An Interagency Fare Choice Model for the Chicago Region

Presented to:
Transport Chicago

Presented by:
Monique Stinson Urban, Cambridge Systematics
Kimon Proussaloglou, Cambridge Systematics
Joseph Moriarty, Regional Transportation Authority

June 7, 2013
Topics

- Study Overview
- Interagency Fare Choice Overview
- Market Segments
- Data Sources
- Interagency Fare Choice Modeling Framework
- Interagency Model Parameter Estimates
Study Overview

Objective: Provide quantitative evaluation of potential interagency fare products

Collaborating Agencies: RTA, Metra, CTA, and Pace
  – Identify potential fare products
  – Conduct rider and non-riders surveys

Model development
  – Identify market segments
  – Develop econometric model of interagency fare choice

Incorporate all analytical tools in a unified framework
Interagency Fare Choice: An Overview

Policy Questions
- Is there a market for additional or modified inter-agency fare media?
- What drives this market (convenience, discount)?

Methodology
- Stated Preference Survey
  - Hypothetical “Choice Experiments”
  - Evaluate appeal of new options
- RTA Fare Survey: Summer 2012
- About 3,000 completed surveys
  - Two SP questions per survey
  - 4,384 observations for inter-agency fare choice model
A Market-Based Approach

Market Segments for Model Development

- Different fare preferences by:
  - Socioeconomics
  - Transit behavior
  - Services used – Metra, CTA, Pace

- Evaluate appeal of new fare options to different types of riders
- Key decision factors (e.g., convenience vs. cost)

Market Segments for Model Application

- Ridership by market segment

Same Attributes in Development and Application
Market Segments

- Type of rider, defined by agencies & fare media used:
  - **Intra-agency models**
    - Riders use only one service board (intra-agency riders)
    - Riders that can choose between services
  - **Inter-agency fare choice model**
    - Includes both Intra- and Inter-agency riders
    - Riders that use Metra Monthly (alone or with CTA/Pace products)
    - Riders using other Metra products (alone or with CTA/Pace products)
    - Riders using CTA or Pace only

- Frequency of travel
- Trip purposes
  - Work/School
  - Discretionary
Data Sources

Total Ridership (Weighted)
  - Key attributes
    • Metra O-D Survey
    • CTA O-D Survey
    • Pace Customer Satisfaction Survey (CSS)
  - Other attributes: Metra CSS and Pace CSS

Interagency Fare Choice Model: RTA Fare Survey

Assumptions
  - Fare media hierarchies
  - Frequency categories
Interagency Fare Choice Modeling Framework

- Fare Options in Stated Preference (SP) Experiments
- Discrete Choice Model
  - Evaluate impacts of new fare options:

  - Current Method
  - Open Payment ("Convenience")
  - Regional Fare Card ("Discount")
INTERAGENCY MODEL PARAMETER ESTIMATES
The Effect of Discounts

• RFC Discount Level
  • No discount: RFC is less appealing than other options
  • 10% discount: appeal of RFC is similar to Current and Open options
  • “Super Link-up” option: similar result
Regularity of Trip-Making

- Higher-frequency, single agency riders unlikely to use new options
- Riders with more discretionary trip-making more likely to use new options
## Riders That Use Metra

<table>
<thead>
<tr>
<th></th>
<th>Current</th>
<th>Open (&quot;Convenience&quot;)</th>
<th>RFC (&quot;Discount&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Only Ride Metra:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metra Monthly Pass</td>
<td>+</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Other Metra Media</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Ride Metra and CTA / Pace:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Link-up / PlusBus</td>
<td>--</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CTA &amp; Pace 7- and 30-day passes</td>
<td>++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Other CTA/Pace media</td>
<td>+</td>
<td>++</td>
<td>++</td>
</tr>
</tbody>
</table>
Riders That Use Metra (2)

Use Metra

- Open ("Convenience")
- RFC ("Discount")

More Likely
Less Likely

- Metra Only (Monthly Pass)
- Metra Only (Other)
- LinkUp / PlusBus
- CTA/Pace 7- & 30-day passes
- Other CTA/ Pace Media
Riders That Use CTA/Pace Only (No Metra)

<table>
<thead>
<tr>
<th>Current</th>
<th>Open (&quot;Convenience&quot;)</th>
<th>RFC (&quot;Discount&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTA &amp; Pace 7- and 30-day passes</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>CTA &amp; Pace PPU Cards*, 1/3-day passes, 10-ride</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Cash</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
</table>
Riders That Use CTA/Pace Only (No Metra) (2)

Use CTA/Pace Only

- Open ("Convenience")
- RFC ("Discount")

7- & 30-day passes | PPU Card, 1/3-day, 10-ride | Cash

More Likely | Less Likely
Interagency Fare Choice Model Summary

Quantitative evaluation to support fare policy decisions

Model Results

- Intuitive
- Statistically significant

Key Findings – Likelihood of Using New Options:

- Less likely
  - Metra-only riders
  - Plusbus, Linkup riders

- More likely
  - Greater variety of trips
  - Other CTA/Pace riders that use Metra (i.e., not Plusbus/Linkup users)
  - Some interest from other CTA/Pace only markets
THANK YOU!

QUESTIONS?