



Federal Institute for
Population Research

Shrinking Populations Uncertainty of Population Projections and Policy Making

Wittgenstein Centre Conference 2021:
The Causes and Consequences of
Depopulation, 29.11. – 1.12.2021

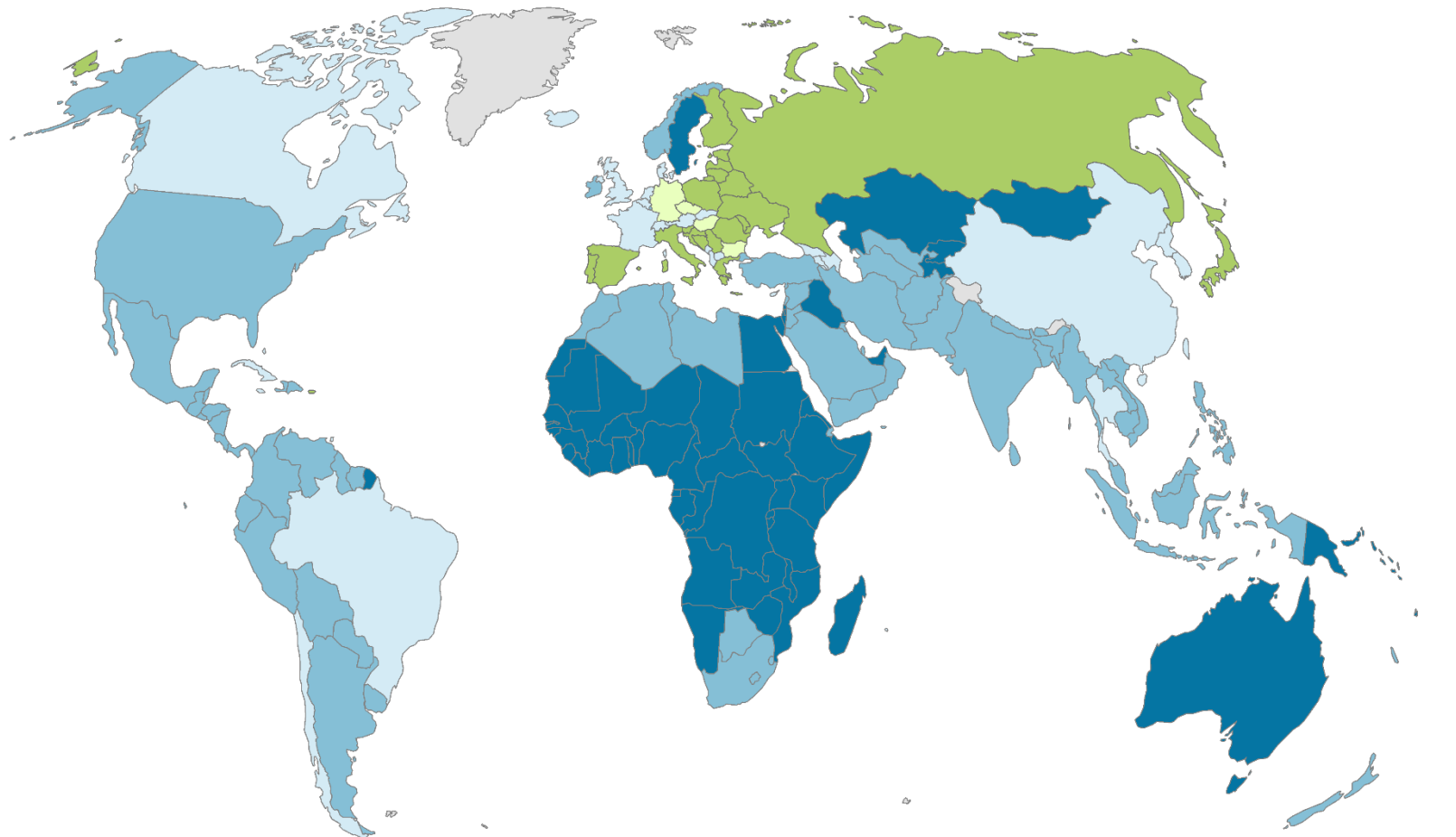
Dr. Frank Swiaczny









Content

1. Shrinking Populations
 - Global Prospects of Shrinking
 - Uncertainty of Projections
 - Drivers of Spatial Patterns
2. Consequences for Spatial Planning and Policy Making
3. Projection Example 1: German BBSR-Projections
 - The Role of Volatility
4. Projection Example 2: Dutch PBL/CBS-Projections
 - The Role of Uncertainty
5. Conclusions

