
Life after the Census:
Using Administrative Data to Analyse Society

Some examples of longitudinal analysis using Swedish data

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Today

1. The access to and use of administrative registers for research
2. The data available for our research group at Umeå University
3. Examples of research

Administrative registers for research

- Research is increasingly based on data from administrative registers
- The last Swedish census in 1990
- The taxation authorities are responsible for the population registers
- Other information is kept by other agencies
 - Education, Real estates, Health statistics (National Board of Health and Welfare)
- Data is joined and provided to us by Statistics Sweden

Administrative registers for research

- Long tradition of having good population records, in the church books
- The right to combine different registers is restricted
- One very important exception: Research

How to get access to register data

1. Approval from the university's ethical committee
 - ❑ Committee evaluate the scientific value of the research
 - ❑ Do an assessment of the integrity problems
2. Application to Statistics Sweden to get a specific combination of data
 - ❑ Evaluation of the data application: Is this combination of variables data needed for the research?
3. Purchase the data (finance from research foundation)
4. Statistics Sweden provide us with the data
 - ❑ Join variables from various registers, linked by use of personal numbers
 - ❑ Access to data through a remote terminal
 - ❑ Or the data is delivered to the university department

The register data

- Individual micro data
- Sample or total population
- Longitudinal or cross-sectional data
- Selected variables (from one or various registers)
- Linked by use of the unique personal number
- Anonymised dataset, personal numbers are exchanged by ID-numbers
- No names, No addresses

How to handle the integrity problem?

- Data is kept safe
- Only accessible to a limited group of researchers
- Only aggregated data can be taken away from the terminals
- No personal numbers

- Risk backward identification?

Register data at Umeå university

■ Astrid database

- Designed for research on population dynamics

■ Linnaeus database

- Research programme: Ageing and Living Conditions
- Designed for research on health, cognition and socio-economic situation of people in the ageing population

The Linnaeus Database

Links on individual level

Anonymized data

Register data from Statistics Sweden

- Demographic data
- Socio-economic data
- Total population of Sweden
12,066,478

Register data from National Board of Health and Welfare

- Hospitalisation
- Death Causes
- Total population of Sweden

Västerbotten Intervention Programme (VIP)

- Health indicators
- Life style
- 89,000 County of
Västerbotten

Betula

- Cognitive functions
- 4,500 Umeå city

Linking survey data to register data

- Consent from the participants in the survey
- We send the data with personal numbers to Statistics Sweden
- Statistics Sweden link the survey data to register data
- Statistics Sweden return an anonymised data-set

