A method to evaluate equitable accessibility

MISTRA workshop
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Bert van Wee
Delft University of Technology
Based on:

Karen Lucas, Bert van Wee, Kees Maat (2016),

A method to evaluate equitable accessibility: combining ethical theories and accessibility-based approaches

Transportation 43: 473–490
Background

CBA: distribution effects generally ignored
Specific topic transport policy Social exclusion.
Evaluation: largely case studies

No systematic method, theoretically underpinned
This paper

Method based on Egalitarianism, Sufficientarianism

CBA: consequentialism / utilism

(Overview of theories useful for transport evaluation purposes; see Van Wee and Roeser, 2013)

SRAIs: socially relevant accessibility impacts
Theories

Egalitarianism: all people should be treated equally

Rawls: primary social goods. Geurs and Van Wee (2011): accessibility can be seen as a primary social good.

Discussion possible: see Martens (2016)

Max-min principle: the greatest benefit of the least advantaged members of society

Consequences:
• Accessibility of basic services for least advantaged
• ‘Equal access’
Sufficientarianism: minimum threshold

Strong versus week: focus on ‘below threshold’ versus absolute priority
Method

Applicable to any quantitative accessibility indicator

See Geurs van Van Wee (2004) for options

See Van Wee, Geurs and Chorus (2013) for ICT and accessibility

Based on GINI-index and Lorenz curve
Challenge the future
Subtitle

Notice:

Sum generally meaningless, unlike income

Threshold: political choice (although research is possible)
Application

The Hague (big city)
Delft (medium sized city)
Dongeradeel (rural)
1. greengrocer,
2. butcher,
3. baker,
4. bookshop or stationer,
5. drugstore,
6. pharmacy,
7. family doctor
8. dentist

1-5 supermarket if available
1. Cluster of destinations
   Nearest / shortest path

2. Buffer
   Cumulative opportunities < 2 (or other threshold) km

   Applied to all inhabitants of postal code zones
Results: Lorentz curves for Dongeradeel, The Hague, Delft
### Indices of egalitarianism and sufficientarianism

<table>
<thead>
<tr>
<th></th>
<th>Dongeradeel</th>
<th>The Hague</th>
<th>Delft</th>
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<tbody>
<tr>
<td>Gini cluster index</td>
<td>.65</td>
<td>.27</td>
<td>.13</td>
</tr>
<tr>
<td>Gini buffer index</td>
<td>.70</td>
<td>.33</td>
<td>.20</td>
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<tr>
<td>Threshold cluster index</td>
<td>Share of persons within threshold</td>
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<tr>
<td>1 km</td>
<td>.00</td>
<td>.82</td>
<td>.49</td>
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<td>2 km</td>
<td>.47</td>
<td>1.00</td>
<td>1.00</td>
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<tr>
<td>4 km</td>
<td>.53</td>
<td>1.00</td>
<td>1.00</td>
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<tr>
<td>5 km</td>
<td>.56</td>
<td>1.00</td>
<td>1.00</td>
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<tr>
<td>Area As as percentage of triangle</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>For thresholds value of 1 km</td>
<td>0.65</td>
<td>0.02</td>
<td>0.08</td>
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Discussion

• Accessibility versus QoL, happiness, well-being?

• Which destinations?

• Who and how to set thresholds?

• How to integrate in CBA, MCA?

• …
Questions / discussion?
Subtitle