



A mixed logit model for the sensitivity analysis of Greek drivers' behaviour towards enforcement for road safety

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Abstract

Traffic violations are among the leading causes of road accidents. In this research, the sensitivity of Greek drivers to a hypothetical intensification of police enforcement for speed violations and improper overtaking is analyzed, using stated preference data. Under the assumption of increased police enforcement, drivers were presented with the option to maintain their unsafe driving patterns (and risk getting fined) or comply with the traffic laws (and experience longer trip duration). A parsimonious mixed logit model has been estimated and sensitivity analysis is performed with respect to the main variables. The model explicitly captures the (unobserved) heterogeneity in the sample, and reflects the fixed random parameter across observations from the same respondent. The behaviour of the surveyed drivers depends on socioeconomic characteristics and trip characteristics. Based on the presented sensitivity analysis, it can be argued that while the “typical” Greek driver may not be particularly risk-prone, there are segments of the population that show a tendency to violate traffic laws. This is a useful finding that could be used by policy makers e.g. to develop targeted police enforcement campaigns (or targeted media campaigns, special education initiatives, etc.), aimed at the demographic segments with a higher tendency for traffic violation.

Keywords: Road safety; Police enforcement; Mixed logit model; Panel data; Stated-preference.

1. Introduction

Road safety is one of the most important issues throughout the world. For example, according to the European Commission CARE database for 2002, the number of fatalities from more than 1,250,000 road accidents in the (then fifteen) European countries was 38,637, while another 1,700,000 were injured. In its White Paper on European transport policy (EC, 2001) the Commission has therefore proposed that the

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