

Modeling the Risk Perception of Pedestrians Using a Nested Logit Structure

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Abstract : Pedestrians are the most vulnerable road users since they do not have a protective shell. One of the most common collisions for them is pedestrian-vehicle at intersections. In order to develop appropriate countermeasures to improve safety for them, researches have to be conducted to identify the factors that affect the risk of getting involved in such collisions. More specifically, this study investigates factors such as the influence of walking alone or having a baby while crossing the street, the observable age of pedestrian, the speed of pedestrians and the speed of approaching vehicles on risk perception of pedestrians. A nested logit model was used for modeling the behavioral structure of pedestrians. The results show that the presence of more lanes at intersections and not being alone especially having a baby while crossing, decrease the probability of taking a risk among pedestrians. Also, it seems that teenagers show more risky behaviors in crossing the street in comparison to other age groups. Also, the speed of approaching vehicles was considered significant. The probability of risk taking among pedestrians decreases by increasing the speed of approaching vehicle in both the first and the second lanes of crossings.

Keywords : pedestrians, intersection, nested logit, risk

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