TRAVEL MODEL BLIND SPOTS
THE IMPORTANCE OF UNDERSTANDING SPECIAL MARKETS
RELATED TO VISITORS

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D. Kyle Ward, EI
OVERVIEW

• Background
• Survey Design and Data Collection
  • Survey basics
  • Sample
  • Survey instrument
• Survey Data Analysis
• Model Development
• Summary and Results
BACKGROUND
TOURISM IN THE FBRMPO REGION

• FBRMPO
  • Western, NC
  • Blue Ridge Mountains

• Asheville
  • Culinary cool
  • Beer scene
  • Artist community
  • Biltmore Estates
  • Blue Ridge Parkway
  • And the list goes on...

www.benrsmith.com

www.ashevillenc.com
2012 TOURISM STATISTICS
BUNCOMBE COUNTY

- 9.1 million visitors
- 3.1 million overnight guests
- Impact:
  - Spent 1.5 billion
  - Generated $2.3 billion in economic impact
  - Supported ~23,000
- Tourism generates $58.6 million in state and local taxes
- Without tourism, the unemployment rate in Buncombe County would be 18%

http://www.ashevillecvb.com/economic-impact/
## VISITOR TRAVEL
### SPECIAL GENERATOR OR SPECIAL MARKET

<table>
<thead>
<tr>
<th>Special Generator</th>
<th>Special Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Specialized land use like regional shopping or hospital</td>
<td>• Specialized land use like university or airport</td>
</tr>
<tr>
<td>• Trip attraction characteristics not reflected by standard rates</td>
<td>• Trip generation, distribution, time-of-day and or mode choice not reflected by other trip purposes</td>
</tr>
<tr>
<td></td>
<td>• Best captured through a separate trip purpose or separate submodel</td>
</tr>
</tbody>
</table>
RV PARKS IN ASHEVILLE REGION

- 32 parks
- 3,000 sites
- Over 6,000 additional people

MPO wanted to better understand the impacts of RV park visitors on the transportation system in the region
SURVEY DESIGN AND DATA COLLECTION
SURVEY BASICS

- Retrospective small sample survey
- Mix of long- and short-term visitors
- Simple paper questionnaire
- Administered to one member of the party
- Face to face interviews

Key Question: Is travel from RV households different from retired households
• Non-probability sample
• Drawn from RV Parks provided by MPO
• Sample/Results:
  • 7 RV parks
  • 200 sampled RV households
  • 70 interviews completed
    • 43 long-term
    • 25 short-term
    • 2 undetermined
SURVEY INSTRUMENT

- Primary trip characteristics:
  - Date of arrival
  - Length of stay
  - Frequency and purpose of travel to region
  - Number of people in travel party

- Household characteristics:
  - Age
  - Income

- Employment
- Home state
- Reason for visit
- Length of stay

- Trip characteristics:
  - Start location
  - End location
  - Start time
  - End time
  - Trip purpose
  - Mode
  - Party size
DATA ANALYSIS
PURPOSE OF TRAVEL

- Other: 29%
- Vacation: 23%
- Retired/Enjoy Area: 29%
- Second Home: 17%
- Work/Business: 2%
RESPONDENT STATS

• 69 percent long-term visitors
• 90 percent retired
• 83 percent 65 years or older
• 54 percent had income greater than $60,000
  • 15 percent non-response rate
TRIP STATS

- 22 percent did not travel on travel day
- 5.05 average daily trips
  - Shopping: 1.71
  - Non-home based: 1.82
- Vacationers vs. Other:
  - 5.63 trips/day for vacationers
  - 4.26 trips/day for others
- Long- vs. Short-term
  - 5.60 trips/day for long-term
  - 4.26 trips/day for short-term
# Trip Rates by HH Type

<table>
<thead>
<tr>
<th>Household Type</th>
<th>HBW</th>
<th>HBSHOP</th>
<th>HBO</th>
<th>NHB</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>RV</td>
<td>-</td>
<td>1.71</td>
<td>1.52</td>
<td>1.82</td>
<td>5.05</td>
</tr>
<tr>
<td>Retired</td>
<td>0.25</td>
<td>0.95</td>
<td>3.23</td>
<td>2.49</td>
<td>6.93</td>
</tr>
<tr>
<td>Part-Time Residents</td>
<td>0.49</td>
<td>0.96</td>
<td>2.93</td>
<td>2.86</td>
<td>7.23</td>
</tr>
</tbody>
</table>
# TRIP LENGTH BY HH TYPE