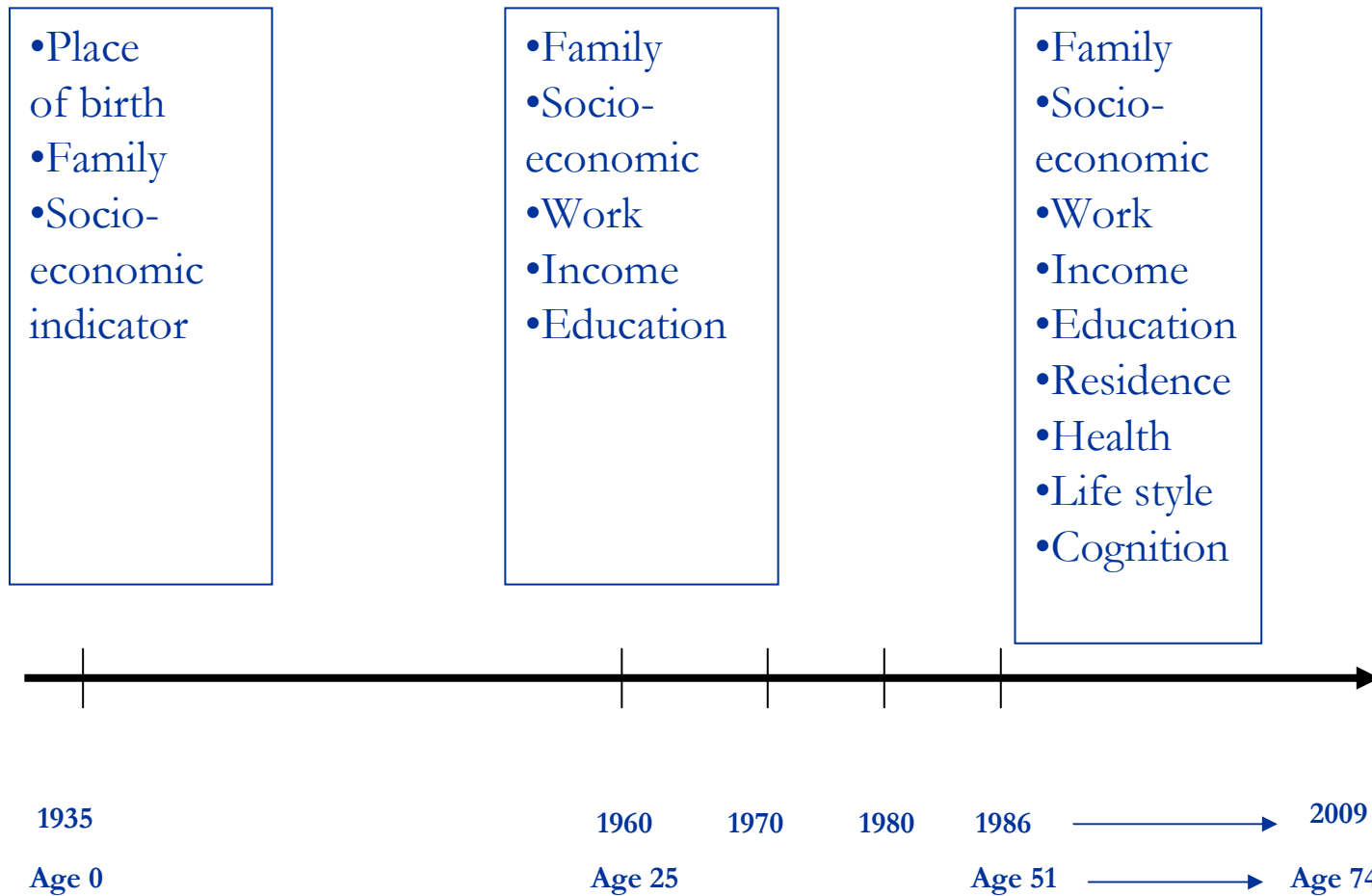
Register data in the Linnaeus database

- Individual data for the whole Swedish population (registered residents)
- Annual data from 1986 – 2009 and census data 1960, 1970, 1980.
- Basic personal information
 - gender, age, place of birth (parish, country)
- Socio-economic data
 - incomes, education, (un-)employment, pensions, allowances
- Family data
 - partner, (adult) parents, children
- Work place data
 - company id, work place id, coordinates (100m)
- Place of Residence
 - coordinates (100m)

