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Rethinking the roles of family, market & state

Life-course Heterogeneity and the Future Labor Force - A Dynamic Microsimulation Analysis for Austria

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UK Research and Innovation

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Motivation

- Projection of size and composition of the workforce 2022 - 2080
  - Accounting for demographic change, family, education, health, and institutional settings
  - Consistency with official population projections (STATAT) but accounting for education
  - Individual characteristics, e.g., education, migration background, health
- Policy tool: identification of policy levers affecting labor careers; scenario-support
  - Changes affecting specific groups or Institutional settings
  - Starting point for two Case Studies in SustainWELL Project (migration & retirement / pensions)
- Requirements
  - Longitudinally consistent careers from education, first labor entry until retirement, reflecting the real life heterogeneity of employment careers
  - Detailed pension regulations: types, reforms, eligibility rules based on individual careers
  - Realistic modeling of labor transitions, accounting for path dependency

→ Capturing the heterogeneity of individual life courses enhances the accuracy, detail, and policy relevance of population and labor force projections

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Dynamic Microsimulation at WIFO

- Two models at WIFO:
- **microWELT**: Comparative model used as a platform in various international projects based on harmonized or comparable data sources (EU-SILC, LFS,…)
  - Böheim et al. (2023) The Impact of Health and Education on Labour Force Participation in Aging Societies: Projections for the United States and Germany from Dynamic Microsimulations, Population Research and Policy Review, 42, (3)
  - Spielauer et al. (2023), The Effect of Educational Expansion and Family Change on the Sustainability of Public and Private Transfers, Journal of the Economics of Ageing, 25
- **microDEMS**: more detailed model for Austria based on cross-sectional (LFS, STATAT,..) and longitudinal data (ÖGK, DSVS,..)
  - Horvath et al.(2023) Socio-economic Inequality and Healthcare Costs Over the Life Course – A Dynamic Microsimulation Approach - Public Health (219), S.124-130
  - Horvath et al. (2023) Older Persons in the Labour Market: A Forecast until 2040 as a Basis for Economic Policy Measures, WIFO-Report.
  - Angel et al.(2023) Activatable Labour Market Potentials and "Hidden Unemployment" in Austria, WIFO-Report.

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microDEMS

- Design
  - **Interacting population model** operating in **continuous time** (things can happen at any time); individuals **linked to families**
  - **Support of (optional) alignment to external targets** allowing reproducing official population projections, and scenarios concerning unemployment etc. while maintaining relative differences in risks by individual characteristics.
- Modgen/openM++
- Detailed biographies (schooling, family formation, employment careers, retirement)
- Base Scenario
  - Keep all factors impacting on labor force participation constant (health, age, education, family & job characteristics)
  - but account for changing retirement age of women (old age: +5 years; early +4 years)

  → **Pension law requires full life-time accounting!**

  → **realistic labor market careers**

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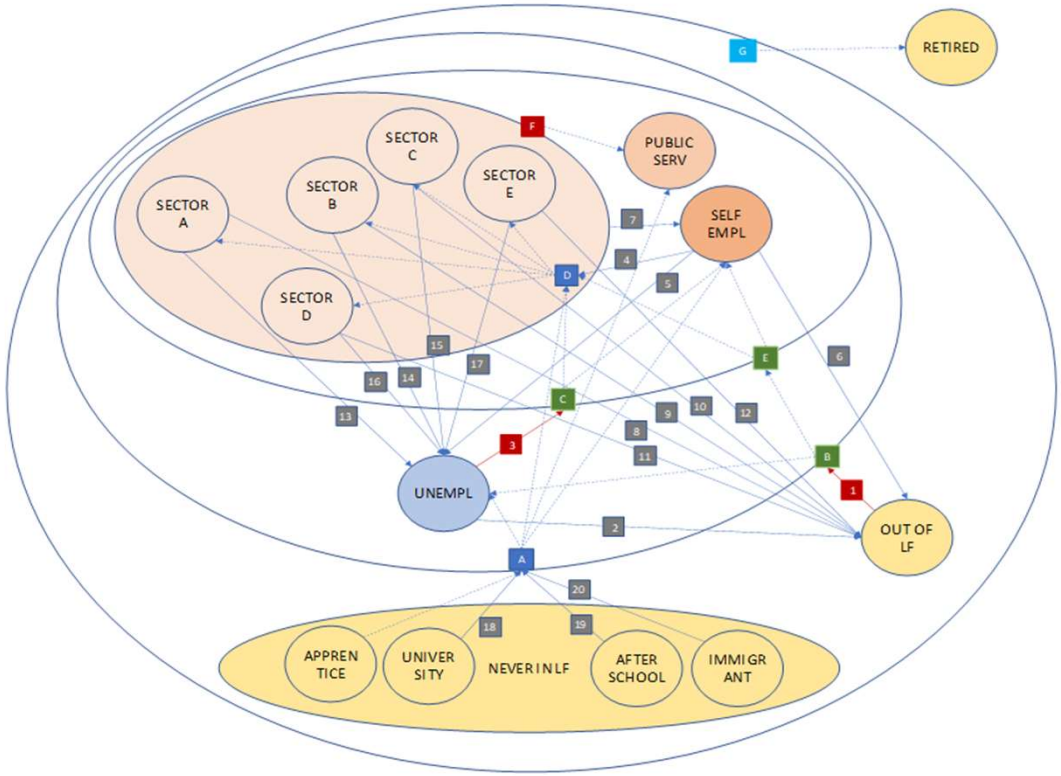
microDEMS – Employment Transitions

