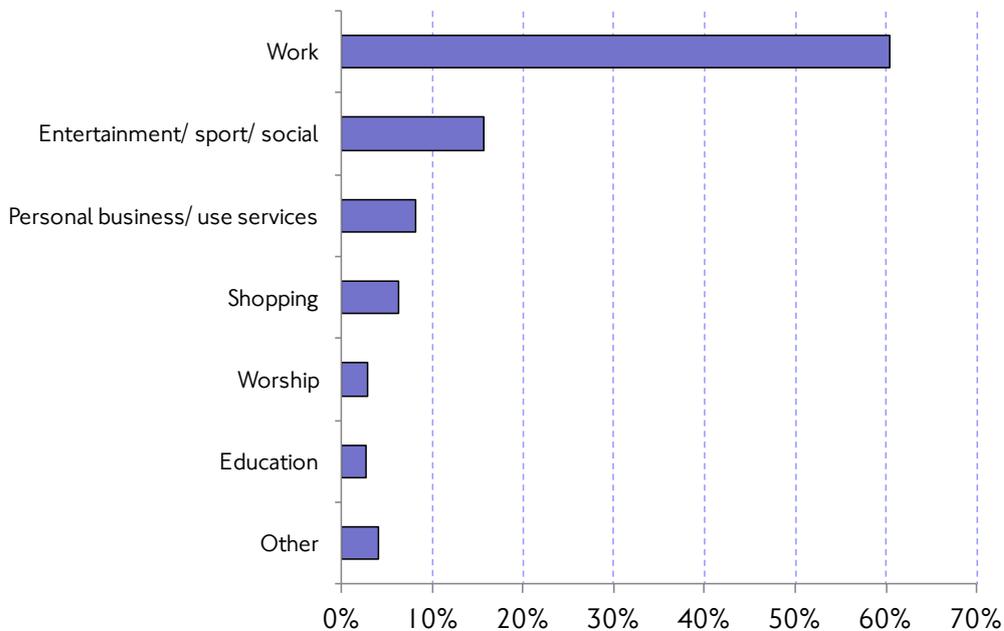


Figure 3 Journey purpose of PTW trips (personal travel by London residents only).



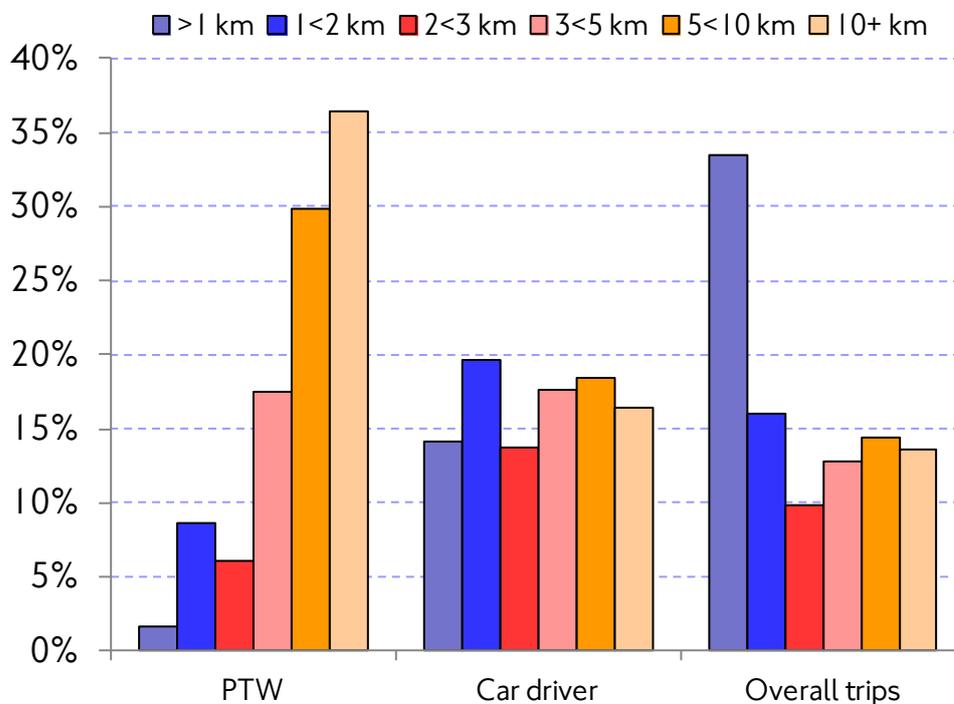
Source: TfL Strategy and Planning.

