Preferred citation style

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
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
Position: 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)

- Real railroad revenues per passenger mile
- Real airline revenues per passenger mile
- Real passenger automobiles costs per mile
- Average airline speed

Graph showing changes in constant 1998 dollars per mile and miles per hour over time from 1880 to 2000.
Modernity: Cost reduction in telecommunication (USA)

Adapted from FCC (2001)

US International and interstate average revenue per minute

Graph shows the index of US International and interstate average revenue per minute from 1930 to 2000. The index is set to 100 in 1995.
## 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 Higher load factors</td>
<td>Specialisation Higher wages</td>
<td>Better quality</td>
</tr>
<tr>
<td>More funds for Investment/maintenance</td>
<td>Longer distances</td>
<td>Longer distances</td>
</tr>
<tr>
<td></td>
<td>Productivity growth Bigger units of production</td>
<td>Lower prices</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

Corollary: The feeling of personal safety (“eyes on the street”) is proportional to the density of local links
Locally coherent networks (of the past ?)
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
Shift in contact intensity

![Graph showing the relationship between rank of member and effort expended on each member. The graph depicts a downward trend with effort decreasing as rank increases.](image-url)
Detour: The question of “milieu”

How do milieux constitute themselves? (socially effective, stable “crowds” without strong links)

- Definition of style
- Transmission of fashion
- Membership rules

How do they work in a society without a clear apex?
How do they spread?
What role do commercial providers of milieux play?
What power do they have?
Social networks: Hypothesis 5

The average knowledge about the contacts of own contacts is reduced by the increasing skew of the contact intensity:

- Less knowledge about everyday life and contact
- Lower visibility of many technologically enabled contacts

Corollary 1: The impact of gossip/news can be less well predicted

Corollary 2: The distance decay of “network supervision” should be less steep then in the past; the friends of ones friends are likely to be present in the same milieux independent of location.
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

![Scatter plot showing the relationship between the number of local trips and the number of unique locations. The x-axis represents the number of local trips, ranging from 0 to 400, and the y-axis represents the number of unique locations, ranging from 0 to 70. The data points are distributed across the plot, with clusters indicating varying densities of locations and trips.]
Innovation in destination choice

[Graph showing the number of new locations per day over time for different study locations and purposes.]

- Borlänge GPS Studie; Vollzeit; Alle Zwecke
- Mobidrive - Karlsruhe; Alle Befragten; Alle Zwecke
- Uppsala; Alle Befragten; Alle Zwecke
- Uppsala; Alle Befragten; Nur Freizeit
- Mobidrive - Karlsruhe; Alle Befragten; Nur Freizeit
- 12 Wochen Befragung; Alle Befragten; Nur Freizeit
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

Distance between home locations [km]

Percent [%]

Important contact

No

Yes

Abroad

0 - 10 km
10 - 20 km
20 - 30 km
30 km
40 - 50 km
50 - 60 km
60 km
60 - 250 km
20 - 30 km
10 - 20 km
0 - 10 km
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?

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

.... the costs of private protection become too high

.... the environmental impacts become too threatening

.... the trend in the costs of travel changes
Back to the future?


Literature and references


