

THRESHOLD ENABLED MEASURE TO MEASURE TRAVEL TIME RELIABILITY BETWEEN BUS STOPS

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The primary objective of this study is to establish a method for measuring bus travel time reliability maintaining threshold levels at both the origin and destination points. The threshold level was defined to be equal to half of the scheduled headway. Then the concept of perceived waiting time was introduced. Perceived waiting time was derived by subtracting half of the scheduled headway from the actual headway. Departure activities were subsequently categorized into three distinct types: Early Departure (ED) when the perceived waiting time was less than half of the scheduled headway, On-Time Departure (OD) when the perceived waiting time equalled half of the scheduled headway, and Late Departure (LD) when perceived waiting time exceeded half of the scheduled headway. Similarly, arrival activities were classified into Early Arrival (EA), On-Time Arrival (OA), and Late Arrival (LA), employing the same criteria. Then crosstabulation analysis was employed to explore the association between departure and arrival activity levels relative to day type (weekdays and weekends) and time of day. Timekeeper records on scheduled departure time, actual departure time from the origin bus stop, scheduled arrival time and the actual arrival time at the destination bus stop were collected for around 1200 bus trips. Chi-square test was employed to test the association between the departure and the arrival activities. In application to a suburban feeder bus route of 255 between Mount Lavinia to Kottawa, out of the many, a notable finding was that during peak hours on weekdays, buses arrived at their destination late despite early departures. This observation challenged conventional assumptions about bus travel time reliability, underscoring the necessity for a nuanced assessment that accounted for both ends of the journey. Recommendations can be amended to consider the scheduling, timekeeping at the noted delay points and operation control actions to provide reliable travel for the users.

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