National and Regional Level Analysis of the Large Truck Accidents in the US

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ABSTRACT

This paper summarizes the methods used and resulting findings of a study on large truck safety in the United States. The analyses were conducted at national and regional level for the years from 2000 to 2010 using data maintained by the US Department of Transportation. A measure of exposure used in the analyses was fatal crash rates per 100 million Truck Vehicle Kilometers. More specifically, this study focused on whether a new methodology adopted in 2007 by the US Department of Transportation to quantify the number of registered trucks and truck VKT affected the fatal large truck crash rates at a national and regional level.

Many statistical analyses and comparisons were provided to compare truck and non-truck fatal crash rates, urban and rural fatal truck crash rates, and truck crash rates on different highway types. Besides, fatal crash rates were compared across the 10 federal regions used by the US DOT and other US Federal Agencies before and after implementation of new methodology. The results showed that fatal truck crash rates and percentage of registered trucks and fatal truck crash rates were significantly affected by implementation of the new methodology. Implementation of new methodology affected fatal truck crash rates more significantly than the non-truck crash rates. In addition, regional fatal crash rates showed some geographical patterns. Northwest and the Upper Great Plains tend to be ranked near the bottom (better safety records) and South and Southeast tend to be ranked among the top (poorer safety records).

Keywords: Large truck crashes, crash rates, comparative safety analysis