Diversity of ageing in the territories of the European Union: drivers and impacts

30 November 2021

Anne Goujon, Project Officer, European Commission Joint Research Centre (JRC), Ispra, Italy

Wittgenstein Centre Conference 2021 (online), Vienna, Austria
Editors
Anne Goujon (E6)
Chris Jacobs-Crisioni (B3)
Fabrizio Natale (E6)
Carlo Lavalle (B3)

Introduction
Anne Goujon (E6)

Chapter 1 Geographical patterns
Chris Jacobs-Crisioni (B3)
Claudio Bosco (E6)
Carolina Perpiña Castillo (B3)
Jean-Philippe Aurambout (B3)
Paola Proietti (B3)
Filipe Batista e Silva (B3)
Fabrizio Natale (E6)

Chapter 2 Demographic drivers
Daniela Ghio (E6)
Fabrizio Natale (E6)
Anne Goujon (E6)

Chapter 3 Accessibilities, amenities
Mert Kompil (B3)
Patrizia Sulis (B3)
Paola Proietti (B3)

Chapter 4 Economics
Alessandra Conte (E6)
Sona Kalantaryan (E6)
Fabrizio Natale (E6)

Chapter 5 Attitudes, politics
Marco Scipioni (E6)
Guido Tintori (E6)

...Together with many colleagues
Outline

- Framework and aim
- Literature
- Geographic patterns of ageing
- Contribution of net migration
- Access to services and amenities
- Economic impact
- Electoral behaviour and political impact
- Conclusion
- Viz: the atlas of Demography
Framework

Within the new Commission’s portfolio on Demography and Democracy

Linking to:

- Report on the Impact of Demographic Change (June 2020)
- Green Paper on Ageing (January 2021)
- Long Term Vision for Rural Areas (June 2021)
## Aim

- Territorial diversity (present/future) in the EU
- Drivers (cohort turnover and net migration)
- Impacts:
  - Access to services
  - Macro-economic performance
  - Political attitudes and behaviours

## Added value

- Innovative: historical and projection of age structures at grid level
- Degrees of urbanization
- Multilevel impact at regional level
Spatial ageing literature

- **Segregation** depending on kin and non-kin networks *(Sun and Schafer 2019)*

- **Quality of life**: Increased well-being for elderly in city centres *(China, Ng et al. 2017)* or in rural areas *(Europe, Cantarero et al. 2018)*

- **Spatial analysis of migration and ageing**: Ageing influenced by processes of urbanization, suburbanization, deurbanization and reurbanization *(Gregory and Patuelly 2015)*

*Kashnitsky et al. (2020)* show disparities within urban and rural areas, regardless whether they were able to attract or retain population, at NUTS2

we investigate at higher resolution level.
Spatial ageing literature

- **Impact of ageing:**
  - **Accessibility and availability of services** and sustainability of infrastructures for attractiveness (*Sabater et al. 2017*)
  - **Social cohesion:** polarization of the elderly votes at spatial level → rupture of the contract across generations (*Vanderbeck and Worth 2015*)
  - **Local economic growth:** Mixed evidence, but rather negative (*Gakova and Dijkstra 2010; Gabriele et al. 2018; Daniele et al. 2018*)
Geographical patterns of ageing

Datasets:
- **2011** data downscaled at high spatial resolution by age, using the ENACT night-time population grid map (ENhancing ACTivity and population mapping - JRC)
- **2012-2050** data, EUROPOP 2013 (NUTS3) downscaled from the LUISA model at high spatial resolution.
Distribution of elderly by degree of urbanization

Share of elderly by degurba, EU, 2020

Share of elderly by degurba, EU, 2011-50

Note: Medians across 98,000 LAUs
Distribution of elderly by degree of urbanization

Share of elderly by degurba, MS, 2020

Share of elderly by degurba, MS, 2020-50

Note: Medians across 98,000 LAUs
## Distribution of elderly by change in population

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Change share elderly (pp)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decrease of population</td>
<td>2</td>
<td>Decrease of population</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Increase of population</td>
<td>Decrease of population</td>
<td>Increase of population</td>
<td>Decrease of population</td>
<td>Increase of population</td>
</tr>
</tbody>
</table>

Note: Medians across 98,000 LAUs
Ageing vs distance to FUA & vs density, EU, 2011

![Graph showing the relationship between distance and share of elderly and children.