What are PTWs used for?

Figure 3 shows that 60 per cent of PTW trips are to or from work. Entertainment (16 per cent), personal business (8 per cent) and shopping (6 per cent) are the next most common PTW trip purposes. Only 3 per cent of PTW trips are for education, reflecting the low level of PTW trips made by people of school/student age.

PTW trips are generally longer than car driver trips. Figure 4 shows that 37 per cent of PTW trips were 10 or more kilometres, compared to 16 per cent of car driver trips and 14 per cent of overall trips. On the other hand, just 2 per cent of PTW trips were less than one kilometre, compared to 14 per cent of car driver trips and 33 per cent of all trips – which include walking and cycling.

Figure 4 Distribution of trip lengths for PTW trips, car driver trips and overall trips (personal travel by London residents only).



Source: TfL Strategy and Planning.

PTW traffic on London's major roads

Table 2 shows the number of PTW million vehicle kilometres (MVkm) travelled on London's roads each year from 2006 to 2011 along with the base average figure for 1994-99, for comparison. Since 2006 there have been steady reductions in PTW traffic across all areas of London, with Greater London showing a reduction of 4.6 per cent between 2011 and 2010. Interestingly, the total PTW traffic in Central and Inner London combined is greater than that for Outer London despite Outer London having a much larger road network – no other motorised vehicle displays this characteristic. In comparison, for all motor vehicles, Outer London has over twice as much traffic as Central and Inner London.


Table 2 PTW traffic on major roads in London 2006 to 2011 (all PTW travel).

	Million vehicle kilometres							Percentage change in 2011 over	
	2006	2007	2008	2009	2010	2011	1994-99 average	2010	1994-99 average
Central London	74	60	52	48	45	42	49	-7.2	-14.4
Inner London	245	244	231	216	207	192	180	-7.3	6.5
Outer London	225	222	197	189	177	175	193	-0.8	-9.4
Total Greater London	544	526	480	453	429	409	422	-4.6	-3.2

Source: TfL Surface Transport.

Figure 5 shows that PTW traffic peaked in 2006. Compared to the 1994-99 base average, PTW traffic in Central and Outer London decreased in 2011 by 14.4 and 9.4 per cent respectively, whereas Inner London shows an increase of 6.5 per cent despite recent declines. It is worth noting that PTW traffic makes up a small proportion of total traffic (around 2 per cent on major roads) and therefore percentage changes are based on relatively small absolute numbers.