Shrinking Populations – Global Prospects of Shrinking



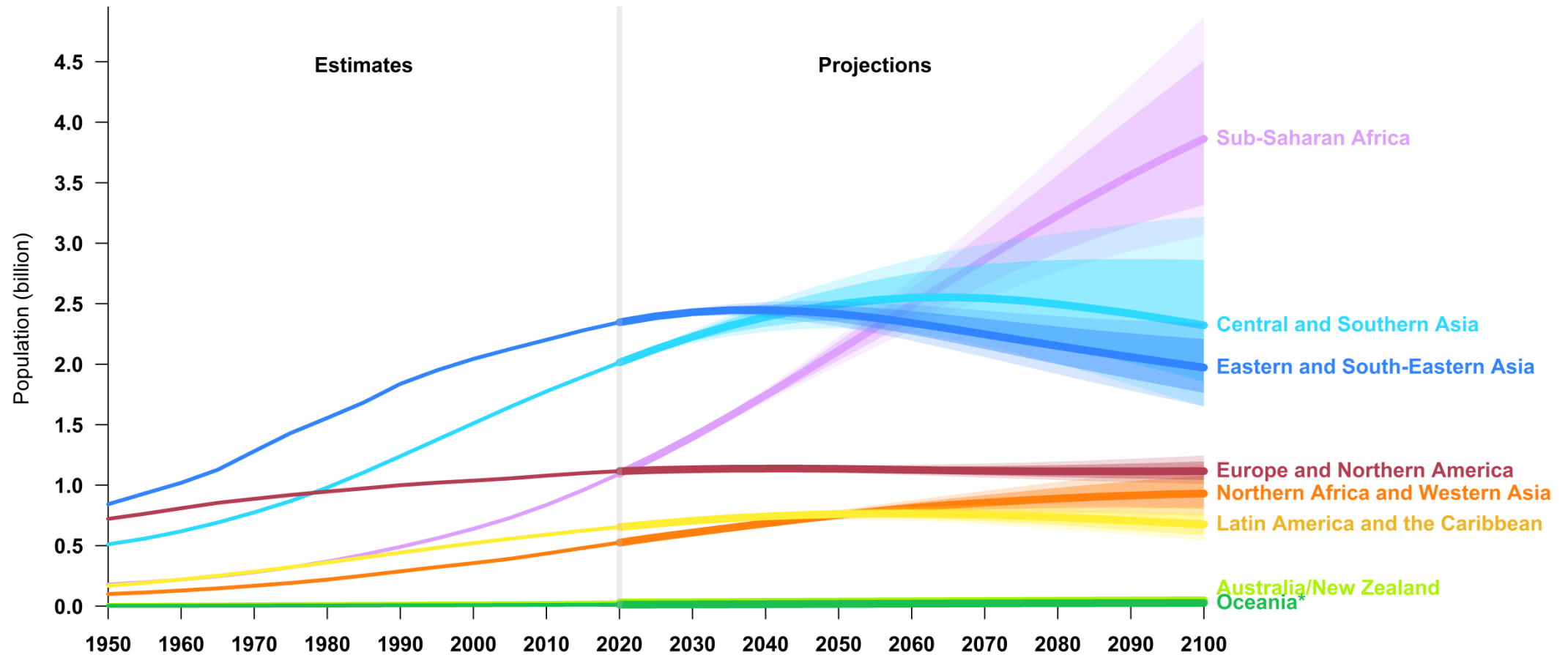
Natural balance (births - deaths) turns negative

 before 1990  1990-2020  2020-2050  2050-2100  after 2100  no data

Map: generalized based on
© EuroGeographics and UN-FAO

Source: UN WPP 2019, medium variant, data processed by BiB

Shrinking Populations – Uncertainty of Projections



Source: UN WPP 2019, medium and probabilistic variants

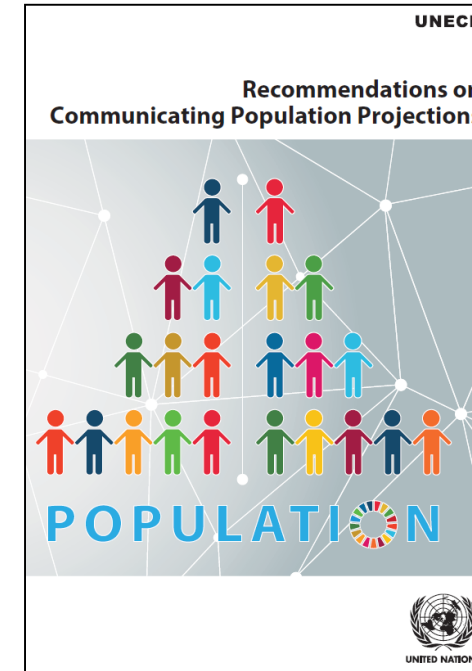
Excuse: UNECE Recommendations on Communicating Population Projections



Federal Institute for
Population Research

Recommendations on communication of uncertainties (UNECE 2018)

- *Develop an explicit strategy for characterizing and communicating the uncertainty of population projections*
- *Identify and acknowledge the major sources of uncertainty*
- *Clearly state the uncertain nature of the projection results in high-level dissemination materials*
- *Dedicate space within dissemination materials to promote a better understanding of uncertainty and its interpretations*
- *Pay close attention to verbal expressions of uncertainty*
- *Solicit and publish expert opinions*
- *Provide uncertainty analysis*
- *Provide sensitivity analysis*
- *Provide a range of plausible assumptions*

