Using microdata to analyse demographic changes

Chair: Stefan Bender
6th Sept 2016
The German Data Forum

- Is an Advisory Council to the Federal Government (8 data producers / 8 data users from research)
- Has established a research data infrastructure for the social, behavioral, and economic sciences
- Which consists of 30 research data centres
- Facilitating access to high-quality data
- As a result of independent initiatives from within the scientific community

- **Scientific Policy Advising** (e.g. Census 2021, European General Data Protection Regulation)
- **Data Protection and Research Ethics**
- **Development of the Research Data Infrastructure** (e.g. data management, new types of data)
- **International Coordination and Cooperation**
- For more detailed information, see [www.ratswd.de/zwischenbericht](http://www.ratswd.de/zwischenbericht)
Election 2017 - Vote today for scientific members of the German Data Forum

- For voter registration, go to ratswd.de/7kswd/wahl
- Registration open until 11th January 2017
- Entitled to vote are PhD graduate scientists at universities and scientific research institutions
- Your vote sets the course for the future development of the research data infrastructure in Germany
Call for Posters: Social and Economic Data

- Present innovative empirical results using microdata of a RDC
- at the Conference for Social and Economic Data (8-9th Feb 2017, Berlin); Send your poster to kswd@ratswd.de
- Deadline: 13th November
- More information: Conference Programme and details: www.ratswd.de/7kswd
Why this session?

- Research Data Centres accredited by the German Data Forum offer microdata on demographics including:
  - fertility and mortality data
  - migration data
  - data on income, consumption
  - data on health and ageing
  - geospatial demographic data
- Session provides an overview of available high-quality demographic data
Our speakers for today

- **Dr. Hans-Ullrich Mühlenfeld (IT. NRW)**
  Microdata of the Research Data Centres of the Federal Statistical Office and the statistical offices of the Länder (RDC) for analyzing demographic change

- **Martina Huber (IAB)**
  PASS – Panel Study ‘Labour Market and Social Security’

- **Dr. Julie Korbmacher (SHARE)**
  SHARE: The Survey of Health, Ageing and Retirement in Europe

- **Dr. Tobias Schmidt (Deutsche Bundesbank)**
  The Panel on Household Finances (PHF) - A comprehensive panel survey on household finances and wealth in Germany

- **Dr. Philipp Breidenbach (RWI)**
  RWI Grid-Data on small-scale level
German Data Forum Session
Using microdata to analyse demographic changes

16:30 – 16:40
The German Data Forum at a glance
Stefan Bender, German Data Forum

16:40 – 16:55
Microdata of the Research Data Centres of the Federal Statistical Office and the statistical offices of the Länder (RDC) for analyzing demographic change
Dr. Hans-Ullrich Mühlenfeld, IT.NRW

16:55 – 17:05
PASS – Panel Study ‘Labour Market and Social Security’
Martina Huber, IAB

17:05 – 17:15
The Survey of Health, Ageing and Retirement in Europe
Dr. Julie Korbmacher, SHARE

17:15 – 17:25
The Panel on Household Finances (PHF) - A comprehensive panel survey on household finances and wealth in Germany
Dr. Tobias Schmidt, Deutsche Bundesbank

17:25 – 17:40
RWI Grid-Data on small-scale level
Dr. Philipp Breidenbach, RWI

17:40 – 18:00
Wrap up and discussion
Stefan Bender, German Data Forum
Microdata of the Research Data Centres
of the Federal Statistical Office and the Statistical Offices of the Länder (RDC)
for analyzing demographic change

Dr. Hans-U. Mühlenfeld (IT.NRW)
Augsburg, September 6th 2016
Outline

• General information on the RDC
• Microdata for analyzing demographic change
  • Birth statistics
  • Mortality statistics
  • Migration statistics
  • Statistics on persons seeking for asylum
  • Microcensus
  • Survey on income and consumption
  • Wage and income tax statistics
• How to get hands on the data?
General information on the RDC

