Needs for Multimodal Long Distance Passenger Travel Data

Tianjia Tang and Rolf R. Schmitt
FHWA

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The basic context

To understand what transportation does for and to society, we need comprehensives picture of
- Who travels, where, why, and how
- What is moved, where, why, and how

The comprehensive pictures are too big to be taken by any any single source of data

A comprehensive picture has been developed for freight and a similar picture is needed for passenger travel
The importance of long distance passenger travel

- Long distance passenger travel
  - Supports the economy by linking businesses
  - Supports the local economy through tourism
  - Links far flung families and friends

- Long distance passenger travel contributes to local congestion, safety exposure, and emissions

- Local congestion impedes long distance passenger travel
The importance of long distance passenger travel
The importance of long distance passenger travel
The importance of long distance passenger origins and destinations

Defines markets for major transportation facilities and services
- Airports and air carriers
- Highways, regular route and charter bus operators
- Intercity rail

Defines facilities and corridors of national significance

Identifies potential congestion on rural portions of intercity links
Highway congestion: 2007
Highway congestion: 2040
Understanding long distance passenger origins and destinations

To support major investments in
- Airport capacity
- Highway capacity, including toll roads
- High-speed rail

To analyze potential effectiveness of regulations and potential diversion among intercity modes
- Safety: the example on child seats on airplanes
- Emissions
Creating the picture of long distance passenger origins and destinations

Data from surveys
- National Travel Survey and American Travel Survey
- National Household Travel Survey
- Long distance travel in local surveys

Data from administrative records
- Airline ticket sample
- Amtrak tickets
- Border crossing counts

Data from roadside counts
- Highway Performance Monitoring System
Creating the picture of long distance passenger origins and destinations

Major gaps
- Origins and destinations of private motor vehicles
- The resurgent intercity bus industry and charter buses
- General aviation
- Domestic travel of international visitors

Untapped data
- Tabulations of credit card expenditures
- Smart phone tracking
- Multi-regional license plate matching
- Electronic toll collection
Creating the picture of long distance passenger origins and destinations

- Integrating existing data with models
  - Combining vehicle counts, old geographical patterns from the American Travel Survey, and long distance travel in local surveys for highway travel
  - Adding airline and rail data to fill out the modes

- Measuring long distance travel in the future
  - Surveys to establish the universe and key behaviors for models
  - Explore new data sources to fill in details
The challenges of surveys

- Long distance travel is different from local travel
  - Different trip purposes and different modes of travel
  - Different frequencies: daily versus seasonal or infrequent

- Long distance travel surveys are expensive
  - The American Travel Survey would cost more than $25 million today

- Can long distance and local travel surveys be measured together?
  - Combining the American Travel Survey and National Household Travel Survey did not work
The challenges of data from administrative records and high tech

- More observations of a narrower slice
  - Example: GPS can give us speeds and location but little else
  - How do we link narrower slices together without common variables?

- The potential for error
  - Unlike surveys, no standard methods for estimating error
  - How to determine potential bias?
  - How to remove spurious observations without compromising serendipity?

- Privacy and confidentiality
Overcoming the challenges is important

Statistics shall save us from doing what we do in wrong places.

- Abraham Lincoln, speech in favor of public improvements to transportation, U.S. House of Representatives, June 20 1848