Labor market model reflects real-life mobility between labor market states

- Implemented by hazard regressions accounting for personal and family characteristics as well as duration of current state (path dependency)
- Sectoral differences

Estimated on admin data

- ~100% population covered
- Health data
- Universe of employment spells



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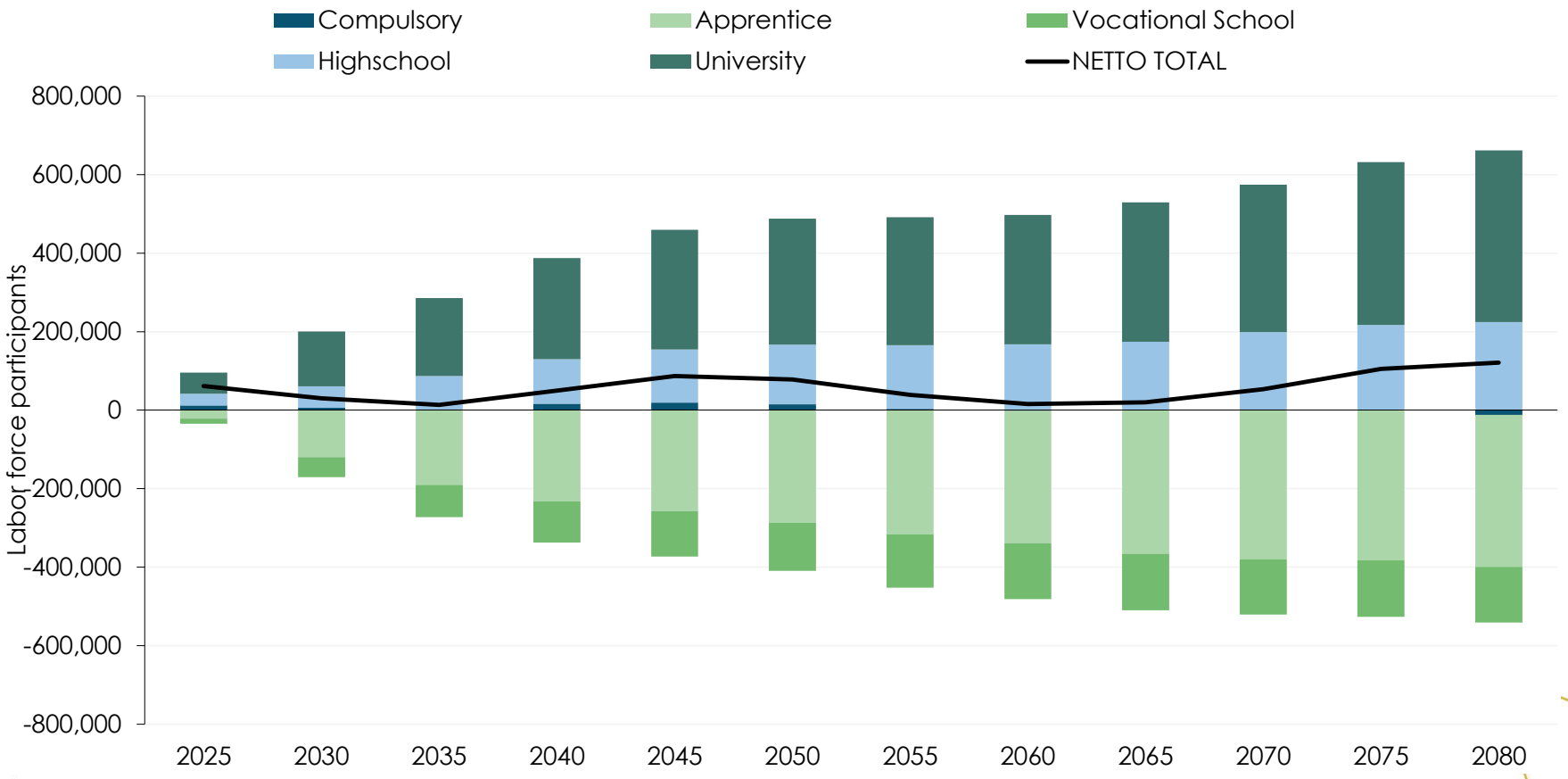
Change in labor force by education attainment
Absolut difference to 2022