- At least one regional site in every federal state
- Same services at every regional site
- Broad spectrum of official micro data
- Various ways to access the data
Microdata
Birth statistics

• Continuous, monthly notice of all registered births in Germany
• Variables are i.a. birth date, sex, multiple birth, age of parents
• Usable for analyzing e.g.
  • total fertility rate
• Available from 1991 up to 2012
Microdata
Mortality statistics

• Continuous, monthly notice of all registered deaths in Germany
• Variables are i.a. date of death, sex, age, family status, cause of death
• Usable for analyzing e.g.
  • death rates
  • life expectancy prognoses
• Available from 1991 up to 2012
Microdata
Migration statistics

• Continuous, monthly notice of all registered changes in principal residences
• Variables are i.a. move out/in old/new flat, principal/secondary residence, sex, age, family status, nationality, place of birth
• Usable for analyzing e.g.
  • non-natural changes of the population
  • probability to migrate
• Available from 2000 up to 2012
Microdata
Statistics on persons seeking for asylum

• Annually collected administrative data of all persons obtaining monetary benefits
• Variables are i.a. sex, year of birth, family status, nationality, employment status, kind of benefit obtained
• Usable for analyzing e.g.
  • changes of the composition of the population
• Available from 2010 up to 2014
Microdata

Microcensus

• Europe‘s largest annual representative household survey
• More than 500 different variables
• Usable for analyzing e.g.
  • cohort fertility rate (every four years since 2008)
  • foreign migrational aspects (since 2005)
  • poverty rates and thresholds related to households
• Available from 1980 to 2014
Microdata
Survey on income and consumption

• Quinquennial conducted household survey
• More than 500 different Variables
• Usable for analyzing e.g.
  • richness
  • poverty / overindebtedness
• Available from 1978 to 2013
Microdata
Wage and income tax statistics / Tax-Payer-Panel

• Triannual copy of the Grundinformationsdienst der Finanzverwaltungen.
• Variables are i.a. wage/-tax, income/-tax, sex, place of residence, child benefits etc.
• Usable for analyzing e.g.
  • impact of tax law changes / social changes
  • poverty/wealth
• Available from 1992 up to 2010 / 2001 up to 2010
How to get hands on the data?

• Which **microdata** do I need for my research?
• Does the RDC provide the data? → Internet
• Call a RDC contact person for a consultation
• Request access:
  • *online* at [www.forschungsdatenzentrum.de](http://www.forschungsdatenzentrum.de)
  • or via post / fax / e-mail
• Which is the best way to process the data?
• The request will be approved by the RDC
• → Access
Contact
RDC of the Federal Statistical Office
c/o Heike Habla
Gustav-Stresemann-Ring 11
D-65189 Wiesbaden
Phone: ++49 611 75-3277
Mail: forschungsdatenzentrum@destatis.de

RDC of the statistical offices of the Länder
c/o IT.NRW - Dr. Kerstin Schmidtke
Postbox 101105
D-40002 Düsseldorf
Phone: ++49 211 9449-2873
Mail: forschungsdatenzentrum@it.nrw.de

www.forschungsdatenzentrum.de
PASS – Panel Study ‘Labour Market and Social Security’

Jahrestagung ‘Demographischer Wandel’ des Vereins für Socialpolitik, 4. bis 7. September 2016, Augsburg

Martina Huber, Mark Trappmann (IAB, Nürnberg)
Outline

- Background and goals
- Study design and number of cases
- Survey topics
- Data access
- Content-related research
Background

- Reforms of assistance schemes for long-term unemployment in Germany (2005) laid down in Social Code II (‘Hartz-IV’)
- Welfare and unemployment benefits were integrated into a new benefit scheme (Unemployment Benefit II)
- The IAB has the legal mandate to assess the effects
- The panel study ‘Labour Market and Social Security (PASS)’ was established in 2006 by the IAB
- PASS is a central data source for analyses of the labour market and poverty situation in Germany
Goals