Graph on the right shows the relationship between population density and share of elderly and children.]
Changing residential preferences over the life course

Evidence

• Families with children prefer to live in the peripheries of cities and elderly in areas far from city centres

• Those trends can reinforce either a positive or negative cycle of population change
Drivers: Cohort turnover vs. migration

• Using the methodology of de Beer, van der Erf, and Huisman (2011) to identify the components of changes in working age population
• Derive net migration as a residual

\[ netmigr_{j,t-t+1}^{a-a+x} = (pop_{j,t+1}^{a-a+x} - pop_{j,t}^{a-a+x}) + deaths_{j,t-t+1}^{a-a+x} - (entry_{j,t-t+1}^{a,a+1} - exit_{j,t-t+1}^{a+x-1,a+x}) \]
Changes in working age population, net migration and cohort turnover, 2015-2019

Legend: colour gradient ranges from dark red for negative values to dark blue for positive ones.
Changes in working age population, net migration and cohort turnover, 2015-2019, by degurba

Legend: colour gradient ranges from dark red for negative values to dark blue for positive ones.
Youth on the move

Net migration rate, 20-24, 2015-2019

Evidence

- Some regions are ageing and depopulating because there are more young people leaving than arriving
Accessibility to services and urban amenities

Road distance (bars) and % population (line) within a certain distance to a service
Accessibility to services and urban amenities

Road distance (bars) and % population (line) within a certain distance to a service

Framework & aim  Literature  Geographic patterns  Migration  Access to services  Economic impact  Electoral behaviour
Age and economic growth

GDP per capita

Old-Age Dependency Ratio

© 2021 Mapbox © OpenStreetMap
Results of regression for dep. var. GDP/capita

- Share of 25-34 in WAP
- Share of 35-44 in WAP
- Share of 45-54 in WAP
- Share of 55-64 in WAP
- ODR
- ODR sq.
- TFR
- Diversity Index

- Total sample
- Positive pop. growth
- Negative pop. growth
- Positive net mig
- Negative net mig
- Urban
- Intermediate
- Rural
Results of regression for dep. var. GDP/capita

- Total sample
- Positive pop. growth
- Negative pop. growth
- Positive net mig
- Negative net mig
- Urban
- Intermediate
- Rural
Results of regression for dep. var. GDP/capita

Framework & aim

Literature

Geographic patterns

Migration

Access to services

Economic impact

Electoral behaviour
Results of regression for dep. var. GDP/capita
Results of regression for dep. var. GDP/capita

- Share of 25-34 in WAP
- Share of 35-44 in WAP
- Share of 45-54 in WAP
- Share of 55-64 in WAP
- ODR
- ODR sq.
- TFR
- Diversity Index

Total sample

Positive vs. Negative pop. growth

Positive vs. Negative net migration

Urban

- Total sample
- Positive pop. growth
- Negative pop. growth
- Positive net mig
- Negative net mig
- Urban
- Intermediate
- Rural
Demography and democracy

Evidence

- Divides in voting and attitudes towards the EU (and immigration) depend on the interaction between age and place of residence.
Age and political behaviour

Proportion of votes for political parties with critical stances re.EU, NUTS3*

* Incl. UK
What are the main conclusions?

- Ageing is more associated to **depopulation** than to rural or remote areas; It is shaped by intra regional migrations and residential preferences over the **life course**
- In some regions, (intra-regional) **migration** is compensating for the deficit in cohort turnover, leading to increases in the working age population
- Ageing is affecting GDP per capita and labour productivity in a **non-linear way**: in depopulating and rural areas, a young population is not a pre-requisite for economic performance
- In rural areas, ageing is interacting with the local context in determining **divides** in attitudes and political positioning vs the EU

- While **policies** cannot offset the overall macro-regional trends for ageing, especially cohesion, urban and rural policies can respond to the specific needs of **diversely ageing regions**. These policy interventions will be essential to avoid a widening of political and socio-economic divides in EU.
Territorial in COVID-19: the first wave

R0 by degurba, EU NUTS3, by temporal window (10-40 days)
ATLAS OF DEMOGRAPHY

Geographic dimension

Data

Thematic dimension: STORIES

Future policy needs

Demographic changes in labour force supply

All EU NUTS3 regions

Poland NUTS3 regions

City of Warsaw (Poland)
- Working Age Population 2015: 1 134 595 (69% of total pop.)
- Net migration 2015-2019: 64,984 (6%)
- Cohort turnover 2015-2019: -59,547 (-5%)
- Change in Working Age Pop. 2015-2019: -25,706 (-2%)