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Why commuting by motorcycle is good for everyone
A new study shows motorcyclists are doing drivers a favour in rush hour.

By [Kevin Ash](#)

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Motorcycle riders don't just save themselves time and money, they do the same for car drivers, and they also help to reduce the emissions of cars.

That's the conclusion of a major new study by TML, a Belgian transport specialist. The research centered on a study of motorway traffic flow from Leuven, 10 miles to the west of Brussels, into the Belgian capital, focusing on traffic build-up during rush-hour periods.

The study's aim was to look at the effect on traffic flow and congestion of some commuters changing from cars to motorcycles. Interestingly, some of the consequences were dramatic for all road users, not just the commuters who made the switch to two wheels.

Existing traffic flow was analysed thoroughly beforehand, using data taken from seven sites on the route, each site being a junction with six sensors monitoring traffic in both directions on the main carriageway and at the exits. Information from the sites was gathered at five-minute intervals around the clock through May last year.

The typical traffic patterns won't surprise anyone: the intensity increased strongly between 5am and 7am, with queues starting to form at 6.45am and continuing until about 9am. In other words, the morning rush hour took place from 6.30am to 9.30am, much the same as in any European town or city.

At the 7.50am peak, the journey on the 8.5-mile stretch of motorway takes 14 minutes longer than at 6.40am, a big and wearily familiar increase when you consider the same journey takes only eight minutes in free-flowing traffic.

This real-world information was then used to calibrate a sophisticated traffic-modelling system called the Link Transmission Model. TML found that inputting the real data produced simulated traffic patterns very similar to the observed ones, including the same increase in travel times, confirming the accuracy of the model.

TML then quantified the congestion by converting it to "lost vehicle hours" (the time wasted per vehicle occupant because of congestion), in this case amounting to 1,925 hours in a single morning rush-hour period.

This is where motorcycle behaviour comes into play: in free-flowing traffic a motorcycle uses the same space on the road as a car, just another slot in a line of traffic, but as the density increases, motorcycles start to use less and less space, eventually disappearing altogether between the traffic queues. The study expresses this as a Passenger Car Equivalent space, or PCE. On an open road a motorcycle has the same value as a car, 1, but as the traffic comes to a standstill it drops to 0, where the bikes are filtering through stationary cars and in effect using no road space, or at least none that's contributing to congestion. It's a variable that has some major knock-on effects.

Satisfied that the model reflected the real world accurately and the PCE value for motorcycles was accurate, TML next looked at the consequences on traffic flow of one in 10 car drivers switching to motorcycles. The results were astonishing. The travel time for the remaining 90 per cent of car drivers at the 7.50am peak increased by just six minutes instead of 14, while the queues started later and dissipated sooner.

With a tenth of car drivers now using motorcycles, the main queue is gone by 8.30am instead of 9.10am, while the number of "lost vehicle hours" decreases by 63 per cent to 706.

The individuals making the switch, of course, would enjoy even faster journey times once the queues start to form, but they would also be helping their fellow commuters.

The environment benefits, too. The effect on emissions assumes that car drivers would change to 250cc commuter bikes, which produce 21 per cent less emissions than cars. But this alone resulted in a fall of only one per cent in emissions – a greater fall of five per cent came from the improved traffic flow.

In other words, car emissions fell because they were not stuck in traffic jams for so long.

The fuel economy of cars also improved, but the study concludes the biggest benefit to the remaining car users is one of time. Even with a 40 per cent reduction in lost traffic hours, across Belgium a saving of

15,000 lost vehicle hours per day would be made. Applying TML's figure of £19 per hour per vehicle time value, that comes to a total of £280,000 per day saving for car drivers.

In the UK that saving would be much greater. So those bike riders wriggling past you in the traffic are not only saving themselves time and money, they're also saving it for car drivers, as well as cutting emissions.

Move over and let them through, or better still, get on a bike yourself. You'll arrive at your destination sooner, and less stressed.