<table>
<thead>
<tr>
<th>Household Type</th>
<th>HBW</th>
<th>HBSHOP</th>
<th>HBO</th>
<th>NHB</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>RV (n=67)</td>
<td>NA</td>
<td>10.90</td>
<td>11.18</td>
<td>4.71</td>
<td>8.70</td>
</tr>
<tr>
<td>Retired (n=707)</td>
<td>7.33</td>
<td>6.67</td>
<td>7.00</td>
<td>6.79</td>
<td>6.89</td>
</tr>
<tr>
<td>Part-Time Residents (n=69)</td>
<td>8.12</td>
<td>8.91</td>
<td>10.89</td>
<td>6.72</td>
<td>8.79</td>
</tr>
</tbody>
</table>
MODEL DEVELOPMENT
MODEL FORM

• Estimated/Calibrated/Validated
• 4-step model
  • Generation
    • Trip rates by purpose
  • Distribution
    • Intervening opportunities model
• Convert Person to Vehicle Trips by Time of Day
  • Diurnal Factors
• Combine with resident population for assignment
# PRODUCTIONS AND ATTRACTIONS

<table>
<thead>
<tr>
<th>Trip Purpose</th>
<th>Productions (per RV HH)</th>
<th>Attractions (per employee)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HB Shop</td>
<td>1.7</td>
<td>0.318 Retail</td>
</tr>
<tr>
<td>HB Other</td>
<td>1.5</td>
<td>0.264 Office, Service</td>
</tr>
<tr>
<td>Non-Home Based</td>
<td>1.8</td>
<td>0.157 Office, Service, and Retail</td>
</tr>
</tbody>
</table>

\[
HBOP_i = RVHH_i \times (HBOP_{rate})
\]

\[
HBOA_j = EMP_{xj} \times (HBOA_{rate})
\]
TRIP DISTRIBUTION

\[ T_{ij} = T_i \ast (e^{L \ast R_j - 1} - e^{L \ast R_j}) \]

where:

- \( T_{ij} \) = number of trips from zone i to zone j
- \( T_i \) = number of trips produced in zone i
- \( R_j \) = rank of destination zone j
- \( R_{j-1} \) = rank minus 1 of destination zone j
- \( L \) = probability of accepting a destination if it is considered.
## TIME OF DAY

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Direction</th>
<th>AM</th>
<th>MD</th>
<th>PM</th>
<th>NT</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBSHP</td>
<td>From Home</td>
<td>0</td>
<td>0.423</td>
<td>0.058</td>
<td>0.019</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>To Home</td>
<td>0</td>
<td>0.206</td>
<td>0.237</td>
<td>0.057</td>
<td>0.50</td>
</tr>
<tr>
<td>HBO</td>
<td>From Home</td>
<td>0.097</td>
<td>0.323</td>
<td>0.048</td>
<td>0.032</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>To Home</td>
<td>0.022</td>
<td>0.304</td>
<td>0.087</td>
<td>0.087</td>
<td>0.50</td>
</tr>
<tr>
<td>NHB</td>
<td>From</td>
<td>0</td>
<td>0.39</td>
<td>0.095</td>
<td>0.015</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>To</td>
<td>0</td>
<td>0.39</td>
<td>0.095</td>
<td>0.015</td>
<td>0.50</td>
</tr>
</tbody>
</table>
SUMMARY AND RESULTS
BENEFITS

- 8,200 Daily Person Trips
- 6,000 Daily Vehicle Trips
- Ability to Adjust Seasonal Factors
- 0.4% of daily trips (peak season > 1%)
- Not much?
  - Transit share in Asheville 0.3%
  - Transit share in Triangle Region 1.2%
- In localized areas, impossible to “get it right” without these models.
- Provides improved scenario testing
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