Impact of Light-Rail Implementation on Labor Market Accessibility: Transportation Equity Perspective

Yingling Fan
yingling@umn.edu
Andrew Guthrie
David Levinson
Spatial Mismatch
Disproportionally affect low-wage workers
Does spatial mismatch exist in the Twin Cities?

Locations of low-wage workers/jobs in 2002 relative to LRT and bus connections

Source: Census LEHD.
Before-and-After Comparison

- Accessibility definition
  - total # of low-wage jobs reachable within 30-min of transit travel

- Study area: transit-served areas

- Data source: Census Bureau LEHD Database (2002-2006)
Area Type

- Station areas

- Connection areas
  - direct bus-LRT connection;
  - LRT reachable within 30 mins;
  - Contain 22% of all the metro area pop
Before-after changes in low-wage job accessibility across different areas (%)
Morning Peak Hour 7am-8am
Increased Accessibility ≠ Actual Gains?

• Not Necessarily

• Job accessibility of a neighborhood:
  – Amount of job opportunities reachable to workers living in the neighborhood

• For increased Accessibility = Actual Gains
  – Workers living in the station & connection areas
  – Those workers commute to jobs in the station & connection areas
Before-and-After Commuter Flow Analysis

Estimate changes in the home-to-work flow volume
Downtown Station Areas
North Hiawatha Station Areas
South Hiawatha Station Areas
Suburban Station Areas
## Total & Average Impact (Low-Wage Only)

<table>
<thead>
<tr>
<th>Area Categories</th>
<th>WORKERS Move-Ins</th>
<th>JOBS Move-Ins</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total workers</td>
<td>Average (Per BG Pair)</td>
</tr>
<tr>
<td>Downtown Hiawatha</td>
<td>103</td>
<td>0.123</td>
</tr>
<tr>
<td>North Hiawatha</td>
<td>593</td>
<td>0.202</td>
</tr>
<tr>
<td>South Hiawatha</td>
<td>124</td>
<td>0.047</td>
</tr>
<tr>
<td>Suburban Hiawatha</td>
<td>4</td>
<td>0.019</td>
</tr>
<tr>
<td>Connected Areas (blue areas)</td>
<td>14134</td>
<td>0.108</td>
</tr>
</tbody>
</table>
Policy Implications
Positive evidence on the role of LRT in promoting social equity

1. The Hiawatha impact is regional in scale.

2. To transit planners:
   • Transit system integration/coordination is essential to the improvement of accessibility.

3. Low-wage workers and employers are able to take advantage of the LRT, at least in the context of the Hiawatha line.

4. To land use planners:
   • Balancing jobs and housing: NOT necessarily on the same site (i.e., balance at the corridor level NOT the station level)
Acknowledgement

- The Transitway Impacts Research Program (TIRP) founded and managed by the Center for Transportation Studies, University of Minnesota

- Project partners and sponsors include Anoka County, Dakota County, Hennepin County, Ramsey County, Washington County, the Minnesota Department of Transportation, Metropolitan Council, the University Metropolitan Consortium (University of Minnesota), and the Center for Transportation Studies (University of Minnesota).