

# **Effectiveness of Enforcement of Seatbelt Law: An Exploratory Empirical Analysis using Aggregate Data**

*<sup>1\*</sup>Numan Ahmad; <sup>2</sup>Anwaar Ahmed; <sup>3</sup>Akhtar Ali Shah*

*<sup>1\*</sup>Graduate Research Assistant, National Institute of Transportation, National University of Sciences and Technology, Sector H-12, Islamabad, 44000, Pakistan (Email: [naahmad.tn15nit@nit.nust.edu.pk](mailto:naahmad.tn15nit@nit.nust.edu.pk); [numan.ahmad1991@gmail.com](mailto:numan.ahmad1991@gmail.com); Phone: 00-92-335-5131431)*

*<sup>2</sup>Associate Professor, Military College of Engineering, National University of Sciences and Technology, Risalpur, Pakistan, 44000. Ph: +923468123478, Email: [anwaar5148@gmail.com](mailto:anwaar5148@gmail.com), [dranwaar@scee.nust.edu.pk](mailto:dranwaar@scee.nust.edu.pk)*

*<sup>3</sup>Associate Professor and Head of the Department, Department of Urban and Regional Planning, University of Peshawar, Peshawar, 25000, Pakistan (Email: [shahg@upesh.edu.pk](mailto:shahg@upesh.edu.pk))*

Increasing motorization has enhanced the risk of road traffic crashes worldwide. Enforcing legislation on key risk factors such as seatbelt use by vehicle occupants is critical in reduction of road crash fatalities and injuries. This study estimated an ordered probit model to explore the relationship between effectiveness of enforcement of seatbelt law and different exploratory variables using data from World Health Organization. This study categorizes the enforcement of seatbelt law into four different levels including very low, low, medium and high. Through this study an attempt has been made to establish the relationship between effectiveness of enforcement of seat belt laws and socio-economic conditions, road crash fatalities, road safety legislation and public policies. Model results revealed that effectiveness of enforcement of seat belt law is significantly associated with road crash fatalities per thousand registered vehicles, legislation on cell phone use while driving, availability of training in emergency medicine for doctors, existence of national or sub-national policy for promoting walking and cycling, the existence of funded lead agency and maximum speed limit on rural road of a country. This research aims to provide a preliminary insight to planners and enforcement agencies to identify significance of seatbelt enforcement and suggest measures compatible to the typical socio-cultural and institutional set up for making the roads safer.

Keywords: Seat belt law, Enforcement, Ordered Probit Model, Road Traffic Crashes