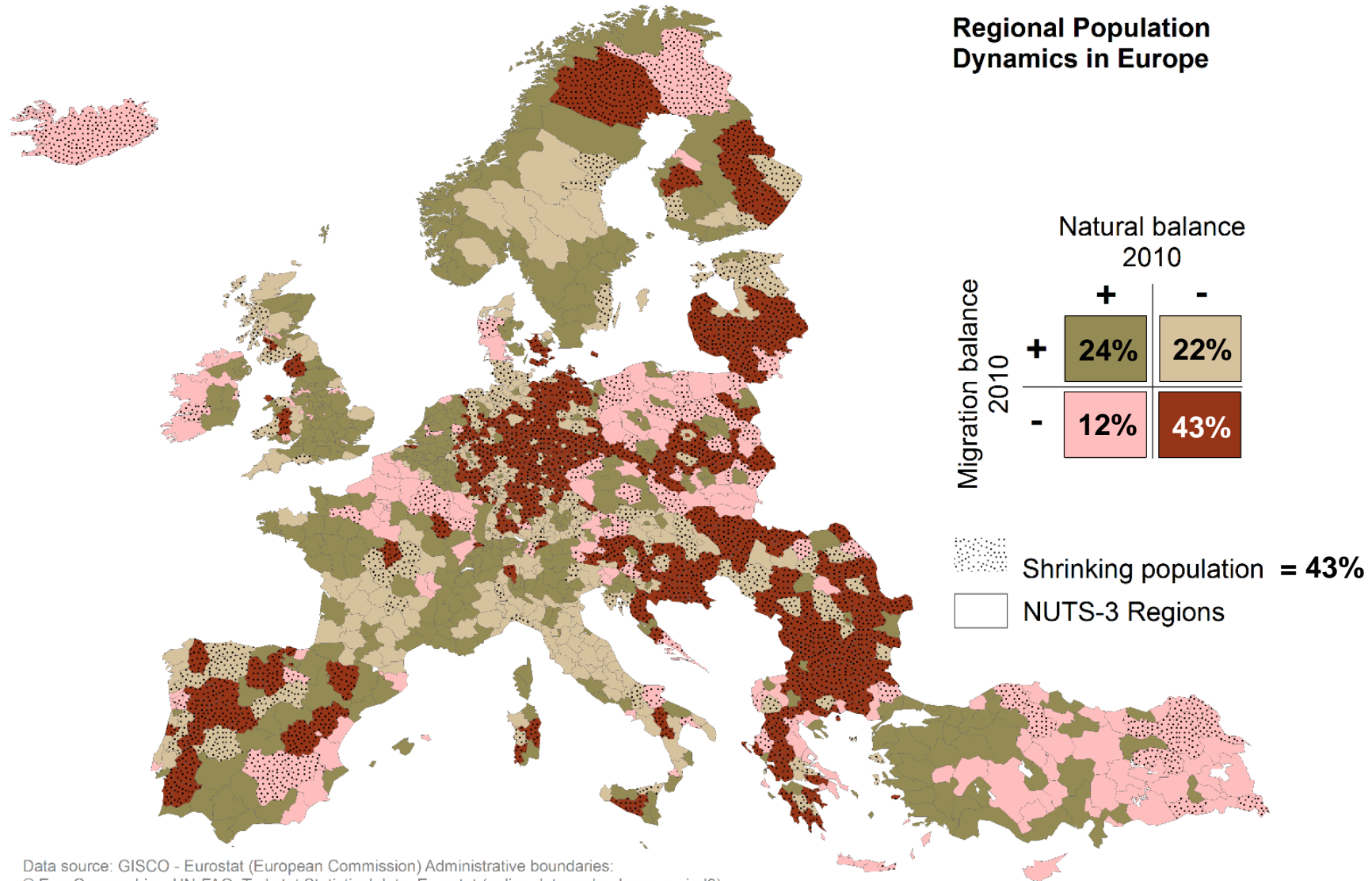


Source: www.unece.org

Shrinking Populations – Drivers of Spatial Patterns



Federal Institute for
Population Research



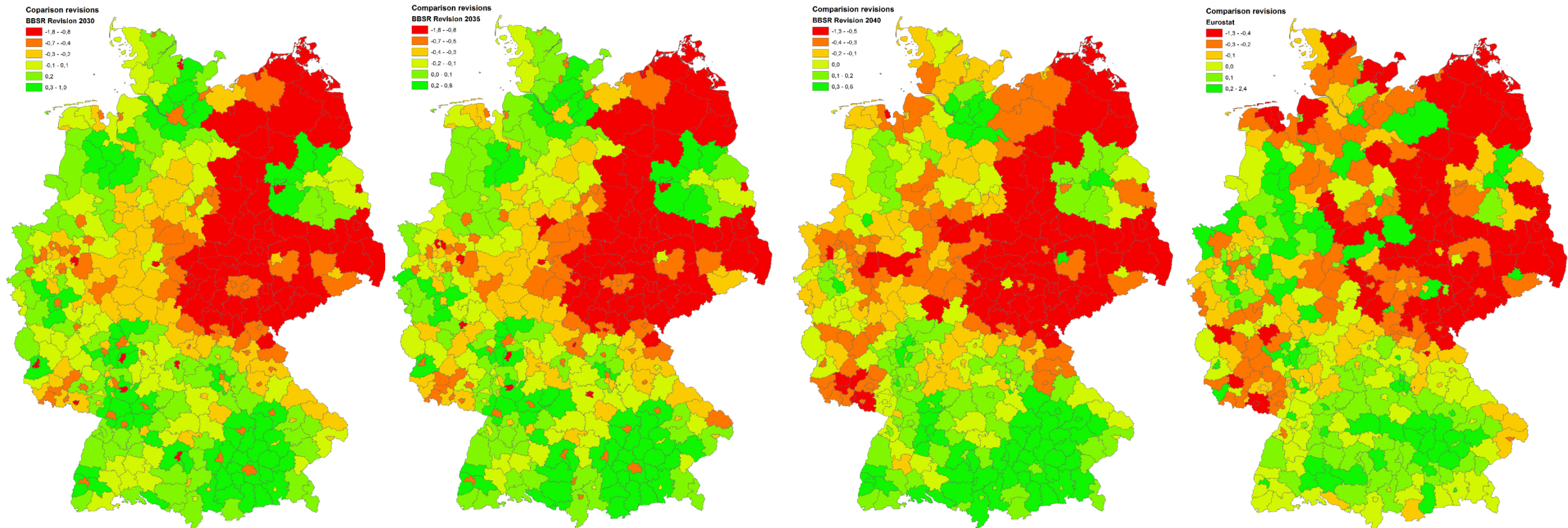
Data source: GISCO - Eurostat (European Commission) Administrative boundaries:
© EuroGeographics, UN-FAO, Turkstat Statistical data: Eurostat (online data code: demo_r_gind3)