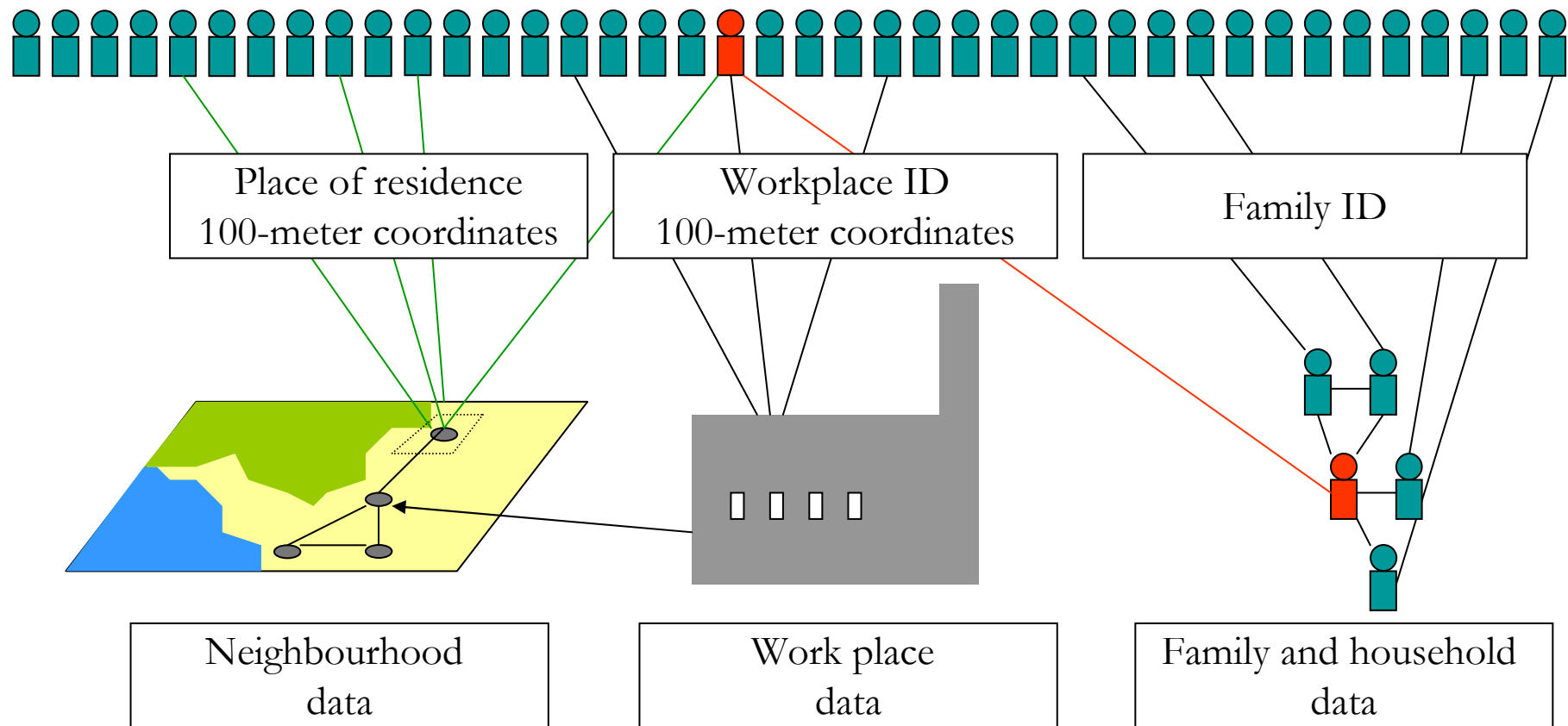
Some advantages of the Linnaeus Database

- Register data covers a long period and has a high time resolution
- Register data include the whole population
- Data on mobility (residential, interregional, labour market) and events separations etc)
- Drop out analysis
- Data quality control