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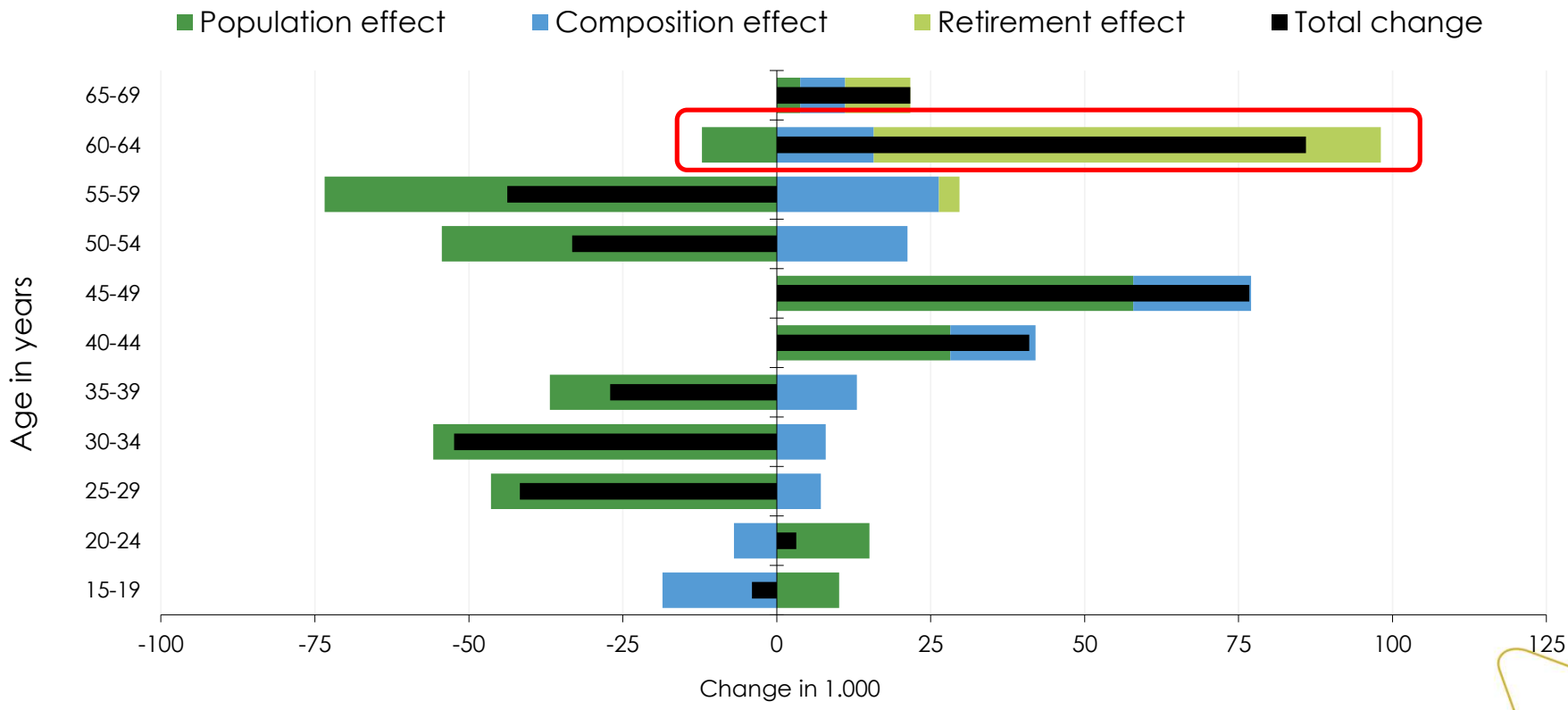
Components of total change in labor force 2022 to 2040
Baseline Scenario