Consequences for Spatial Planning and Policy Making

- Shrinking population is part of and can reinforce a vicious cycle of economic downturn and loss of employment, selective out-migration and ageing as well as disinvestment in housing, infrastructure etc.
- Depopulation often starts and is concentrated in peripheral rural areas or urban areas in economic crisis, where living conditions and quality of life are under threat, increasing socioeconomic inequality and spatial disparities
- Role of selective internal and international migration of young and qualified migrants for population projections increases, making assumptions more susceptible to volatility of underlying trends
- Impact of uncertainty of projection outcomes for spatial planning and policy making increases when large prediction intervals transform into either growing, stable or shrinking populations, all with different challenges for planning and policy making
- Predicting population decline has impact on investment in future development of regions and migration decision of households and can impede private and public investments, creating a self-fulfilling prophecy via a vicious cycle of decline

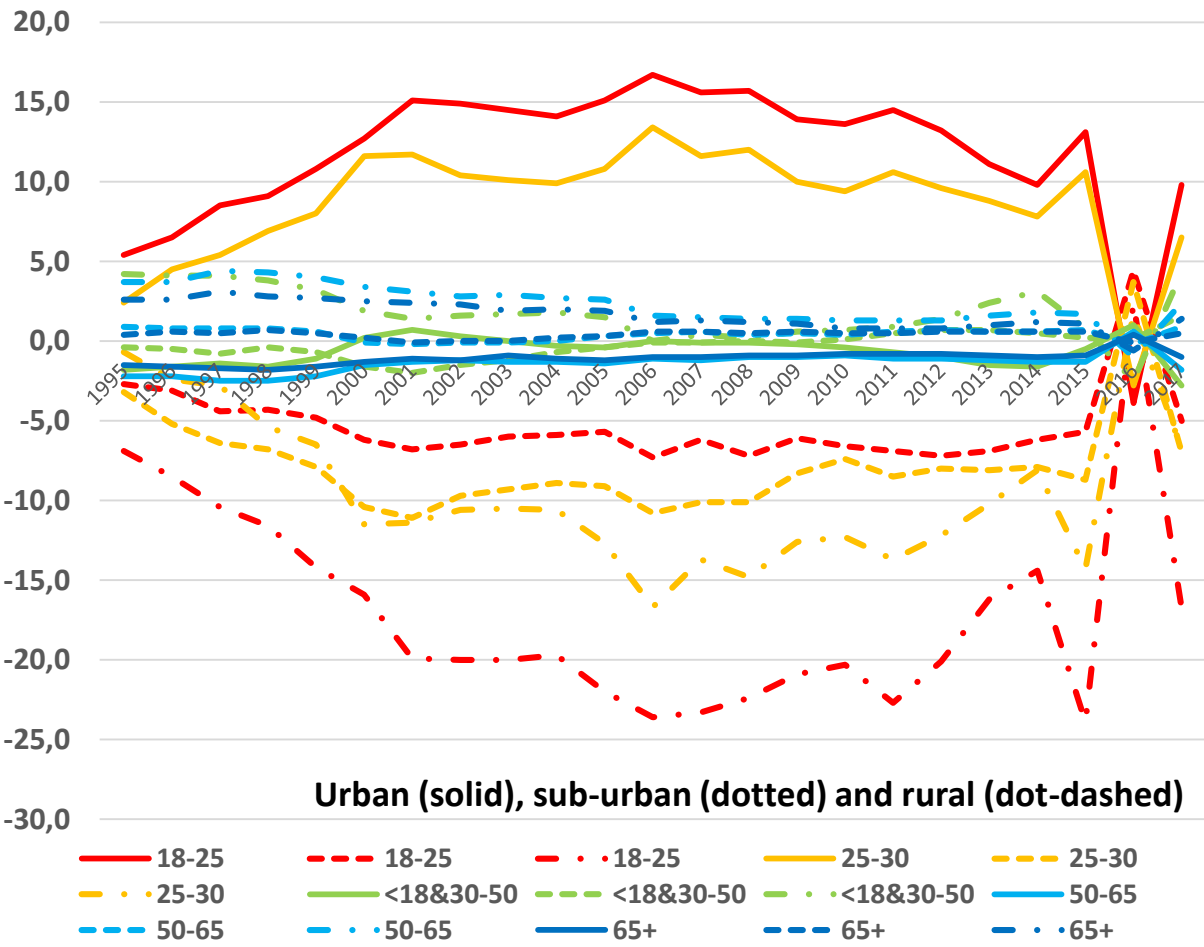
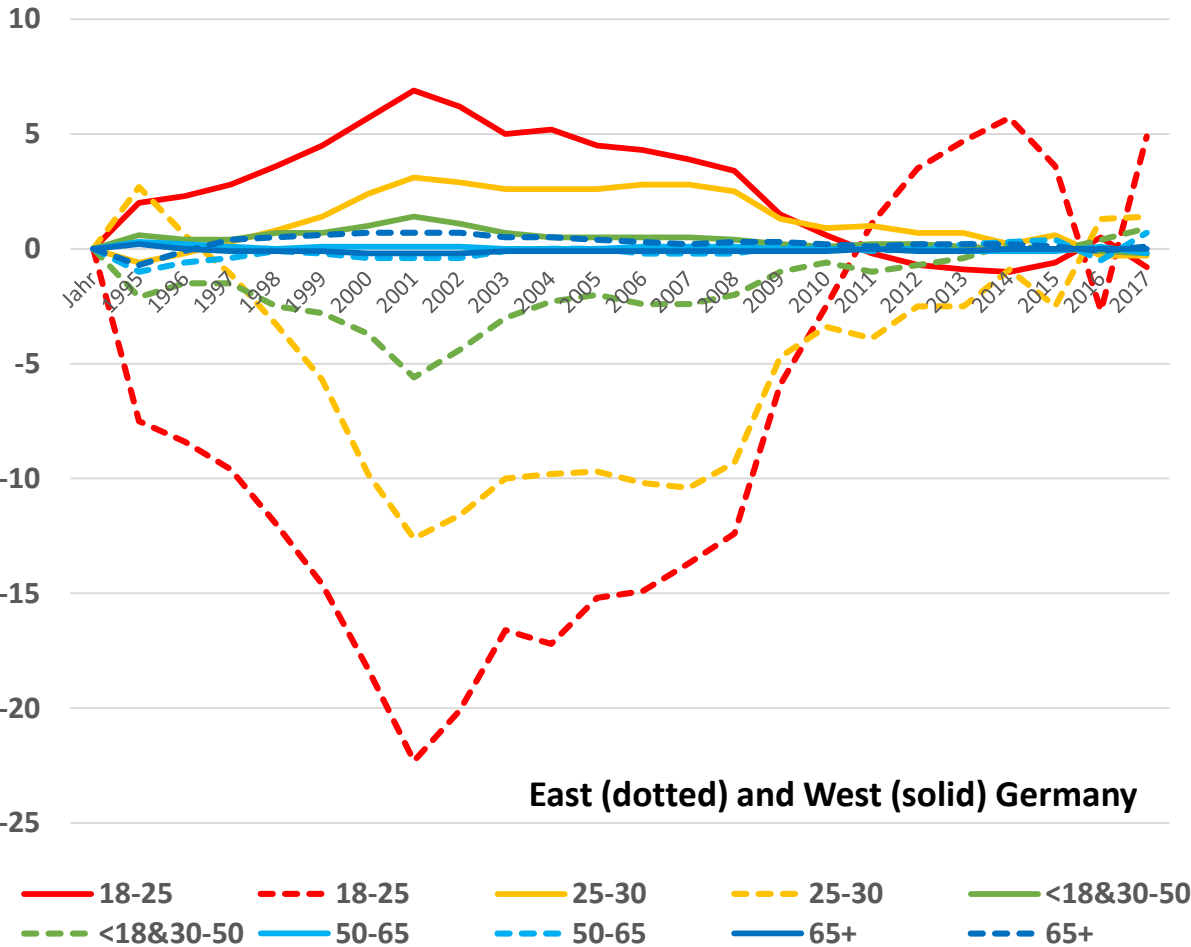
Example 1: German BBSR-Projections

Population growth rate in % 2030, BBSR-Projections 2030, 2035 and 2040 Revisions,
and Eurostat-Projection 2021



