INRIX

- Provides valuable insights into cross-border travel
- Gives detailed perspective on trip patterns, especially when merged with other data sources
- Collects real-time traffic data from a variety of sources during set time periods

Useful for:

Delving into cross-border trip characteristics to help border crossing agency personnel across country borders and cultures assess and serve needs

SafeGraph

- Serves as a viable source of information for cross-border activity
- Offers general insights into travel behavior in a selected region
- Allows for studying urban dynamics and customer preferences

Useful for:

Discovering alternative ways to examine cross-border trips to assist local transportation authorities with making the case for transportation funding

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Texas A&M Transportation Institute

CIITR | Center for International Intelligent Transportation Research

What Can You Tell Me?

Texas A&M Transportation Institute

Evaluating Crowdsourced Data Sources for Cross-Border Travel

Why It Matters

U.S.–Mexico Border:

2 languages,
2 cultures,
2 economies

2.4 Million+

Combined population of El Paso County and Ciudad Juárez

Reasons for trips:

work, education, shopping, medical, social

Thousands

Residents who travel frequently between El Paso and Ciudad Juárez by crossing the international border and using land ports of entry between the two cities

Understanding trip patterns and demand is the first step toward solving transportation issues. However, acquiring rich, accurate and continuous travel information is not easy. It's especially the case for binational metropolitan areas, where international cross-border trips can represent a significant portion of daily trips, often going underrepresented in travel demand or behavior analysis.

Only a few research attempts focused on emerging data sources for cross-border mobility analysis. Due to limited and inconsistent data, previous research used limited-time, in-person surveys about trip information. In addition to time and budget limitations, for binational metropolitan regions, there are additional challenges due to international jurisdictions.

Study Objectives

Explore cross-border trip characteristics using crowdsourced data

Identify crowdsourced data's potential and limitations for future (cross-border) studies

INRIX®

1st Year of Study

What:

Cross-border trip data from mobile devices, road sensors, cars with GPS, cameras

Where:

El Paso | Ciudad Juárez | U.S.–Mexico Border

When:

5 Months | October–November 2019, January 20–April 19, 2022

90% of trips started or ended within the border cities

10% of trips started or ended outside the border

Northbound	Southbound
94,336 Total number of northbound (NB) trips	**153,435** Total number of southbound (SB) trips
49% of NB passenger vehicles with a 10-mile or less trip	**36%** of SB passenger vehicles with a 10-mile or less trip
Shopping, Residential Most common cross-border trip purposes for NB trips	**Medical, Shopping** Most common cross-border trip purposes for SB trips

Data Limitations

- Difficult to track travel patterns and loss of trips in context of cross-border mobility (primarily due to privacy protection)
- Limited sample size for cross-border trips and specific travel modes such as non-motorized travel
- Sampling biases and level of segregation of users

SafeGraph

2nd Year of Study

What:

Northbound-only border trip data from business listings and location information

Where:
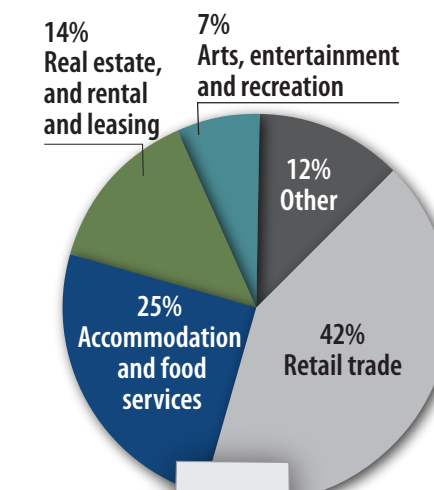
Major Texas cities and regions

Who:

Mexico-domiciled visitors traveling to places in Texas

44% of total Mexican visitors in retail trade industry

27% of total Mexican visitors in accommodation and food services industry

Example | Paso del Norte Region

Percent of Mexico-domiciled visitors in each industry

14% Real estate, and rental and leasing

7% Arts, entertainment and recreation

12% Other

25% Accommodation and food services

42% Retail trade

Data Limitations

- Limited diversification of data source
- Mislabeling issue due to close proximity of points of interest
- Sampling biases and level of segregation of users
- Low data coverage in non-commercial points of interest and no residential data

Mexican-Domiciled Visitors Ranked by City

El Paso **2**
Last Austin
Laredo
1
McAllen **3**