Access to rail in urban areas – can there be too many stations?

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Background and motivation

Integration between Rail and Access-to-stations-modes in the Netherlands

• Access mode dominated by green modes, not affected by car availability
• Improving access to station will improve satisfaction from the rail journey, making it more attractive
• Improving the level of rail service and the access to it are substitutes. Improving access is probably more cost efficient.
• Reducing distance to station (improving access) = opening new stations. But costly, plus travel time penalties to (other) travelers
Background and motivation

Access to rail stations in Amsterdam

Choice of station within Amsterdam postcodes (4 digit)

<table>
<thead>
<tr>
<th>Station choice</th>
<th>Post codes (N)</th>
<th>Average share</th>
<th>Average distance (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>N=94</td>
<td>71%</td>
<td>3448</td>
</tr>
<tr>
<td>2nd</td>
<td>N=83</td>
<td>18%</td>
<td>2937</td>
</tr>
<tr>
<td>3rd</td>
<td>N=79</td>
<td>9%</td>
<td>4478</td>
</tr>
</tbody>
</table>

• Out of 83 postcodes, in 27 the nearest station is NOT the 1st choice (on average the 1st station is 2.3km farther)
• Out of 83 postcodes, in 56 the nearest station IS the 1st choice (on average the 1st station is 3.2km closer)
Station catchment area

1. Amsterdam Amstel
2. Amsterdam Bijlmer
3. Amsterdam Centraal
4. Amsterdam Lelylaan
5. Amsterdam Muiderpoort
6. Amsterdam RAI
7. Amsterdam Sloterdijk
8. Amsterdam Zuid WTC
9. Diemen
10. Diemen Zuid
11. Duivendrecht
12. Schiphol
Station catchment area

Amsterdam Centraal
Station catchment area

Amsterdam Muiderpoort
Station catchment area

Duivendrecht
Station catchment area

Amsterdam Amstel & Amsterdam Rai
Proposed analysis

1. Analysis of station choice (MNL)

(group of) Factors considered:

• Access journey to station (time by mode)
• Rail journey (general travel time – including waiting and no. of transfers)
• Perceived quality of the station (including access facilities, e.g. bike parking)
• Personal characteristics (age, gender, frequency of rail use, car availability, etc.)
Proposed analysis

2. Welfare effects of changing the number of rail stations
(focusing on closure of stations)

• Comparing (value of) travel time losses (longer access journey) to travel time gains (faster rail journey)
• Calculating the overall welfare implications
The case for research

• It is plausible that there are too many railway stations in Amsterdam
• Closing a station/s will surely benefit those not using it (but having to stop there)
• Closing a station will negatively impact those using it. This can be mitigated by better access to other stations

Considering the entire journey (focusing also on access/egress to/from the station) when planning the rail network will increase rail use and improve railways (financial) performance
Thank you
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