Example 1: German BBSR-Projections

Internal migration (per 1,000) by age group and regional grouping, 1995-2017

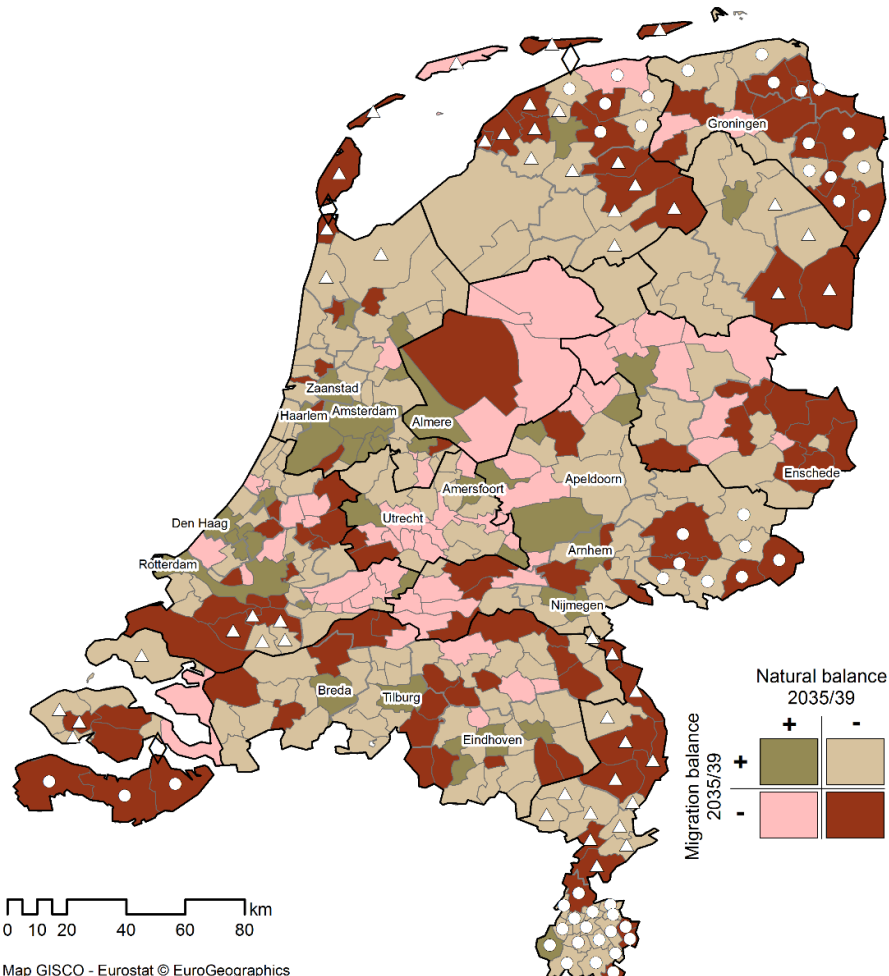
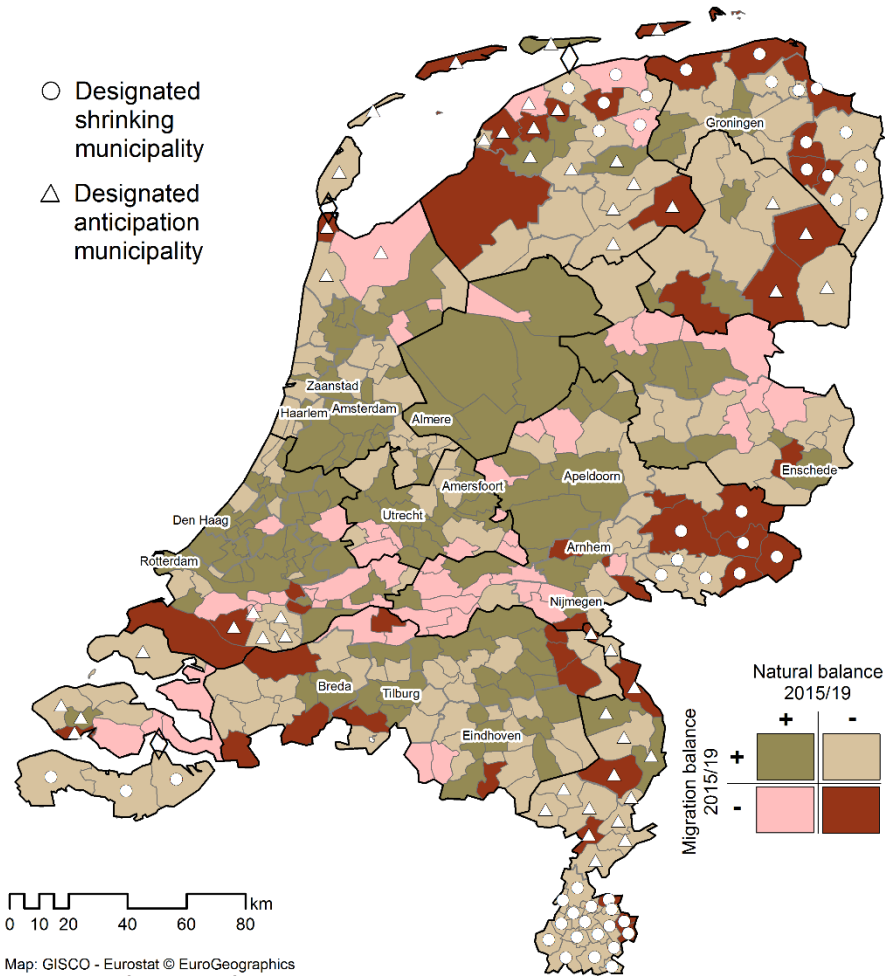


