Refreshing the Household Travel Survey: Case Studies in Seattle and Calgary

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Presentation Outline

• Introduction: Types of household travel surveys
• Seattle Case Study
• Calgary Case Study
• Lessons
Types of Household Travel Surveys
Core Design Options: Household Travel Survey

- Most common practice: periodic cross-sectional surveys
- However, trend of agencies considering other options
  - Obtain more current, more accurate, more longitudinal data
  - Smooth out funding cycles, find ways to bring down costs

<table>
<thead>
<tr>
<th>DESIGN OPTION</th>
<th>EXAMPLE</th>
<th>BRIEF DESCRIPTION</th>
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<tbody>
<tr>
<td>Periodic Cross-Sectional</td>
<td>California, NHTS</td>
<td>Data collected during distinct period every 6-20 years</td>
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<tr>
<td>Recurrent Cross-Sectional</td>
<td>PSRC</td>
<td>Cross-sectional repeated at regular intervals (e.g. every other year)</td>
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<tr>
<td>Continuous Cross-Sectional</td>
<td>Calgary, Australia</td>
<td>Cross-sectional survey is continual and ongoing (e.g. 365 days per year)</td>
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<td>Panel</td>
<td>Germany, Netherlands</td>
<td>Same households participate multiple times to measure change over time</td>
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Case Study #1: PSRC (Seattle)
PSRC’s History

A strong history of:

• Innovative Surveys
  - 1989-2002 panel: 10 waves of 1,700 households (but not suited for land use and travel model estimation)
  - 1999 Household travel survey: ~5,250 HHs
  - 2006 Household travel survey: ~4,750 HHs

• High Civic Engagement
  - Translates to higher response rates than many other U.S. regions
2014 Travel Survey

Spring Household Travel Survey
• “Booster” cross-sectional sample of 6,000 HHs
  - Includes add-on sample from Cities of Seattle & Bellevue

Fall College/University Special Generator Travel Diary
• 5 colleges for 4,460 people
• ~2,300 Univ. of Washington students
2015 Travel Surveys (In Progress)

Spring Household Travel Survey

- Cross-sectional sample of 800 HHs
  - Includes add-on sample from City of Tacoma
- Convenience (panel) sample of 1600 HHs
  - HHs that participated in 2014 are re-invited for 2015
  - Targeted HHs that rode revised bus routes or lived in block groups of revised bus routes
  - Also targeted HHs that commute to downtown Seattle and/or live in downtown Seattle

Preliminary Take-Aways: on Response Rates

- Response rate estimates by block group increasingly accurate and informed by census data and previous year response rates
- Convenience sample has very high response rates: ~92% of recruited HHs and ~60% of all invited HHs complete the diary
2015 Travel Surveys (In Progress)

Spring GPS Sample

- Convenience sample of 250 HHs (also participated in 2014)
  - HHs that participated in 2014 are re-invited for 2015
  - All HH members age 16+ have an Android or iOS smartphone
  - Download rMove™ app and participate for 3 days (Tues-Thurs)
  - Answer survey of each trip and an end of day ‘daily summary’ survey
What Survey Design Options are Preferred?

- Planning a Biennial Recurrent Survey (2017, 2019, etc.)
  - Likely mix of cross-sectional and panel HHs
  - Increasing desire/need for panel data
  - Agency consensus that frequent surveying is better, especially given expected rapid changes in transportation technology and behavior
  - Also desire to stay informed of modernizing/changing survey technologies
Case Study #2: City of Calgary
Calgary’s History & Goals

Similar commitment to surveys

• Historically every 10 years
• In 2012, conducted an HTS of 9,000 HHs
• Study region includes City and surrounding region
Calgary’s History & Goals

2015-2017 Data Goals

• Support Municipal Development Plan (MDP) and Calgary Transportation Plan Monitoring/Reporting Program (CTP)
  - Report requirements are every 4 years
• Update/re-calibrate Calgary Regional Transportation Model
• Obtain data in support of other planning analyses
• Test and verify “proof of concept” continuous survey as full replacement to current approach

My Travel Log
A study of how, when and why you travel.
2015-2016 Survey Program

**Approach**

- December 2014 Pilot: 214 HH’s
- March 2015–December 2016:
  - Conduct continuous survey (~350 days/year) of 3,000 HHs
  - 80% population proportional, 20% targeted sample
  - City annually selects targeted sample
  - City also able to implement targeted add-on survey questions or sampling
Additional Considerations for Continuous Surveys

Specific to Calgary

• All data hosted on servers in Alberta
• City provides sample, also separate sample provider for rural areas
• City pays incentives (avoid currency conversions)

Specific to Continuous Surveys

• Questionnaire design is particularly important
• Clear plan for handling change requests
  - Scheduled quarterly or biannually
  - Monitoring or adjusting based on response to date
Lessons from 2 Case Studies
Advantages in Moving Away from Periodic Cross-Sectional Surveys

**Advantages**

- Current data at your finger tips
- Ability to look at changes over time ("before and after")
  - Example: PSRC looking at impact of cancelled bus routes
- Ability to accommodate analysis needs that pop-up
  - Example: Calgary secondary suites data
- Add to accommodated targeted sampling with limited start-up costs
  - Example: other agency add-on purchases of sample
- Pool of households and people for future needs:
  - Panel, secondary surveys, etc.
- Reduced “waiting” for data for plan or model update needs
- Once up and running, fairly consistent costs year over year (smooth out funding needs)
- Room for incremental updates and improvements
Challenges in Moving Away from Periodic Cross-Sectional Surveys

Challenges

- Maintaining data compatibility/comparability over time
- Without a ‘booster’ survey to start, it can take a long-time to obtain enough data to analyze
- Automate everything possible that is a daily or weekly task to drive down costs
- Additional complexities in combining, weighting data
- Potentially harder to change consultants over time
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