



The influence of car registration year on driver casualty rates in Great Britain

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ABSTRACT

A previous paper analysed data from the British national road accident reporting system to investigate the influence upon car driver casualty rates of the general type of car being driven and its year of first registration. A statistical model was fitted to accident data from 2001 to 2005, and this paper updates the principal results using accident data from 2003 to 2007. Attention focuses upon the role of year of first registration since this allows the influence of developments in car design upon occupant casualty numbers to be evaluated.

Three additional topics are also examined with these accident data. Changes over time in frontal and side impacts are compared. Changes in the combined risk for the two drivers involved in a car–car collision are investigated, being the net result of changes in secondary safety and aggressivity. Finally, the results of the new model relating to occupant protection are related to an index that had been developed previously to analyse changes over time in the secondary safety of the car fleet.

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1. Introduction

A previous paper (Broughton, 2008) analysed data from the British STATS19 national road accident reporting system to investigate the influence upon car driver casualty rates of two aspects of car design: the general type of car and the year of first registration (see Department for Transport (2010) for details of the STATS19 system). The type of car was represented using six ranges, based on a classification used by the UK Society of Motor Manufacturers and Traders. These were broadly based on size of car:

Minis and superminis

- Small saloons
- Medium saloons
- Large/luxury saloons
- Sports cars

4 × 4s and people carriers.

The year of first registration was of interest as it allowed the influence of developments in car design on occupant casualty numbers to be evaluated. Registration years were combined into six groups, ranging from 'pre-1988' to '2004–2005'. The accident data came from the years 2001 to 2005, so the newest cars represented in the dataset were registered in 2005. The measure of exposure to risk was the number of registered vehicles per year; this was

argued to be the best measure that was available at this level of detail, and was calculated using national vehicle registration data.

The mass of new cars in Great Britain has tended to rise over the past two decades. This is likely to have contributed to the changes that have occurred, and Broughton (2008) was able to make a limited assessment of its contribution. The continuing lack of detailed mass data for the British car fleet means, however, that this issue cannot be developed further in this paper.

The main analyses concerned car–car collisions. They examined the influence upon a car driver's risk of injury of the details of the driver's car (car type, year of first registration) as well as the corresponding details of the other car. The focus on car driver casualties standardises the comparisons of risk, since the number of passengers per car is variable and larger cars have greater passenger-carrying capacity than smaller cars. Separate analyses were made for accidents on Built-Up¹ (BU) and Non Built-Up (NBU) roads. This paper develops the previous paper in several respects, based on analyses of accident data from the years 2003 to 2007:

- Results are updated, and the increased exposure of the most modern cars yields results for this important group that are more exact.
- The analysis is extended to consider the type of impact (frontal impact, side impact).

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¹ In Great Britain, Built-Up roads are those with speed limits ≤40 mph, Non Built-Up (NBU) roads have higher limits.