
Personal biography, social networks and travel behaviour: Hypotheses and assumptions

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Position: Person as a network member

- Individual
- "contacts"
- Household members

Position: Person as a member of networks

- Individual
- "contacts"
- Household members
Definition of a social network

The topology of a social network describes

- Which person/firm (node) is linked to which other persons/firms
- By contacts (links) of a certain quality (impedance or cost)

Closeness \( \sim \frac{1}{\text{Impedance}} \)

Position: Individual in the biographical context

- Biography
- Learning
- Projects

Personal world
Activity repertoire: What can be done where and how

Mental map: links between locations and their generalised costs of travel

Systematic expectations about locations not yet visited

Activity space: Locations in current use

Action space: Extension of the mental map by locations known second hand via word-of-mouth or the media
Example of local activity space

Female, 24
Full time
Single
216 trips / 6 weeks

Example of a local activity space

Male, 50
Full time
1 child
120 trips / 6 weeks
Activity spaces: Commuters to Zürich (2000)

Position: Impacts of industrialised modernity

Participation of all in the productivity increases (real income growth)

Drastic reductions of the generalised costs of travel and telecommunication

(Substantial) replacement of local personalised links by anonymous instruments of social integration
Modernity: Productivity growth in Western Europe

Adapted from Galor and Weil (2000)

Modernity: Reduction of transport costs (USA)

Adapted from Rhode and Strumpf (2003)
Modernity: Cost reduction in telecommunication (USA)

Feedbacks between the systems

<table>
<thead>
<tr>
<th>Transport system</th>
<th>Suppliers</th>
<th>Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower (gen.) user costs</td>
<td>Larger markets</td>
<td>Better selections</td>
</tr>
<tr>
<td>More travel</td>
<td>Specialisation</td>
<td>Better quality</td>
</tr>
<tr>
<td>Higher load factors</td>
<td>Higher wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Productivity growth</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bigger units of production</td>
<td></td>
</tr>
<tr>
<td>More funds for investment/maintenance</td>
<td>Longer distances</td>
<td>Longer distances</td>
</tr>
</tbody>
</table>
Social networks: Hypothesis 1

The size of spread (geography) of the social networks is inversely proportional to the generalised costs of communication (travel and telecommunication).

Additional result: Small geographies make it more likely that any two persons are linked through multiple networks.
Spatially non-coherent networks (today ?)

Scales could be different!

Social networks: Hypotheses 2a and b

Persons belong to more networks today
Persons keep more contacts alive then earlier

- More leisure time over the life cycle
- Drastically reduced costs of communication
- Copying of messages has become nearly free
Social networks: Hypotheses 3

Contacts have become more selective

• No need to make do with the „neighbours“

Social networks: Hypothesis 4

The distribution of contacts intensity has become more left skewed

• Selectivity of contacts

• Time requirements for acquiring the background knowledge about the references of the other persons

• Less gossip

• Fewer random meetings
Social networks: Assumption

The selectivity is being increased by the general availability of mobile phones:

- More spontaneous patterns of time use
- Fewer predictable availabilities at certain (time-space) locations

Biographies: Hypothesis 1

The style of travelling during childhood and adolescence, i.e. of the parents, forms the style of the next generation

- The emotional response to (types of) locations is transferred
- The desire for variety seeking is transferred
- The attitude to travelling is transferred
Biographies: Hypothesis 2

Action spaces grow over the duration of the life course

Assumption: They grow exponentially with the number of main locations (work places; home locations) via involvement with third parties

Biographies: Hypotheses 3a and b

The elements of the activity repertoire age
The current size of the activity space remains constant through continuous innovations

• Locations and activity supply change over time

• Idealisation of locations/activities through memory processes and generalisation
Mobidrive: Number of unique locations and trips

Innovation in destination choice
Variance of activity spaces: A Mobidrive example

Male, Full time
Black: Working days
Blue: Weekend
Line width:
Weeks 1+2; 3+4 and 5+6

Expected impacts: Travel behaviour

Activity spaces should be larger then earlier

Regular long distance travel is required

Fast modes will remain popular
Mean distances between home locations of contacts

<table>
<thead>
<tr>
<th>Distance between home locations [km]</th>
<th>Percent [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 10 km</td>
<td>50</td>
</tr>
<tr>
<td>10 - 20 km</td>
<td>40</td>
</tr>
<tr>
<td>20 - 30 km</td>
<td>30</td>
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<tr>
<td>30 - 40 km</td>
<td>20</td>
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<tr>
<td>40 - 50 km</td>
<td>10</td>
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<tr>
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</tr>
<tr>
<td>60 - 80 km</td>
<td>0</td>
</tr>
<tr>
<td>80 - 100 km</td>
<td>0</td>
</tr>
<tr>
<td>Abroad</td>
<td>0</td>
</tr>
</tbody>
</table>

Important contact

No

Yes

Activity spaces: commuter sheds since 1970

Nach Botte, 2003
Expected impacts: localised anomie

Reduced number and intensity of local contacts should reduce the local level of trust:

- Growing investment into safeguarding the person and the home
- Reduced exposure to risk during travel, i.e. less travel by public transport, cycling and walking

Expected impacts: Improved welfare

The social networks should be more homogeneous and therefore more productive for their members

But, the selectivity excludes the “less attractive” persons who are disadvantaged through a reduced ability to travel or a reduced ability to participate in activities
When will the marginal benefits become zero?

Localised anomie stresses the other mechanism of social inclusion too strongly.

The costs of private protections could become too high.

The environmental impacts could become threatening.

The trend in the costs of travel changes.

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Petrol prices

![Petrol prices chart](chart.png)

Source: Dow-Jones Inc.
Back to the future?

Literature and references

Literature and references