Estimating value of Travel Time Reliability

U.N. Matarage[1] and H.R. Pasindu[2]

Abstract

Travellers demand more needs to be met from a journey, from a certain origin to a destination. Therefore, one of the most crucial factors to take into account when travelling is how often the trip can be completed on time, every time, without any delays. The path shouldn't alter in an anticipated or predictable way, so the user can rely on it. It will lessen any late fees, travel-related stress, and any other reliability difficulties brought on by a trip with a lot of time variance. The user essentially assesses the reliability and consistency of travel times over time, either from day to day or at various times of the day. Users that rely on travel time reliability can maximize their own time. Decisions and benefits related to traffic management and operations will benefit from the quantification of journey time reliability. The Travel Time Reliability (TTR) rating is also crucial for transportation planners and system users. Therefore, characteristics like the purpose of the trip, travel habits, and time period of travel should be evaluated in order to determine travel time reliability accounting for the aforementioned situations. Standard deviation, variance, the 95th percentile, the buffer index, and other characteristics are used to quantify the TTR. The primary objective of this study is to establish a monetary value for the reliability of journey time using "Standard Deviation" as the reliability parameter. For this, a Stated Preference survey was carried out, and the results were used in the study. The reliability parameter and other variables that affect the TTR were then included in a multinomial logit utility model. The analysis was carried out using the statistical software "ALOGIT." The software was used to calculate the TTR's economic value. Additionally, the reliability of travel time has been assessed in relation to the socioeconomic traits of the respondents, such as their age, monthly income, and gender. After the analysis, the computed overall monetary value for travel time reliability was 10.27 Rs/min regardless of any socioeconomic considerations. Considering TTR according to the income level of the respondent, the travel time reliability value has been increased with the income. The high-income earners give priority to reliability in their journeys. Regarding the purpose of the journey, the TTR value for journeys for work is higher (16.41 Rs/min) than the other types of journeys. Therefore, the TTR value differs significantly according to the purpose of the journey. Also, the analysis depicts when the respondent gets older, more attention is paid to the reliability perspective of a journey.

Keywords: *Reliability, Deviation, Travel Time, Monetary Value*

Authors Details;

1. Undergraduate Student, Department of Civil Engineering, University of Moratuwa. matarageuvin8@gmail.com

2. Senior Lecturer, Department of Civil Engineering, University of Moratuwa. pasindu@uom.lk