

Media release

'Disturbing' results in minibus taxi research

Minibus taxis are required to keep to a speed limit of 100km/h by law, but exceed the regular speed limit of 120km/h more often than normal passenger vehicles. Furthermore, normal passenger vehicles exceed the 120km/h speed limit up to 25% of the time.

These are some of the main findings of a study by researchers at the Faculty of Engineering at Stellenbosch University.

"A big concern for many road users over the festive season is road safety. South Africa is notorious for high road fatality rates, usually attributed to reckless driving," says Dr Thinus Booysen, a senior lecturer in the Department of Electrical and Electronic Engineering at Stellenbosch University (SU). "One of the major indicators of reckless driving is speeding. Due to the perceived high fatality rate associated with minibus taxis, they are required, by law, to keep to a speed limit of 100km/h, while normal passenger vehicles are required to keep to a speed limit of 120 km/hr."

Dr Booysen's research tries to understand the driving behaviour of minibus taxis on the road between Cape Town and Queenstown, in Eastern Cape, since many minibus taxis make this journey, which is known for high fatality rates.

"In previous work, we have seen that minibus taxis exceed their speed limit on this route, even exceeding the 120km/h on a many stretches, although they are responsible for proportionally few fatalities.

For this study, we used two separate tracking data sets to compare speeding behaviour of minibus taxis with that of regular passenger vehicles. The minibus tracking was done with ten tracking devices sponsored and installed in the minibus taxis by MiX Telematics, running from November 2013. The owners and drivers of the taxis took part in the experiment, and agreed to have their vehicles and behaviour tracked. The tracking data for normal passenger vehicles was supplied by TomTom Traffic Stats, which is anonymously collected from various TomTom solutions. We analysed four sections along the route, namely Worcester to Laingsburg, Laingsburg to Beaufort West, Beaufort West to Aberdeen, and Graaff-Reinet to Cradock," he explains. We expected the results to show that minibus taxis keep to the speed limit more often than normal passenger vehicles.

The results are quite surprising:

- For the first three sections, the minibus taxis mostly drove faster than the regular passenger vehicles, despite their lower speed limit.
- Both taxis and regular passenger vehicles exceed the speed limit: Passenger vehicles exceeded the 120km/h speed limit almost 15% of the time for all the road sections evaluated, and 25% of the time for the section between Beaufort and Aberdeen.
- Minibus taxis exceeded the 100 km/h speed limit more than 45% of the time for all sections of the road - 85% of the time for the stretch between Beaufort West and Aberdeen, 60% between Worcester and Laingsburg, and 55% between Laingsburg and Beaufort West. In fact, minibus taxis even exceeded the 120km/h limit more than 20% of the time for the first three of the four sections.

Some of the results are even more disturbing:

- Passenger vehicles exceeded 130 km/h 5% of the time between Worcester and Laingsburg. However, the minibus taxis exceeded 130 km/h 10% of the time for the same section. In fact, the minibuses exceeded 135 km/h 5% of the time for this section.
- Passenger vehicles exceeded 137 km/h 5% of the time between Beaufort West and Aberdeen.
- The maximum speeds recorded for the minibus taxis are 158 km/h, 152 km/h, 154 km/h, and 157 km/h, for the four sections, respectively. Unfortunately the equivalent information is not available from TomTom Traffic Stats.

The speed over distance intervention (average speed check)

The significant increase in speeds observed between Laingsburg and Beaufort West, and Beaufort West and Aberdeen (from 15% to 25% by normal passenger vehicles) could be as a result of the average speed check used. This is further corroborated by the measured average speeds for two sections, of respectively 88 km/h and 109 km/h.

Future work

We plan to perform further analysis to evaluate the average speed over distance system, and to evaluate other routes, such as the N2 between Somerset West and Cape Town, and other provincial routes. With the support of Trinity Telecoms, we are also now tracking four minibuses in Uganda, and intend to analyse their behaviour to compare it with local urban minibus taxis in Cape Town and Stellenbosch.

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