Identification of Factors Related to State Level Safety Belt Usage Rates in the United States

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Safety and efficiency of the transportation system is extremely important for the economic development of any region. Safety record of the United States highway system is stagnating over the last several years with annual fatalities of around 41,000 and millions of injuries. Total economic cost due to these motor vehicles crashes has been estimated to be more than $ 230 billion based on National Highway Traffic Safety Administration's estimations. Transportation community is looking at various strategies for improving highway safety of road users with the intention of reducing these huge economic losses.

Seat belt usage has frequently been identified as one of the most effective ways of improving highway safety in highly motorized countries. Seat belts are considered to be particularly useful in reducing fatalities. In the United States, even though mandatory seat belt laws have been widely regarded as one of the best ways of increasing seatbelt usage by motorists, some states still struggle with passing primary seat belt laws that could save many lives. While usage rates considerably vary among states with primary and secondary seat belt laws, there could be many other factors that affect usage rates in any given state. Examples of some of these other potential characteristics include level of urbanization, composition of roadway infrastructure, education level of the road users, number and/or percentage of minorities, gender and age distributions, penalty for seat belt violation, average income, and crime rates. While a change in seat belt policy seems like a more feasible way to achieve increased seat belt usage rates in a given state, it is not possible to accurately evaluate the impact due the seat belt policy without considering these other factors into consideration. Accordingly, this study developed statistical models to identify the factors that are determinants of state seat belt usage rates, which also quantified the effect of changing the law on usage rate. Data on seat belt usage for this study were obtained through the observational surveys conducted throughout each of the states in the United States. Findings indicate not only the benefits of primary seat belt law, but also identifies the critical user groups for whom more focused education programs could be developed. Additionally, more critical facility types were also identified where increased enforcement on which might bring the most effective results in terms of seat belt usage.

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