A life biography

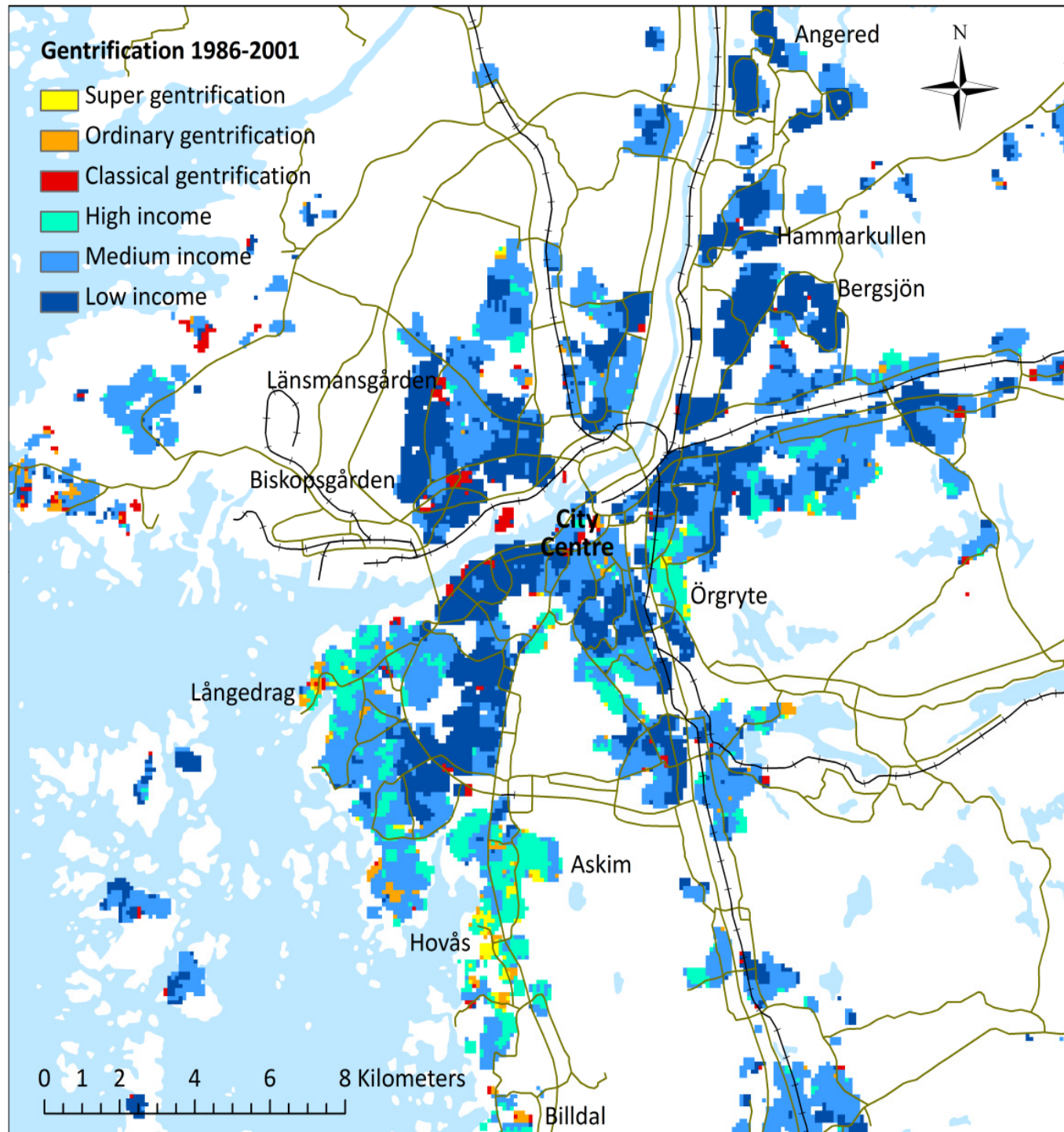


Linking individual data to neighbourhood, work place and family data



Research on residential segregation and neighbourhood effects

- Social segregation in residential areas, change over time
- Impact of geographical mobility on changing socio-economic composition in residential areas
 - Gentrification or social filtering



Gothenburg:
Residential areas by
income level and
Gentrification

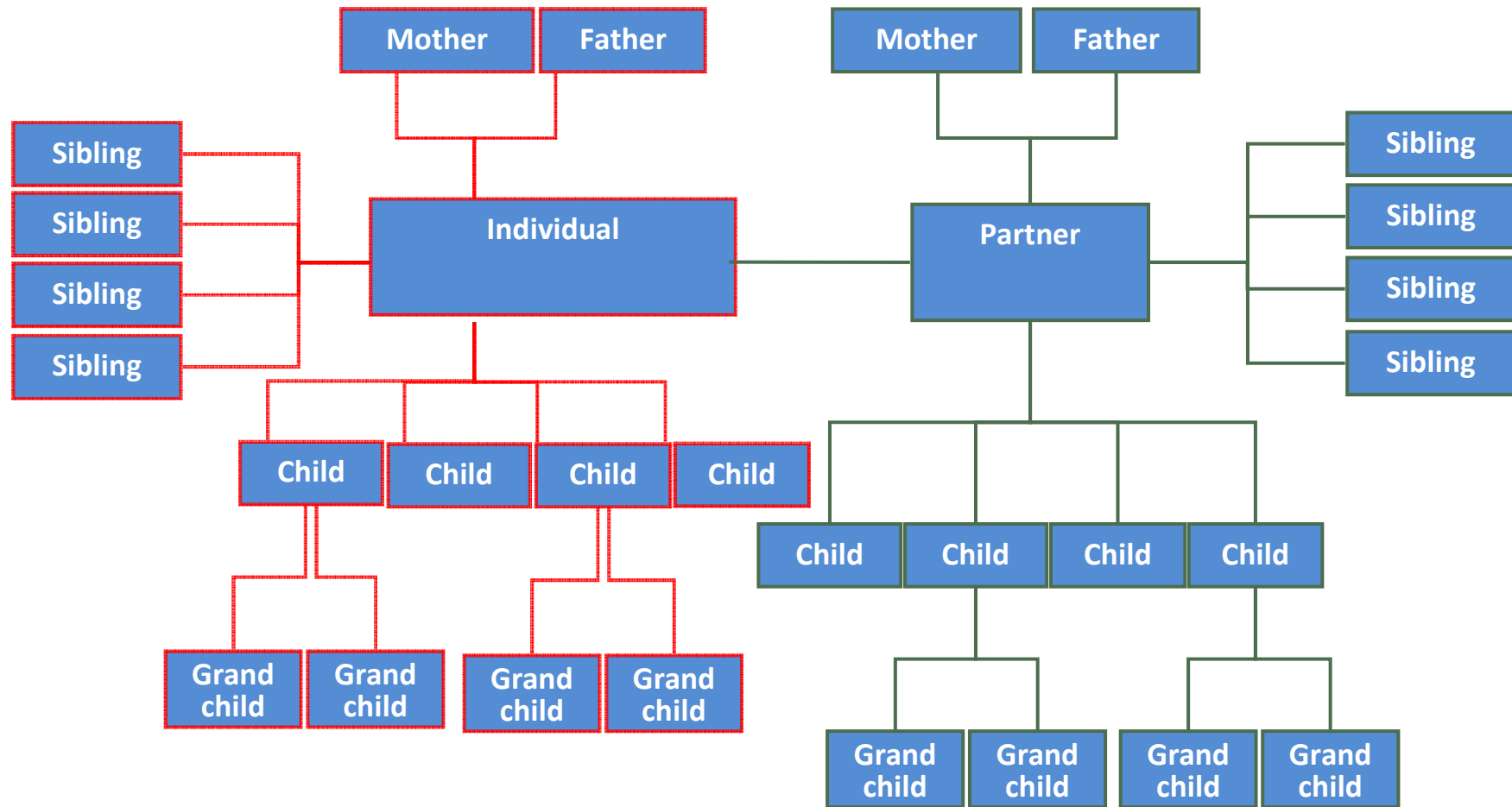
Research based on the
"Astrid-database"