- Which individual and contextual factors influence dynamics in benefit receipt?
- What options exist to regain independence from UB II?
- In which way does the social and economic situation of a household change or develop over time when it receives benefits?
- How do attitudes and behaviour develop?
- How do persons concerned cope with their situation?
- What are the institutional arrangements and which effects do these arrangements have on different aspects of life?
PASS is a yearly household panel survey since 2007 (wave 9 at the end of 2016, wave 10 in the field)

- Household interviews with the head of the household
- Personal interviews with each person aged 15 years or older and living in the same household

The focus is not limited to recipients of UB II; reference group: parallel sample of residential population

- Mixed Mode design: CAPI / CATI

- Languages: German, Russian, Turkish (until 2015), Arabic (since 2016)

- Record linkage with administrative data from the Federal Employment Agency
Study design II

- The survey design is a two-stage random sample including 300 postal code areas
- Sample 1: Sample of households with at least one person of the household receiving UB II on a reference date
  - Yearly refreshment by the inclusion of new entries into UB II
- Sample 2: Random household sample of residential population
  - Self-refreshing due to dynamic panel concept
Number of cases

Interviewed households and persons each wave

- Wave 1: 18,000 household interviews, 13,000 personal interviews
- Wave 2: 12,000 household interviews, 10,000 personal interviews
- Wave 3: 10,000 household interviews, 9,000 personal interviews
- Wave 4: 8,000 household interviews, 7,000 personal interviews
- Wave 5: 15,000 household interviews, 12,000 personal interviews
- Wave 6: 14,000 household interviews, 11,000 personal interviews
- Wave 7: 13,000 household interviews, 10,000 personal interviews
- Wave 8: 12,000 household interviews, 9,000 personal interviews

Research Data Centre of the German Federal Employment Agency at the Institute for Employment Research
Regensburger Str. 104, D-90478 Nuremberg, http://fdz.iab.de
Survey topics: Household level

- Socio-demographics: size, composition, number of children, childcare
- Economic situation: net income, savings, debts, equipment
- Social situation: housing situation, cost, educational aspiration, inclusion of children
Survey topics: Personal level

- Socio-demographics: year of birth, sex, marital status, education, vocational training, migration, social background
- Economic situation: employment history, income, quality of employment, pensions, retirement provision, financial literacy, working hours, job search
- Social situation: health, care, social networks, social inclusion, sports
- Attitudes: satisfaction, employment orientation, job-seeking behaviour, gender roles, fears, problems, subjective social position
Survey topics: Unemployment Benefit

- Unemployment Benefit I: start and end dates, information on periods, amount of benefit, reason for end

- Unemployment Benefit II: start and end dates, reasons, amount of benefits, benefit cuts, number and type of contacts with UB II institutions, contents of discussion, offers, integration
Data access I

- PASS-SUF: The survey data are available as Scientific Use File (SUF) for users of non-commercial research institutions
  - Factually anonymized
  - Available up to wave 8
  - Wave 9 will be available at the end of 2016
Data access II

- PASS-ADIAB: The survey data linked with administrative data from the Federal Employment Agency are available via on-site use in the Research Data Centre and subsequent remote data access
  - Administrative data actually comprise a period from 1975 to 2014
  - Additional information about employment histories, establishment information and benefit receipt
  - Available up to wave 8
Data access III

Linkage consent (percentage)

- Wave 1: 78%
- Wave 2: 74%
- Wave 3: 80%
- Wave 4: 86%
- Wave 5: 88%
- Wave 6: 84%
- Wave 7: 82%
- Wave 8: 80%
Data access III

- Detailed information about PASS: http://fdz.iab.de/de/FDZ_Individual_Data/PASS.aspx
- Data access via the Research Data Centre (FDZ): http://fdz.iab.de/de/FDZ_Individual_Data/PASS/Data_Access.aspx
Opportunities to participate

- **Call For Questionnaire Modules**
  - Since 2009 regular tender of focal modules with reference to labour market and poverty research
  - Researchers can apply with research sketch
  - Actually application phase (for information contact Mark Trappmann: Mark.Trappmann@iab.de)
  - joint pretest / field preparation 2017
  - Data collection in 2018
  - Data availability via FDZ at the end of 2019
Content-related research


Thank you very much for your attention!

