FACTORS INFLUENCING THE SEVERITY OF DAMAGE IN BUS ACCIDENTS IN TURKEY DURING 2002: AN APPLICATION OF THE ORDERED PROBIT MODEL

Özge Uçar* and Hüseyin Tatlıdil*

Received 20:02:2006 : Accepted 05:01:2007

Abstract

This paper presents an application of the ordered probit model to bus accident data to reveal the most significance factors that affect the severity of vehicle damage. Data recorded by The Department of Traffic Training and Research of the General Directorate of Security Affairs of Turkey for the year 2002 was used. The dependent variable was determined as the severity of damage, and was classified according to four levels: “No damage”, “Little damage”, “Medium damage” and “High damage”. In view of the ordinality of the dependent variable, the use of the ordered probit model was preferred.

The results suggest that, all variables indicating specific locations of the accident, having an accident at night or in bad weather conditions increase the severity of damage. On the contrary, travelling in the same direction in two-vehicle accidents, bumping into another vehicle from one side and those accidents classified as “other types of accident” lead to non-severe damage. Additionally, the severity of damage decreases for drivers graduated from high school.

Keywords: Severity of damage, Traffic crash modelling, Bus accidents, Ordered probit model.


*Department of Statistics, Hacettepe University, Ankara, Turkey.
E-mail: (Ö. Uçar) ozgeucar@hacettepe.edu.tr (H. Tatlıdil) tatildil@hacettepe.edu.tr