

Planning, Policy,
and Programming

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Project Title:

Long Distance Travel in the California Household Travel Survey (CHTS)

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Task Manager:

Scott Williams
Task Manager
k.scott.williams@dot.ca.gov

Long Distance Travel in the California Household Travel Survey (CHTS)

Provide empirical evidence for conducting long distance travel behavior analysis using synthetic population methods and identify the determinants for long distance travel behavior.

WHAT IS THE NEED?

Major emphasis has been placed in recent years on intra-urban and intra-city travel within transportation research. However, this has left a large gap in conventional understanding of interregional and long distance travel. This, in turn, has left many transportation policies and related behavioral models deficient in a strong theoretical and empirical basis. In particular, the California Household Travel Survey (CHTS), in its design phase, addressed this gap by developing a long distance module which collected data on household trips that were 50 miles or longer. Advancement in our understanding of long distance travel and its implications on policy and travel model development.

WHAT WAS OUR GOAL?

The two primary goals for this study were:

1. Provide empirical evidence for conducting long distance travel behavior analysis using synthetic population methods.
2. Identify the determinants for long distance travel behavior.

WHAT DID WE DO?

This study will use the CHTS long distance data to improve the attractiveness indicators used by the long distance component of the statewide model. This component uses population and employment data to develop accessibility indicators to represent destination attractiveness. A new generation of these attractiveness indicators will be built upon prior methods and processes developed by Professor Krzysztof Janowicz at the STKO laboratory at UCSB.



Caltrans provides a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

The scope of work is organized into the following tasks:

- Task 1: Synthesis: Develop Statewide Traveler Profiles
- Task 2: Social Media: Augment Trip Records with Social Media Data
- Task 3: Regression: Regression Analysis
- Task 4: Structural Eq.: Structural Equations of Long Distance Travel

WHAT WAS THE OUTCOME?

Travel differences among persons and households are mainly due to social and demographic characteristics of households with primary driver the household wealth and employment. Place of residence plays a major role in explaining long distance travel and this shows a more detailed analysis of opportunities for activities around the place of residence would inform long distance VMT contribution in a substantial way. We also found attractiveness of destinations playing a major role that is captured in this analysis using social media data.

The clear recommendation from our analysis is to design activity diaries that span multiple-days of complete households and a satellite survey that has diaries for an 8-week travel log that has added information about travel during the 8-week period and the people with whom travel happens. In spite of all these biases, however, the latent class cluster analysis is able to differentiate among five distinguishable types of tours in a clear way thus enabling the development of a parsimonious set of types of long distance travel that can be used in subsequent modeling.

WHAT IS THE BENEFIT?

For Caltrans, this project intends to provide the following outcomes:

1. Baseline inventory for statewide travel demand.
2. Analysis of vulnerable segments of the population.
3. Estimate of long distance travel, particularly as a constituent to statewide VMT

IMAGES

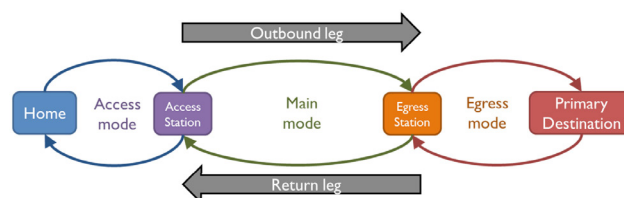


FIGURE 1: Long distance conceptual tour structure (reproduced from CSI, 2014)