Background on Real-Time Information in Atlanta

- **Background**: Real-time transit information provided via smartphone apps has rapidly become available for the Metropolitan Atlanta Rapid Transit Authority's (MARTA) buses and trains, including:
  - On the Go smartphone apps launched by MARTA in November 2013
  - OneBusAway web and smartphone apps released by Georgia Tech in February 2014
  - Many other apps created by third party software developers in 2013 and 2014

Research Question and Methodology

- **Research Question**: Do transit riders who use real-time information make more trips on MARTA buses and trains?
- **Methodology**: Before-after analysis of MARTA trips comparing April 2013 to April 2014
- **Unit of Analysis**: Individual riders (enrolled in this study)
- **Primary Data Source**: Breeze Card smart cards, which measure the number of bus and train trips
- **Secondary Data Source**: Survey questions asking about use of real-time information and the respondent's unique 16-digit smart card ID number, which links the individual's survey response and smart card data

Survey Data Collection

- **Data Collection**: Web-based survey conducted during the first week of May 2014
- **Recruitment**: Both real-time information (RTI) users and non-users
- **Respondents must have a Breeze Card to participate**
- **Matching the Survey Responses and Smart Card Data**: 669 study participants entered survey software
- **Survey responses provided a 16-digit smart card number:** 494 survey responses matched usable, active smart cards
- **Final Dataset**: The 494 survey responses were then joined with the corresponding smart card trip information for two months (April 2013 - April 2014)

A METHOD FOR LINKING TRANSIT SMART CARD DATA AND SURVEY RESPONSES TO EVALUATE TRAVEL BEHAVIOR AND ITS APPLICATION TO A BEFORE-AFTER ANALYSIS OF REAL-TIME INFORMATION

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<table>
<thead>
<tr>
<th>Conditions Imposed on the Dataset</th>
<th>Meaning</th>
<th>Sample Size</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Eligibility of the Smart Card</td>
<td>No</td>
<td>Does not have 2 or more Breeze Cards</td>
<td>199</td>
</tr>
<tr>
<td>Panel Eligibility of the Smart Card</td>
<td>Yes</td>
<td>Does have 2 or more Breeze Cards</td>
<td>305</td>
</tr>
<tr>
<td>RTI Full Survey/Smart Card Dataset</td>
<td>Does not use a paper ticket</td>
<td>14.7</td>
<td>32%</td>
</tr>
<tr>
<td>Matching the Survey Responses and Smart Card Data</td>
<td>Matching accurately reflects individual travel behavior</td>
<td>10.1</td>
<td>22%</td>
</tr>
<tr>
<td>RTI Breeze Card Dataset</td>
<td>Matches MARTA trips closely match</td>
<td>317</td>
<td>66%</td>
</tr>
<tr>
<td>Perfectly Congruent</td>
<td>Perfectly match smart card trips with MARTA Karen</td>
<td>100</td>
<td>22%</td>
</tr>
</tbody>
</table>

Perceived Changes when Riding MARTA Buses

- **On the survey, real-time information (RTI) users were asked about perceived changes when riding MARTA buses since they began using RTI. Many respondents perceived decreases in wait times and increases in satisfaction with MARTA bus service.**

Conclusions, Limitations and Future Research

- **Conclusions**: Statistical analysis of the full dataset (n=494) suggests that real-time information users increased transit trips; however, after the conditions were imposed and the sample size was increased, there was not a significant difference between real-time information users and non-users.
  - Many real-time information users perceived a decrease in wait times and increases in satisfaction with MARTA service.
- **Limitations**: The sample size decreased substantially when conditions were imposed.
  - Non-probability sampling was used to collect the survey responses.
- **Future Research**: Transit agencies can ask for smart card numbers on surveys to assess changes in passenger behavior.

Acknowledgements

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