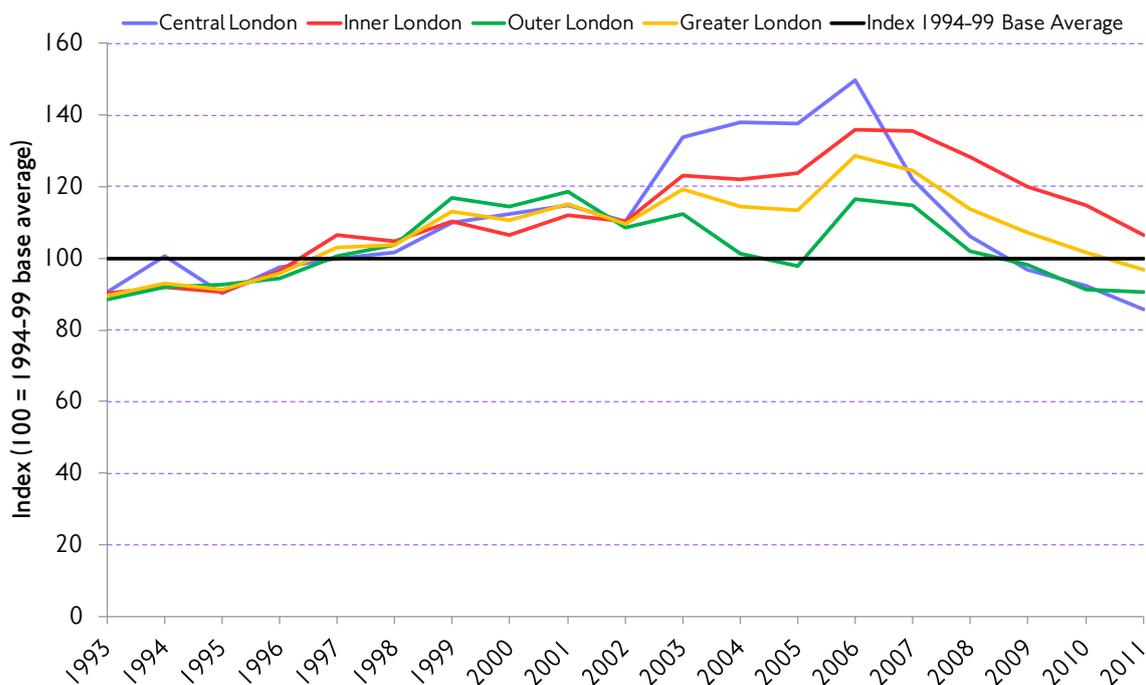
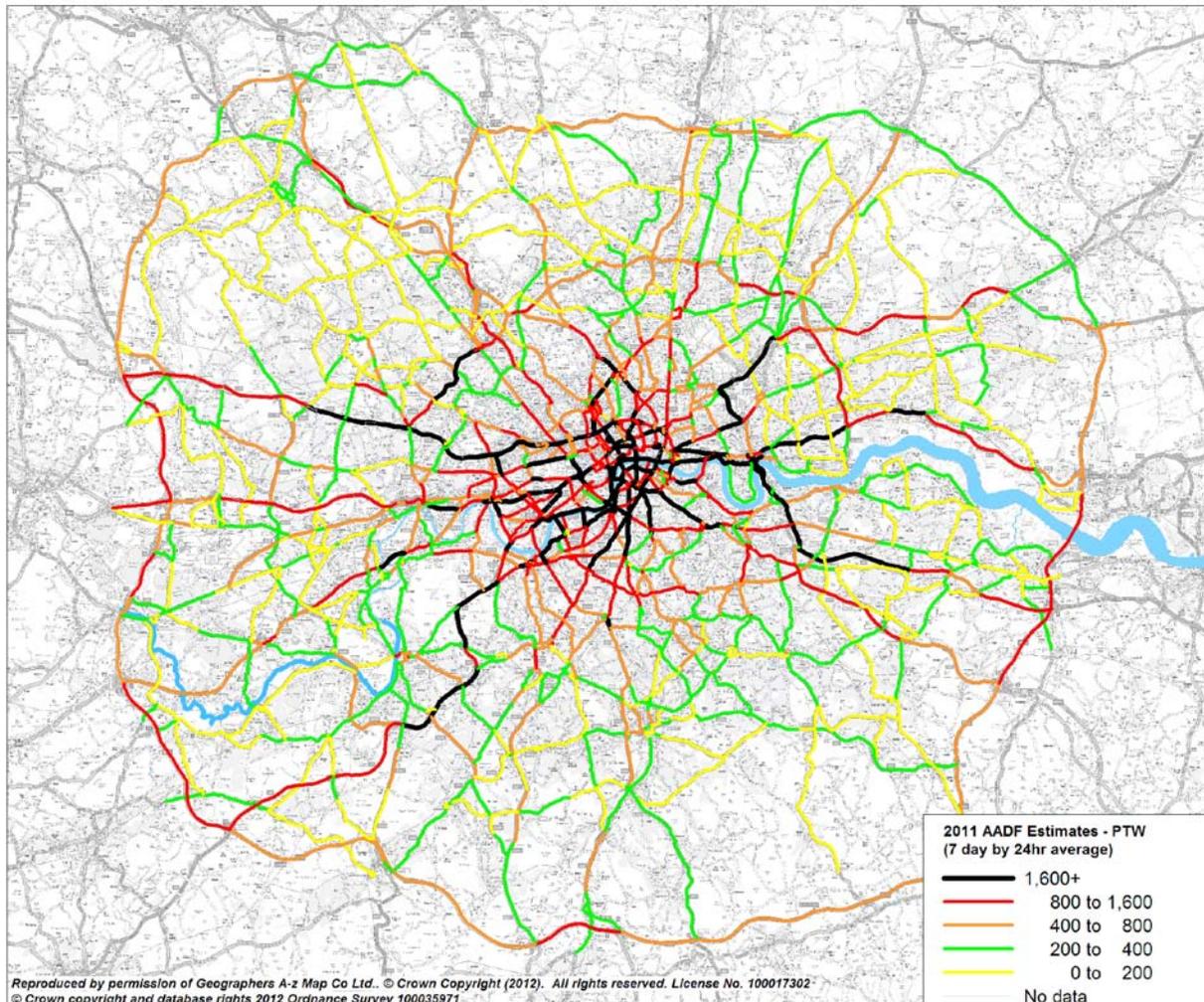
Figure 5 PTW traffic on major roads in London 1993 to 2011 (all PTW travel).