Example 2: Dutch PBL/CBS-Projections



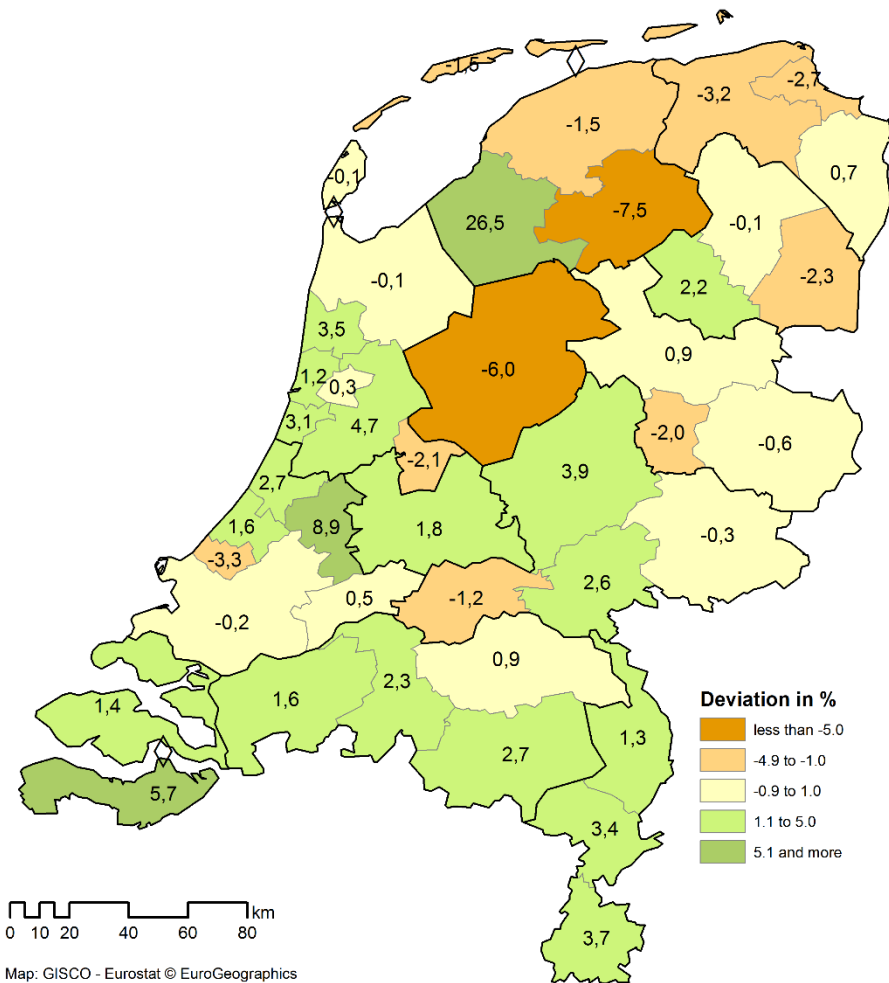
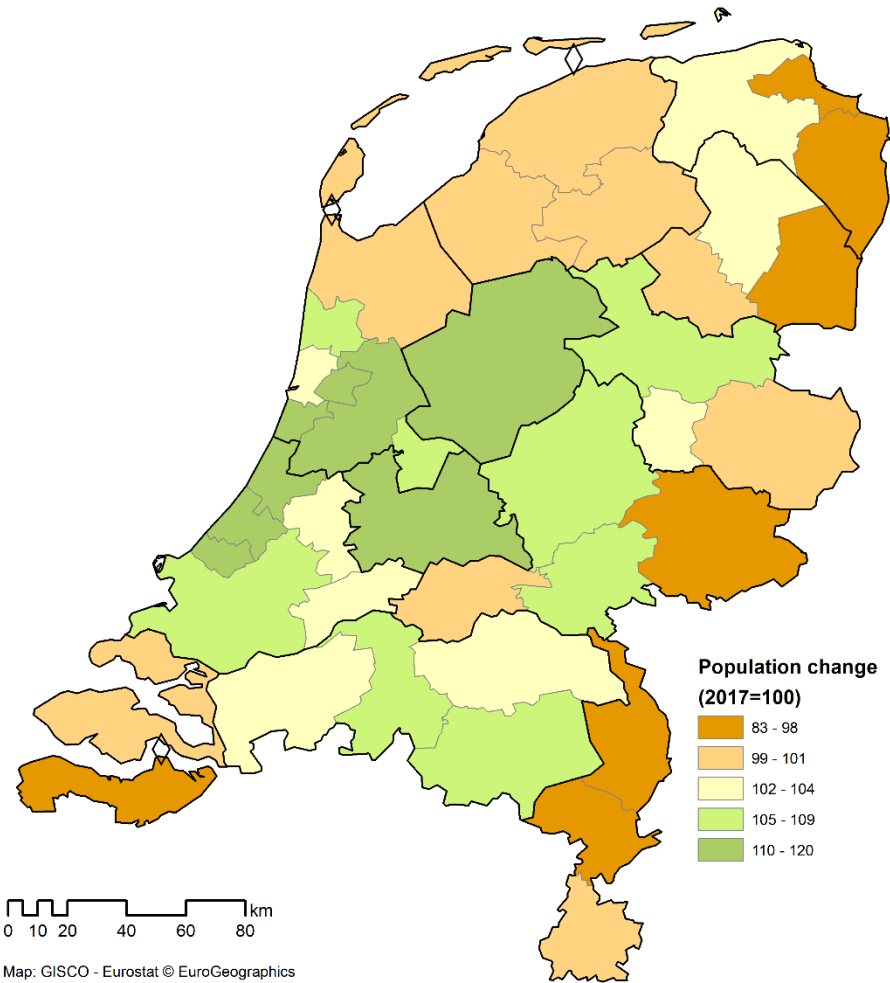
Federal Institute for
Population Research