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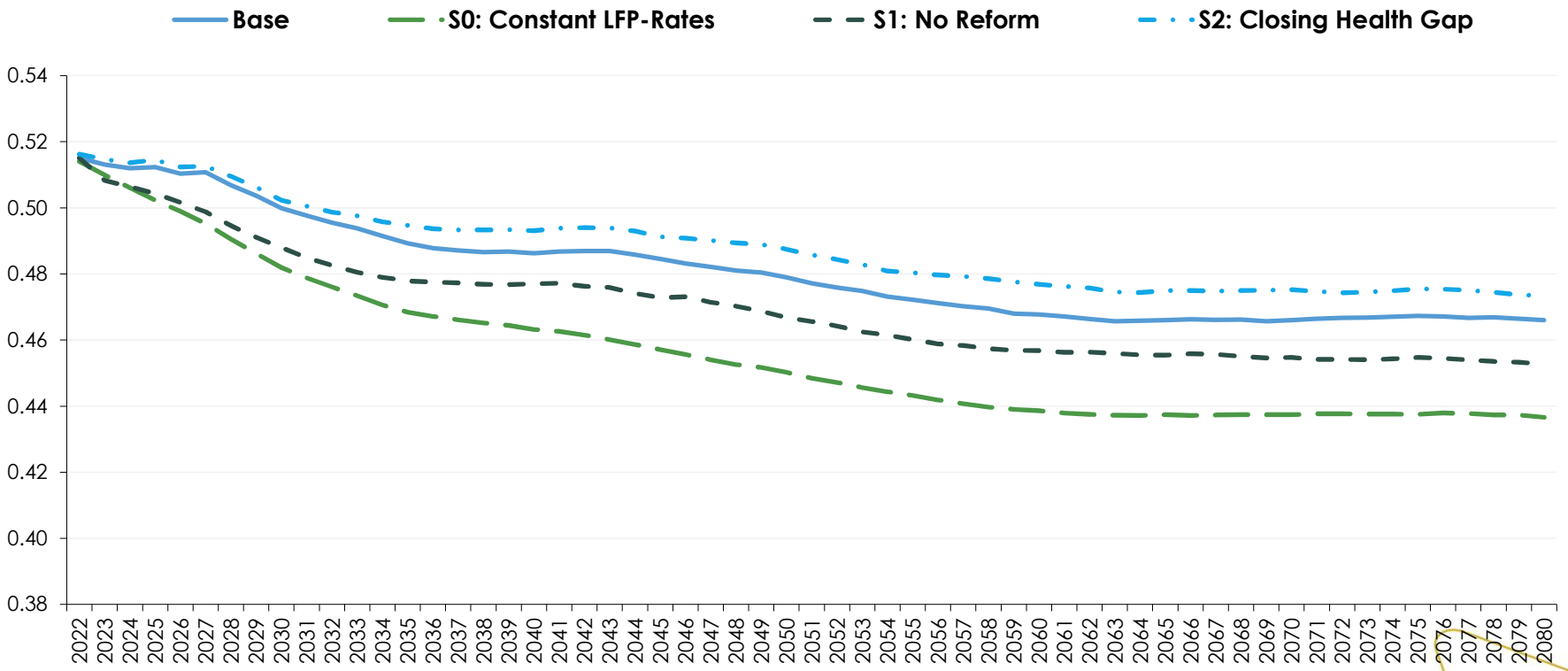
Active vs. Total population

Base scenario and alternative scenarios



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Conclusions

- Departing from official population projections, we are able to simulate the evolution of the population and it‘s workforce in detail
- Based on individual life-courses, our model allows for detailed analysis exploring population heterogeneity to a high degree
- microDEMS allows to assess how changes in the underlying parameters affect results
- As an ex-ante policy tool our model empowers the evaluation of different policy measures on socio-economic outcomes in the medium and long term

https://www.microWELT.eu

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