Figure 6 shows the distribution of PTW traffic on major roads out to and including the M25. The highest flows are clearly found in Central and Inner London.

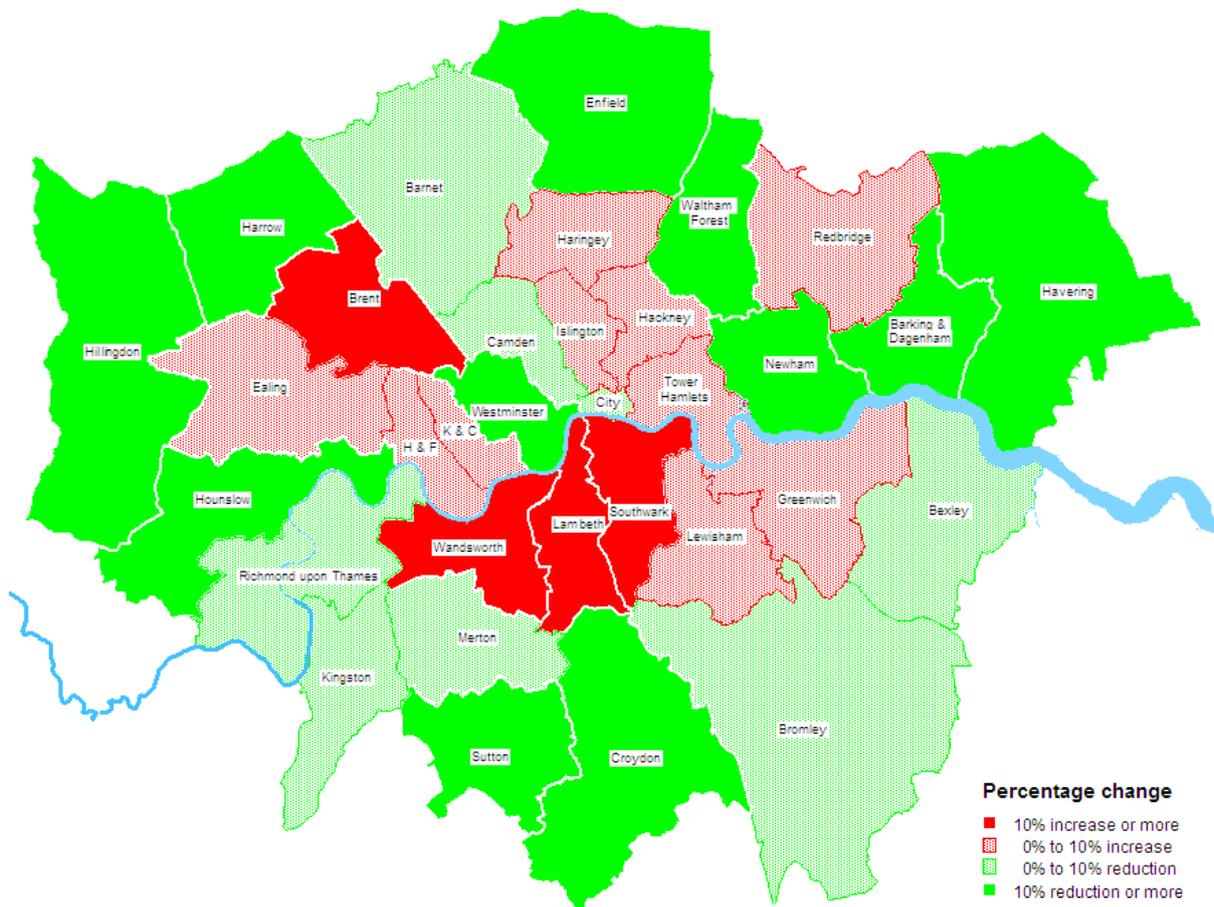
Figure 6 2011 map of PTW annual average daily flow estimates (all PTW travel).



