

Improving Road Infrastructure Safety Management Through Statistical Analysis of Road Accident Data. Case Study: Streets in Bucharest

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Abstract : Romania has one of the highest rates of road deaths among European Union Member States, and there is a concern that the country will not meet its goal of "zero deaths" by 2050. The European Union also aims to halve the number of people seriously injured in road accidents by 2030. Therefore, there is a need to improve road infrastructure safety management in Romania. The aim of this study is to analyze road accident data through statistical methods to assess the current state of road infrastructure safety in Bucharest. The study also aims to identify trends and make forecasts regarding serious road accidents and their consequences. The objective is to provide insights that can help prioritize measures to increase road safety, particularly in urban areas. The research utilizes statistical analysis methods, including exploratory analysis and descriptive statistics. Databases from the Traffic Police and the Romanian Road Authority are analyzed using Excel. Road risks are compared with the main causes of road accidents to identify correlations. The study emphasizes the need for better quality and more diverse collection of road accident data for effective analysis in the field of road infrastructure engineering. The research findings highlight the importance of prioritizing measures to improve road safety in urban areas, where serious accidents and their consequences are more frequent. There is a correlation between the measures ordered by road safety auditors and the main causes of serious accidents in Bucharest. The study also reveals the significant social costs of road accidents, amounting to approximately 3% of GDP, emphasizing the need for collaboration between local and central administrations in allocating resources for road safety. This research contributes to a clearer understanding of the current road infrastructure safety situation in Romania. The findings provide critical insights that can aid decision-makers in allocating resources efficiently and institutionally cooperating to achieve sustainable road safety. The data used for this study are collected from the Traffic Police and the Romanian Road Authority. The data processing involves exploratory analysis and descriptive statistics using the Excel tool. The analysis allows for a better understanding of the factors contributing to the current road safety situation and helps inform managerial decisions to eliminate or reduce road risks. The study addresses the state of road infrastructure safety in Bucharest and analyzes the trends and forecasts regarding serious road accidents and their consequences. It studies the correlation between road safety measures and the main causes of serious accidents. To improve road safety, cooperation between local and central administrations towards joint financial efforts is important. This research highlights the need for statistical data processing methods to substantiate managerial decisions in road infrastructure management. It emphasizes the importance of improving the quality and diversity of road accident data collection. The research findings provide a critical perspective on the current road safety situation in Romania and offer insights to identify appropriate solutions to reduce the number of serious road accidents in the future.

Keywords : road death rate, strategic objective, serious road accidents, road safety, statistical analysis

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