The impact of ageing, inequality and the evolution of morbidity on future health expenditure

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Background/Motivation

- Healthcare expenditure (HCE) outpaced economic growth in most advanced economies and is projected to rise as a share of GDP in coming decades

- Literature on determinants of HCE growth distinguishes between demographic and non-demographic cost factors

- Non-demographic drivers explain most of past increases, however:
  - Findings on the relationship between ageing and HCE still inconclusive (Breyer and Lorenz, 2021)
  - Growing impact of demographic transition in the next 2-3 decades

- Social inequalities in health as additional, little studied cost factor (Asaria et al., 2016)

Research question(s)

(1) How large is the role of different factors associated with ageing on future long-term HCE?

a) Population age-structure
b) Life expectancy
c) Morbidity and healthy life years

(2) To what extent can social inequality impact HCE?

Data and approach

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Microsimulation with combination of micro and macro data

- We project future HCE for Austria up to the year 2060

- Average cost profiles by gender, age, and education (L, M, H):
  - combining survey data (ATHIS) and price weights for healthcare services
  - consistent with aggregate System of Health Accounts (SHA)

- Cost profiles combined with official population projections in the microsimulation model microDEMS to:
  - disentangle the impact of different cost drivers
  - project different HCE scenarios for the Austrian population

microDEMS

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„Demographic Change, Employment, Social Security“

- Detailed national version of international comparative model microWELT (https://www.microWELT.eu)
  - 3 HORIZON projects (weltranSIM, wellCARE, SustainWELL)
  - Applied in various research settings
- 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, health)

microDEMS

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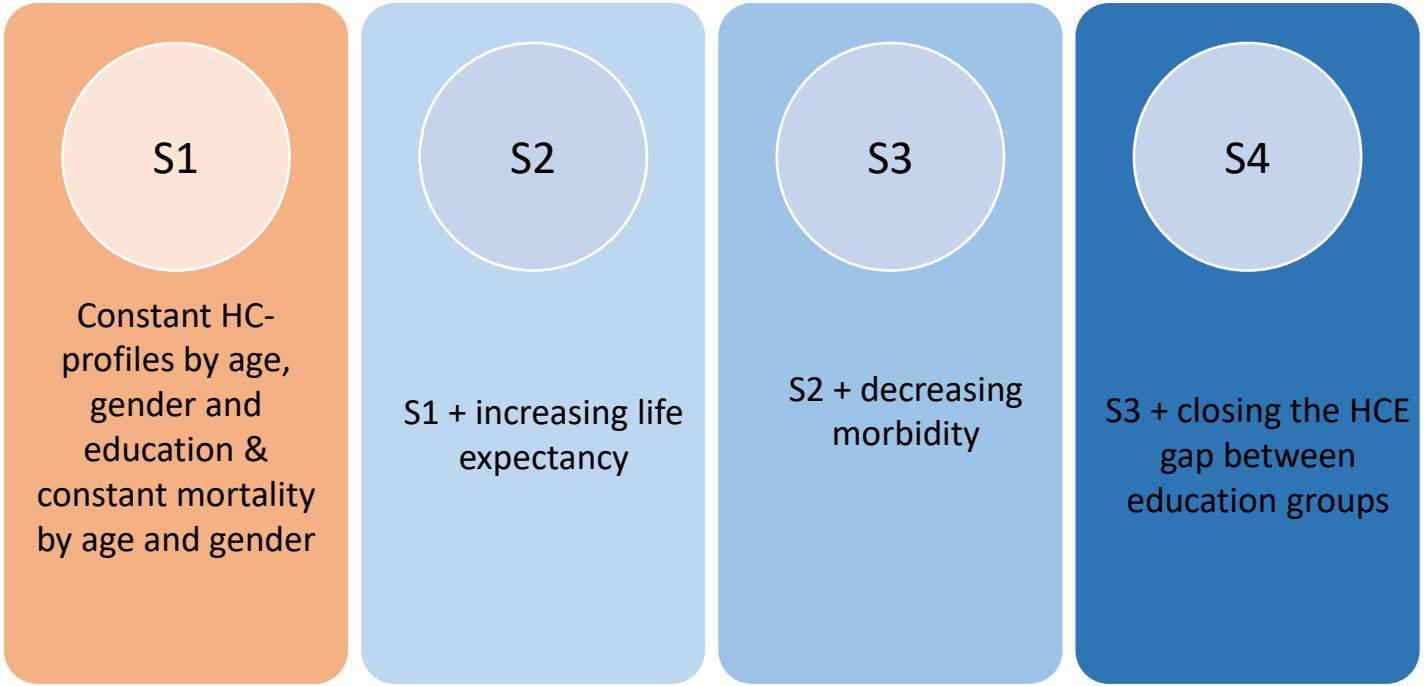
Features