For further information:
Martina Huber: martina.huber@iab.de
SHARE
THE SURVEY OF HEALTH, AGEING AND RETIREMENT IN EUROPE

Axel Börsch-Supan
Julie Korbmacher
Munich Center for the Economics of Aging
Population ageing is one of the challenges of the 21st century affecting:
- Pensions, health and long-term care
- Economic growth and living standards
- Social (esp. intergenerational) cohesion

SHARE
- followed a call of the EC & explores the European ‘natural laboratory’ across scientific disciplines and over time by interviewing 123,000 Europeans 50+ from 20 countries + Israel
- to turn the challenges of population ageing into opportunities and provide policy makers with reliable information for evidence based policies
Aims & principles

- **Multidisciplinary**: micro data on health, socio-economic status, social and family networks
- **Longitudinal**: bi-annual (wave 1 in 2004)
- **Cross-national**: 20 European countries + Israel (upcoming: EU28)
Methodology

- Representative samples of **individuals age 50+** and spouse/partner
- **Face-to-face interviews** by trained interviewers
- Broad range of **questions, measurements and tests:**
  - **Health:** subjective-objective (self-report, ADL/IADL, conditions, physical performance, biomarkers), physical-mental (cognition, MMSE, CES-D, Euro-D), health behaviors, health utilization and insurance coverage
Methodology

• **Socio-economic status**: labor force participation, retirement, income (amount and sources), wealth, consumption, pension claims, expectations, well-being

• **Social participation**: activities (volunteering), family and social networks (size and intensity), help (time, money)
6 waves of data collection

- Waves 1, 2, 4, 5, 6: prospective panel
- Wave 3, (7): retrospective → SHARELIFE
- Life histories measure employment, income, housing, health, family/social networks over the entire life course, starting with parental conditions and childhood
SHARE-RV

- Project within the **German** sample of SHARE
- Direct linkage of SHARE survey data with administrative records of the German Pension fund
  - Longitudinal information on employment history
    - on monthly base
    - all activities which are relevant for the calculation of the pension
  - Cross-sectional information on pensions
SHARE data are available:

- free of charge
- to all scientists globally

www.share-eric.eu

- detailed information on SHARE
- questionnaires, documentation
- methodological research & all publications using SHARE data
Thank you for your attention!

SHARE Workshop, November 3-4, 2016, Munich, Germany

www.share-eric.eu

korbmacher@mea.mpisoc.mpg.de
The Panel on Household Finances (PHF) – A comprehensive panel survey on household finances and wealth in Germany

Tobias Schmidt, Deutsche Bundesbank – Research Center

This presentation represents the authors' personal opinions and does not necessarily reflect the views of the Deutsche Bundesbank or its staff.
Basic Facts

- Survey dedicated to the collection of **micro-data on households’ wealth, liabilities, income and savings behavior**

- PHF is an **integral part of the** Household Finance and Consumption Survey (**HFCS**)

- **Two waves completed** (2010: 3 565 households, 2014: 4 461 households)

- **Scientific Use File** made available to researchers off-site after project is approved

- Further information: [www.bundesbank.de/phf-research](http://www.bundesbank.de/phf-research)
The Questionnaire Program

1. Socio-demographics
2. Consumption
3. Real estate and its financing
4. Unsecured debts and financial constraints
5. Believes, expectations, literacy
6. Business wealth, liquid assets, financial assets
7. Gifts and inheritances
8. Employment
10. Income
11. Savings and saving behavior