Hedin, K., Clark, E., Lundholm, E and
Malmberg G. (2012): Neoliberalization of
Housing in Sweden: Gentrification,
Filtering and Social Polarization, *Annals of
the Association of American Geographers*.
Volume 102, Issue 2, 2012

Neighbourhood effects on individual health outcome

- ❑ Testing the Wilkinson hypothesis. Does inequality trigger ill-health?
- ❑ Individual resources (income, education, family)
- ❑ Socio-economic composition in the area
- ❑ Relative position of the individuals
- ❑ Income inequality
- ❑ Time of residence
- ❑ Control for selection effects (migration patterns)
- ❑ Long-term and short term outcomes (death, hospitalisation)

Family Networks in the Linnaeus Database



Research on family networks

- Changing patterns of intergenerational families
- Presence of and proximity to adult children
- Distance between elderly parents and adult children
- Who live near?

Malmberg G. & Pettersson A. (2007): Distance to Elderly Parents - Analyses of Swedish register data. *Demographic Research*. Vol 17 pp. 679 – 704.

Lundholm E and Malmberg G. (2010): Between elderly parents and grandchildren: geographic proximity and trends in four generation families. *Journal of Population Ageing*, ISSN 1874-7884. 1874-7876.

Research on family networks

- Impact of the family network on migration
- New project: Impact of family network on life style and health outcome
 - What are the impacts of upward social mobility in low income families on life style and health outcomes?

Pettersson A. and Malmberg G. (2009): Adult children and elderly parents as mobility attractions in Sweden. *Population Space and Place*. Vol 15, 4 pp 343-358.

Mulder C. and Malmberg G. (2011): Moving around separation: who moves and at what distance. *Environment and Planning A*. A. vol 43 pp 2589-2607

Mulder C. and Malmberg G. (2011): Local ties and family migration. Paper for the 6th International Conference on Population Geographies, Umeå, 14-17 June 2011

Research on health intervention

- Evaluation of health intervention programme in the county of Västerbotten
- Combination of:
 - Data collected in survey and health examination
 - Register data on socio-economic conditions and health outcomes
- Health outcomes for participants and non-participants

The Nordic experience – any disadvantages?

- Too much focus on register data
- Sometimes data is defining the research questions
- We miss some information from the census
- Too little surveys and qualitative research
- Research may become very empirical
- Confidentiality, the risk of scandals, but no scandals yet
 - We have to maintain the trust for research and researchers

Thank you!

