

Route Choice Characteristics of Owner-Operated Trucks on Southern California Freeways

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Project Objective

The goal of this project was to develop a full design of the stated preference survey. The research team defined the objective of the stated preference survey as to evaluate route choice characteristics used by owner-operated trucks when choosing from two or three different types of roads. To achieve the survey objectives, the project team members undertake the following derived objectives: (1) To identify and evaluate key factors through information gathering from literature surveys; (2) To construct the evaluation criteria hierarchy and calculate the relative weights of criteria through applying fuzzy AHP model; and (3) To achieve the final ranking results and summarize, compare, and compile the findings of truck routing choice characteristics and its improvement alternatives.

Problem Statement

In the growing population of Southern California, freeway congestion is becoming a severe problem. The increasing number of people using freeways has contributed to many problems including an increase in the frequency of traffic jams and the frequency of accidents. These problems largely impact the fluidity and efficiency of heavy truck operations, giving them higher overall costs, which in-turn affects the costs of the goods that they transport. In recent years, researchers have been steadily attempting to solve the problem of congestion, and this research is aimed at contributing to that by focusing on truck drivers and the costs that can be reduced for them, as well as for the community. Truck drivers almost always face dilemmas which require them to make decisions for best route choice. Drivers frequently ask themselves if they should proceed through downtown or avoid it? Should they choose this freeway over the other? Should they pay to use a toll road that may save time or wait in traffic? Daily trips having the same origin and destination often vary significantly among other. The presence of regular lanes, toll lanes, HOV lanes, and navigation devices offer truck drivers the option of several routes to choose from. A route choice preference study is one of the demand analysis processes which determine the number or percentage of preferences between zones made by owner-operated truck drivers. The selection of truck routes is complex, depending on factors such as the owner truck driver's income, the availability of transit service, and the relative advantages of each mode in terms of travel time, cost, comfort, convenience, and safety. Therefore, a driver's route choice model is needed to replicate the relevant characteristics of the truck operators, the transportation system, and the trip itself to obtain a realistic estimate of the number of trips by each mode for each zone pair. The VOT of trucks, which constitutes a considerable portion of the benefit items in the economic feasibility study for a new road, needs to be validated by going beyond a typical academic discussion.