Questions directed at financial knowledgable person – household level

Questions directed at individual household members 16+

Information collected partially at household and partially at personal level
# The Core: Household Balance Sheet

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-financial assets</strong></td>
<td><strong>Liabilities</strong></td>
</tr>
<tr>
<td>– Owner-occupied housing</td>
<td>– Mortgages</td>
</tr>
<tr>
<td>– Other ownership of homes and property</td>
<td>– Consumer loans (including credit card debt, current account credit, unpaid invoices, student loan debt)</td>
</tr>
<tr>
<td>– Established businesses (net value)</td>
<td>– Loans for business activity</td>
</tr>
<tr>
<td>– Vehicles, collections, jewellery etc</td>
<td></td>
</tr>
<tr>
<td><strong>Financial assets</strong></td>
<td></td>
</tr>
<tr>
<td>– Savings and current accounts, savings under building loan contracts</td>
<td>Net wealth</td>
</tr>
<tr>
<td>– Mutual fund shares/units, debt securities, shares, derivatives and certificates</td>
<td></td>
</tr>
<tr>
<td>– Balances from private pension and life insurance policies</td>
<td></td>
</tr>
<tr>
<td>– Long-term equity investment</td>
<td></td>
</tr>
<tr>
<td>– Assets under management</td>
<td></td>
</tr>
<tr>
<td>Total assets</td>
<td>Total liabilities</td>
</tr>
</tbody>
</table>
Methodology of the PHF Wave 1 and Wave 2

- Panel study with surveys every three years
- Stratified, random sample with oversampling of wealthy households
- Representative of private households in Germany
- Personal Face-to-Face interviews (CAPI) conducted by infas GmbH in Bonn
- Participation is voluntary

- First Wave 9/2010 bis 6/2011: 3 565 households, 6 661 individuals 16+
- Second Wave 4/2014 bis 11/2014: 4 461 households, 8 825 individuals 16+
  - 2 191 Panel/Split households
  - 2 270 Refresher households
Data Access

• Anonymized micro-data available for scientific research for free
• Researchers need to submit proposal, personal information and information on data protection measures
• For accepted projects, researchers need to sign a contract.
• Further details can be found here:
  • Bundesbank – PHF data: http://www.bundesbank.de/phf-data
  • ECB – HFCS data: http://www.ecb.int/home/html/researcher_hfcn.en.html

• The scientific use file (SUF) is anonymized:
  • All personal identifiers are removed
  • Some aggregation of information, in particular regional identifiers
  • Grouping of NACE and ISCO classification: first digit of NACE and first two digits of ISCO
  • Random rounding of most euro values
  • Anonymization of some demographic information, in particular age (top-coding at 90, ages 70+ disturbed by small stochastic error terms)
  • Some editing of rare combinations/characteristics (very few cases)
Thank you for your attention!

Internet:  www.bundesbank.de/phf-research

Email:  phf@bundesbank.de
Results – Example: Net Wealth and Net Income by Age Cohorts

Median net wealth and net income by age of main income earner

- Median net wealth (left axis)
- Median net income (monthly, right axis)
RWI GRID DATA
Small Scaled Data for Research

Philipp Breidenbach
• FDZ Ruhr am RWI (Research Data Center)
  • Scientific division of the RWI – Leibniz Institute for Economic Research
    • Public Funded Research Institute organized in the Leibniz Organization
  • Research Data Center founded in 2012 aiming at providing existing RWI-datasets for researcher
  • Heading towards a focus on “Innovative Small-scaled Datasets”
What we offer

- We aim at providing a detailed and comprehensive characterization of socio-economic conditions in small spatial units

- Focusing on Grid level (Rasterdaten)
  - Grids as systematic (synthetic) units, separating Germany in equal squares (in our case squares of 1X1 km)
  - Homogenous spatial definition not depending on administrative delimitations
  - Our grid-definition follows the EU “Inspire-Directive” making our grid data compatible to the majority of other grid data

- Note: Grids can also be intersected into other spatial units (Postalcode-Areas, Communities, City-Districts)
  - FDZ Ruhr offer the service to intersect our grid data into other spatial units
• **Population Data**

• **Local conditions influencing Demographic Developments**

• **Data on Small-Scaled Demographic Projections**

  *Project – In Progress*
Population Data

Population in Germany, 2015, 1sqkm-Grids

- Own calculations according to microm.

