عنوان مقاله:

Evaluation of Decision-making Units in Reducing Traffic Accidents Using Data Envelopment Analysis

نویسندگان:

Mohammad Reza Omidi - *Department of Industrial Engineering, Faculty of Industrial Engineering, South Tehran Branch, Islamic Azad University, Tehran, Iran.*

Nabi Omidi - *Department of Management, Payame Noor University of Tehran, Tehran, Iran.*

Asad Mahmoudian Azar Sharabiani - *Department of Industrial Engineering, Payame Noor University of Tehran, Tehran, Iran.*

خلاصه مقاله:

Background: Road accidents are one of the most important causes of death and severe bodily injuries and financial damages, and its social, cultural, and economic consequences have severely threatened human societies. The purpose of this study was to use Data Envelopment Analysis (DEA) to measure the efficiency of provincial traffic police in reducing accidents in ۲۰۱۸ and determining the amount of optimal input resources of each provincial unit. Materials and Methods: The model used in this research had three inputs, including the level of equipment at the disposal, the level of the approved provincial budget, and the level of manpower at the disposal. It also had two outputs, including the score of reduction of casualties and the score of reduction of deaths in traffic accidents. The "returns to scale" was considered as a variable model, and the input model was an axial-type model. The DEAP software was used for data analysis. Results: The highest decrease in deaths in traffic accidents (in ۲۰۱۸) was related to Fars Province with ۱۱۹ people, and the highest decrease in the number of injured cases was related to Khorasan Razavi Province with ۱۴۹۵ people. The RAHVAR Police (Traffic Police of Iran) in Tehran Province had the highest level of input resources, including manpower, equipment, and approved budget. Performance measurement for ۲۰۱۸ showed that out of ۳۱ provinces studied, ۱۰ provinces had a good performance and ۲۱ provinces had acted inefficiently. The research results showed that the proper allocation of resources could push all units to the brink of efficiency. Conclusion: The trend of accidents in Iran is declining. Most of the RAHVAR Police units operate at an inefficient level, which by increasing their efficiency, the number of accidents can be reduced with a greater slope.

کلمات کلیدی:

Transportation, Accident, Efficiency