

# Economic Evaluation of Route Choice Characteristics for Company Truck Drivers and Owner-Operator Truck Drivers in Southern California Freeways

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## Introduction

The research purpose is to evaluate the behaviors of both company truck drivers' and owner-operator truck drivers' travel routes in order to enhance decision-making regarding their route choices. The main objective is to implement the stated-preference survey method in the field to estimate the values the truck drivers placed on time, reliability, and safety measures for both company truck drivers' and owner-operator truck drivers' travel routes and to provide transportation agencies with meaningful data, which, in turn, will help address the truck drivers' behaviors and patterns in transportation planning and policies.

## Study Methods

This study evaluates the demand for truck-only toll lanes on Southern California freeways with both company truck drivers and owner-operator truck drivers. The study implemented the stated-preference survey method to estimate the values of time, reliability, and safety measures for both company truck drivers'

and owner-operator truck drivers' travel routes by using various scenarios geared towards assessing the values. The research team met face-to-face with both company truck drivers and owner-operator truck drivers near the Ports of Los Angeles and Long Beach to understand the drivers' perspectives regarding truck-only toll lanes on Southern California freeways. The complete sets of 45 survey data are used for statistical data analysis using ANOVA and two sample t-tests.

## Findings

The responses showed that the tolerated toll fees range from \$3.27 an hour to \$41.45 an hour during weekdays, while those fees range from \$3.04 an hour to \$36.12 an hour during weekends. The tolerated average toll fees are \$20.50 an hour and \$18.12 an hour for weekdays and weekends, respectively. The analysis results showed that both owner operator truck drivers and company truck drivers presented a different preference for truck-only

toll lanes when choosing a route due to the values of time and reliability. From this result, it is not conclusive that owner-operator truck drivers and company truck drivers will take truck-only toll lanes because they consider the tradeoff between VOT, VOR, and safety measures to be salient. We do not have enough evidence to support the null hypothesis that owner-operator truck drivers and company truck drivers will take truck-only toll lanes regardless of its characteristics when they analyze a specific route. The results also showed that when comparing in toll fee per mile, VOT (\$0.54 per mile), and VOR (\$0.47 per mile) drivers value time and reliability to an approximately similar value. However, when measured in toll fee per hour, VOT (\$32.38 an hour), and VOR (\$15.76 an hour), the results indicate that a driver's willingness to pay for time is approximately 2 times the value of reliability. The result indicates that, from the same point of origin and destination, truck drivers showed a similar willingness to pay for time and reliability. Of the three key comparison factors, in terms of toll fee per mile, drivers are least willing to pay for tolls when safety is used as a comparison factor and most willing when considering time as the key comparison factor. In all cases, drivers' valuation of the time measure outweighs their valuation of reliability and safety.

Are there any differences between company truck drivers and owner-operator truck drivers regarding their preferences for truck-only toll lanes?

### Policy Recommendations

The study contributes to the demand and behavior analysis of both company truck drivers and owner-operator truck drivers regarding their route choice characteristics. The outcomes will help legislators and transportation agencies have a better understanding of the utility of (and demand for) truck-only toll lanes and can be used as a stepping stone for large-scale data collection and analysis for planning to reduce congestion and improve routes for time, reliability, and safety.

### About the Authors

**Dr. Joseph J. Kim, PE (PI)** is Professor at the Department of Civil Engineering and Construction Engineering Management at California State University Long Beach. He supervised a graduate student and was responsible for overall project coordination, assuring successful project completion, and preparing the final MTI report. Dr. Kim's research interests include artificial intelligence (AI) applications to solve civil infrastructure systems' optimization problems, best sustainability practices in built environments, building information modeling, cost estimating methods, robots applications in construction operations, project delivery systems, and statistical methods for construction engineers.

**Jose Alejandro Arroyo Turcios** is a civil engineering graduate student in the Department of Civil Engineering and Construction Engineering Management at California State University, Long Beach who contributed to accomplishing the goals of this research project. The scope of his work included assisting in designing the stated preference survey form, collecting, and analyzing the field data with the PI, and preparing the MTI report. His interests within the field include transportation engineering and construction project management.

### To Learn More

For more details about the study, download the full report at [transweb.sjsu.edu/research/2242](https://transweb.sjsu.edu/research/2242)



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