

- Exploring Route Choice Determinants Using Driving Simulator Data (*Anam Ardeshiri, Mansoureh Jeihani - Morgan State University*)

Route choice is a crucial part of transportation planning. The lack of appropriate data is one of the reasons that fully calibrated route choice models have yet to be developed. Travelers' attitudes have been collected mostly through stated preference (SP) surveys, which do not necessarily coincide with actual decisions. Field experiments are not feasible to test various traffic information scenarios and environmental conditions. There are a few route choice studies based on driving simulator data; however, they failed to replicate a network inclusive of all viable alternatives and real traffic information.

Both types of SP and driving simulator data are collected and analyzed in this study. Driving experiments were performed in the Baltimore area network with all spatial features and alternative roads. Drivers' route choices were observed under various traffic regimes and travel time information through a dynamic message sign (DMS). SP data was utilized to better understand drivers' perceptions of efficiency-related attributes. It was also used for validation. Socio-economic characteristics, driving experiences, route familiarity, usage of navigation, and attitudes toward travel information were collected in SP.

The study concluded that travel time is not the only factor affecting route choice. Personal perceptions and experiences which are often different from the reality, traffic information, and its accuracy are significant determinants in route decisions. Discrete choice analysis tools under various logit formulations were conducted to unveil travelers' perception and cognition of route attributes. The effectiveness of major factors in route choice behavior was identified, and it was demonstrated that the combination of past experiences and information provided for drivers determine their route choices.