- Population data are also offered separated in:
  - Age groups
    - 17 age groups separated by sex
  - Migration
    - Households with migration background, separated in 11 ethnological groups
  - Information on Household types
    - Separation in Single-, Pair- or Family-Household

in Personen

<table>
<thead>
<tr>
<th></th>
<th>0 - 20</th>
<th>21 - 250</th>
<th>251 - 500</th>
<th>501 - 1000</th>
<th>1001 - 25972</th>
</tr>
</thead>
</table>

Bundesländer
Population in Southern Germany, 2015, 1sqkm-Grids

Own calculations according to microm.
Population Data

Population in and around Stuttgart, 2015, 1sqkm-Grids

- Much more information compared to standard county- or community-level data
- Stand-alone analyses based on the offered data
- Using dataset to enrich information on existing dataset/observations
  - Neighborhood-Information for Interview-Observation
  - Describing socio-economic environment
- Compatible to background-maps (e.g. OpenStreet Map) for visualization

Own calculations according to microm.
• Population Data

• Local conditions influencing Demographic Developments

• Data on Small-Scaled Demographic Projections

*Project – In Progress*
Local conditions influencing Demographic Developments

Income per Capita,
North Rhine-Westphalia (NRW), 2015, 1sqkm-Grids

Own calculations according to microm.
Local conditions influencing Demographic Developments

Income per Capita,
NRW, 2015, 1sqkm-Grids

Own calculations according to microm.
Local conditions influencing Demographic Developments

Unemployment Rate
NRW, 2015, 1sqkm-Grids

Own calculations according to microm.
Local conditions influencing Demographic Developments

Share of migrants (on household level)
NRW, 2015, 1sqkm-Raster

Own calculations according to microm.
Local conditions influencing Demographic Developments

Credit Default Rate,
NRW, 2015, 1sqkm-Grids

Own calculations according to microm.
Local conditions influencing Demographic Developments

Rents for apartments below 60 sqm, 2015, 1sqkm-Grids

Own calculations according to immobilien scout24.de.
- Population Data
- Local conditions influencing Demographic Developments
- Data on Small-Scaled Demographic Projections

*Project – In Progress*
Own calculations according to microm.

Share of people aged 65+
2015, in % of population
Share of people aged 65+
2040, in % of population

Own calculations according to microm and Destatis.
Interesting Datasets without Spatial Dimension

**Selected Datasets**

- **Energy Consumption**
  - Panel Dataset on Energy consumption of Households
    - Includes information on the consumption of each energy source, housing information and socio-economic characteristics
  - Survey Data collected annually (operated by forsa)

- **Minijob-Surveys**
  - Two datasets on minijobs in Germany (NRW)
  - Survey Data on employers of minijobs focusing on size, wages and reasons for minijob-employment
  - Survey Data on employees of minijobs focusing on employment situation, wages, reasons for the minijob, social benefits from the employer, socio-economic characteristics
  - Own surveys conducted in 2012
Getting Access to Our Data

- Detailed descriptions and DOIs of our data on the website [http://fdz.rwi-essen.de](http://fdz.rwi-essen.de)
  - Datenangebot

- Get access to our data via an online form on the website [http://fdz.rwi-essen.de](http://fdz.rwi-essen.de)
  - Datenzugang

- Contact us if you need any further information on the available data
  - fdz@rwi-essen.de
  - +49 201 8149328

Find more information on other datasets on our website: [http://fdz.rwi-essen.de](http://fdz.rwi-essen.de)