Source: TfL Surface Transport, based on DfT national road traffic counts.

Figure 7 shows the percentage change of PTW traffic in 2011 by borough compared with the 1994-99 base average. During this period, PTW traffic increased in all Inner London boroughs other than Newham and Camden, which show decreases of 20 per cent and 9 per cent respectively. Southwark (17 per cent), Lambeth (15 per cent) and Wandsworth (14 per cent) show the most significant increases. Within Outer London, most boroughs show a reduction in PTW traffic, with the biggest decreases occurring in Sutton (-31 per cent), Waltham Forest (-30 per cent) and Croydon (-30 per cent). In Central London, both Westminster and City of London show decreases, of 17 per cent and 6 per cent respectively.

Figure 7 PTW traffic (volumes): map of percentage change from 1994-1999 to year 2011 (all PTW travel).



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Source: TfL Surface Transport.

Difference between moped and motorcycle travel

Neither LTDS nor the National Travel Survey (NTS) distinguish between moped and motorcycle users. This is unfortunate because it means that differences in travel patterns between the two types of PTW, which are significant, cannot be known exactly. The policy implications of this are potentially important when put in the context of PTW collisions.

Previous work, such as de Solere's (2010) study of PTWs in France has shown that moped users are generally younger than motorcycle users. Indeed a substantial proportion of moped users are 18 or under, and as a result it is common for them to be students or school pupils and use a moped for education trips. Motorcycle users on the other hand are a little older – de Solere (2010) found motorcycle users to be typically aged between 25 and 50 and employed in full-time professional jobs. Both moped and motorcycle users are predominately male.



In the UK, the requirements for riding a PTW are as follows:

Table 3 PTW licence requirements in the UK.

Vehicle	Licence requirements	Age
Moped (max. 50 cc)	Provisional moped licence and CBT certificate	16
Motorcycle (max. 125 cc with power output up to 11kW)	A1 motorcycle licence	17
Motorcycle (min. 395 cc with power output up to 35kW)	A2 motorcycle licence	19
Motorcycle (min. 595 cc with power output of at least 40kW)	Full A motorcycle licence	21

Source: DVLA.