Regional Population Dynamics 2015/2019 and 2035/39 (2016 PBL/CBS-Projection)



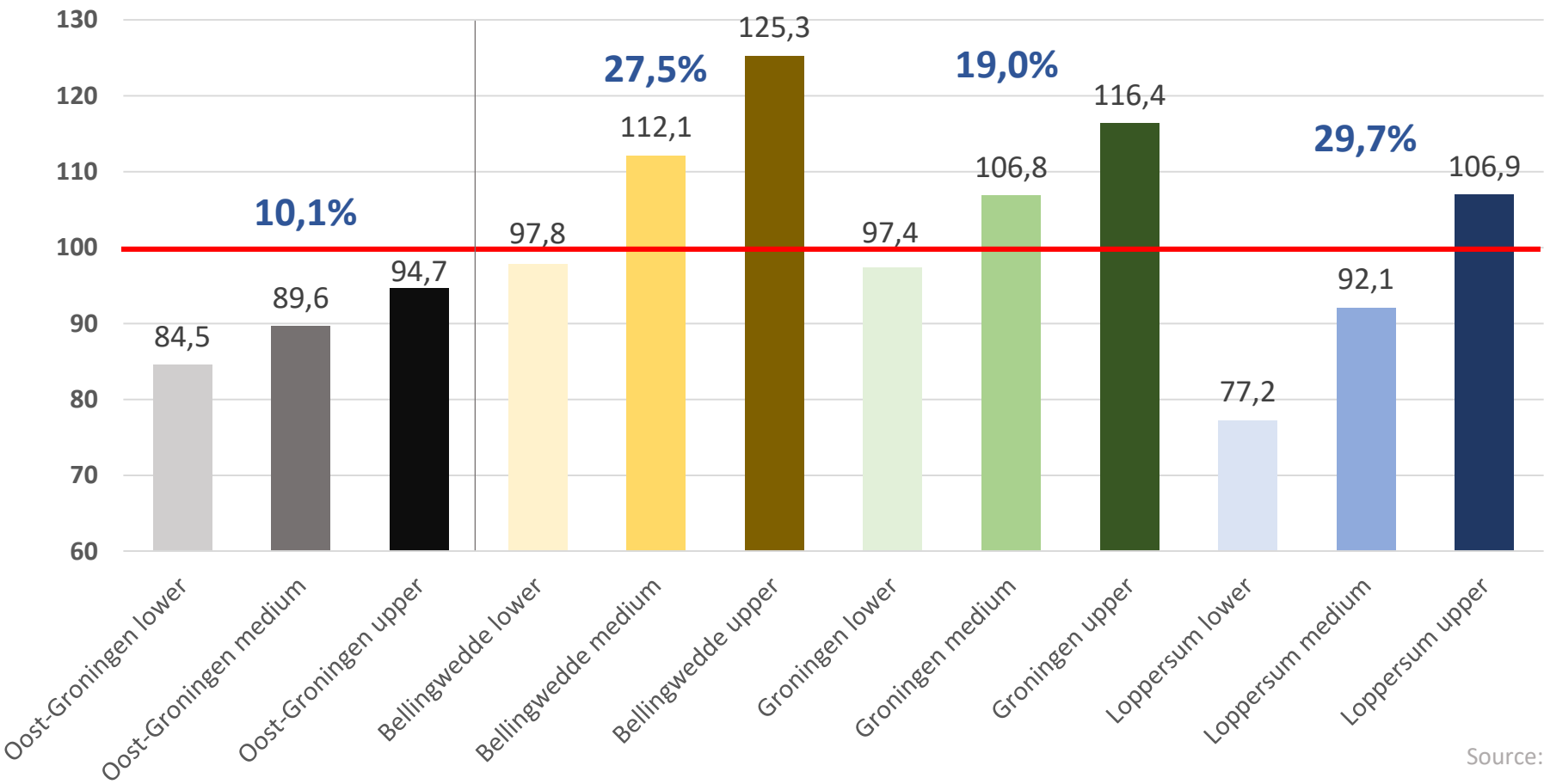
Example 2: Dutch PBL/CBS-Projections

Population change 2017-2040, 2017=100 (2016 PBL/CPB-Projection, left) and deviation of population in 2040 between 2013 and 2016 PBL/CBS-Projections (right)



Example 2: Dutch PBL/CBS-Projections

Lower limit, medium and upper limit (67 % intervals) of population 2040 (2015 = 100), span between lower and upper limit population 2040 in per cent of population 2015, selected COROP-region and municipalities



Conclusions

- Projecting shrinking population entails new challenges and consequences for (spatial) planning and policy making
- Predicting population decline can instil negative perceptions of a region's future, leading to negative impacts on private and public decisions
- Population projections are part of complex planning and policy discourses – results can be misused to manipulate decisions
- Recommendations:
 - ✓ Avoid expert-led top down discourses, involve stake holders and civil society in preparation and communication of projections
 - ✓ Communicate projection results as contingent to assumptions and address volatility and uncertainty – prediction is not destiny
 - ✓ Develop and communicate alternative scenarios and projections variants relevant to stake holders and policy makers
 - ✓ Anticipate negative impact on planning and policy decisions



Federal Institute for
Population Research

Thank you

Dr. Frank Swiaczny

Federal Institute for Population Research

frank.swiaczny@bib.bund.de