Pricing in Japan - The Example of Hiroshima

KW Axhausen
M Chikaraishi
H Seja

IVT
ASMO

ETH
University of Hiroshima

Zürich

January 2016
Background
Parking spaces by type

- Parking spaces prescribed by city planning
- Obligatory parking spaces
- Paid parking spaces on registered lots
- Paid parking spaces on non-registered lots
- Total off-street spaces
- On-street parking spaces
- Metered spaces

Number of off-street parking spaces

Number of on-street parking spaces

TRB 2016
Example parking lot
Example price schedule

8:00 - 24:00

40分 / 200 円

60分 / 100 円

入庫後 12 時間以内

1,700 円

最大料金は繰り返し適用となります。
※48時間を超えて駐車する場合は、事前に場内掲示の緊急連絡先へご連絡下さい。
Patterns in Hiroshima

TRB 2016
Day time rates

Legend
Weekday day time
$/hour (1$=123 ¥)

- 3.0 >
- < 3.0
- < 2.0
- < 1.0
- < 0.5
Night time rates

Legend
Weekday night time
$/hour (1$=123 ¥)

- 3.0 >
- < 3.0
- < 2.0
- < 1.0
- < 0.5

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment Technology,激情, MI-Tech, GeoEye, Earthstar Geographics, CNES/AIRBUS DS, MapmyIndia, and the GIS User Community.
Comparison of day and night time rates

Hourly rate [¥/h] vs. Number of lots

- Night time: Blue bars
- Day time: Orange bars

Day time rates are generally higher than night time rates across all rate ranges.
## Working day rates

<table>
<thead>
<tr>
<th>Hourly rate</th>
<th>Day time</th>
<th>Night time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>60–1,600</td>
<td>33–1,600</td>
</tr>
<tr>
<td>Median</td>
<td>300</td>
<td>100</td>
</tr>
<tr>
<td>Mean</td>
<td>288</td>
<td>145</td>
</tr>
</tbody>
</table>
Spatial regression
## Spatial regression: lag model on log of mean hourly rate

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unit</th>
<th>Beta</th>
<th>Sig. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td></td>
<td>-1.206</td>
<td>*</td>
</tr>
<tr>
<td>Unit</td>
<td>[min]</td>
<td>-0.012</td>
<td>***</td>
</tr>
<tr>
<td>Competition (100m)</td>
<td>[]</td>
<td>-0.006</td>
<td>**</td>
</tr>
<tr>
<td>Road distance major road</td>
<td>[m]</td>
<td>0.000</td>
<td>**</td>
</tr>
<tr>
<td>Road width 5.5 to 13 m</td>
<td>[n,y]</td>
<td>0.044</td>
<td>**</td>
</tr>
<tr>
<td>Log(Land price)</td>
<td>[¥/m2]</td>
<td>0.164</td>
<td>**</td>
</tr>
<tr>
<td>Loyalty card</td>
<td>[n,y]</td>
<td>0.317</td>
<td>***</td>
</tr>
<tr>
<td>Wp</td>
<td></td>
<td>0.582</td>
<td>***</td>
</tr>
</tbody>
</table>
Conclusions
Tinbergen rule at work

No parking search traffic (and demand overspill)

But how can one get there? Does one want to?

- Pricing in the face of oversupply at most times and locations
- Management of the redistribution of the benefits of the spaces between users, tenants, land lords, modal user groups
- Flexibility of the urban form (removing, building parking spaces)
- Who determines total capacity? (public transport competition)