- Can reproduce official population projections but accounts for educational differences in mortality and fertilty
- 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 (sex, age, education, **health**, family & job characteristics) , accounting for path dependency
  - Hazard regressions estimated on longitudinal admin. data (~100% coverage)
- Health status modeled by age, sex and education

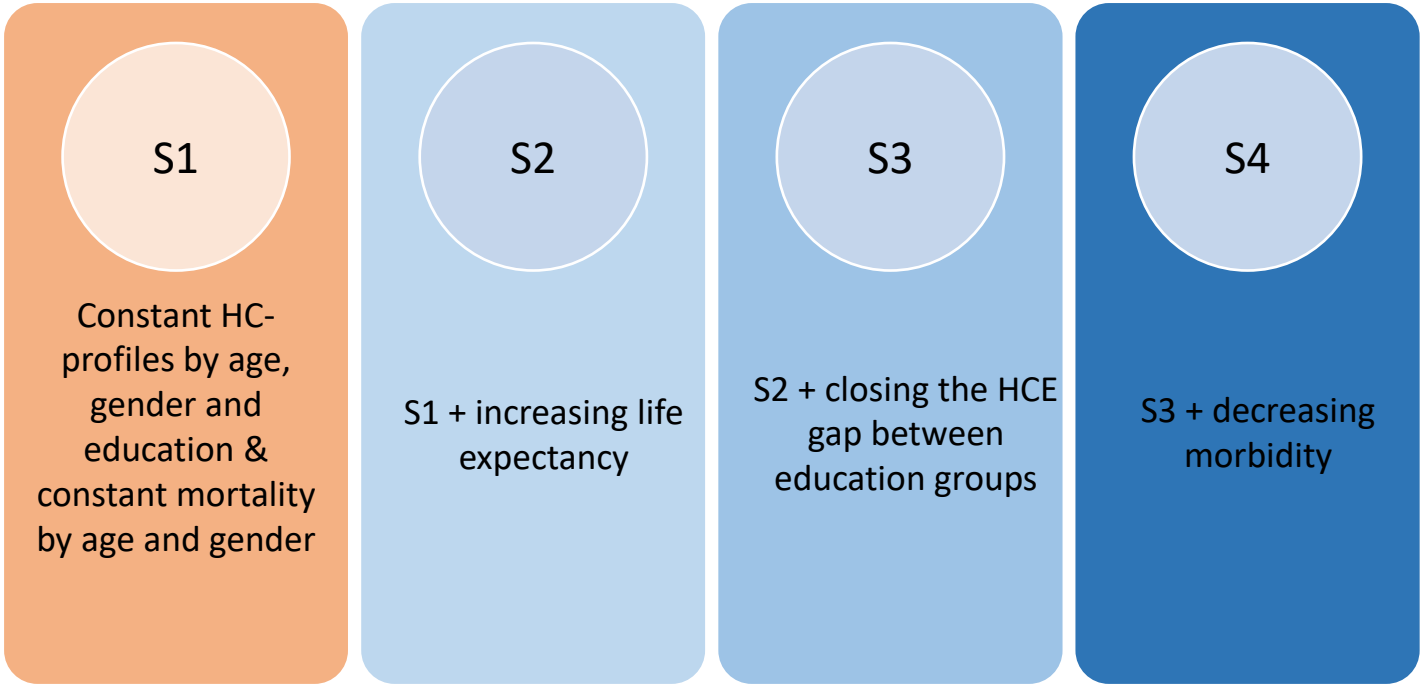
Scenarios

How does total HCE change over time (2020 -2060) assuming…



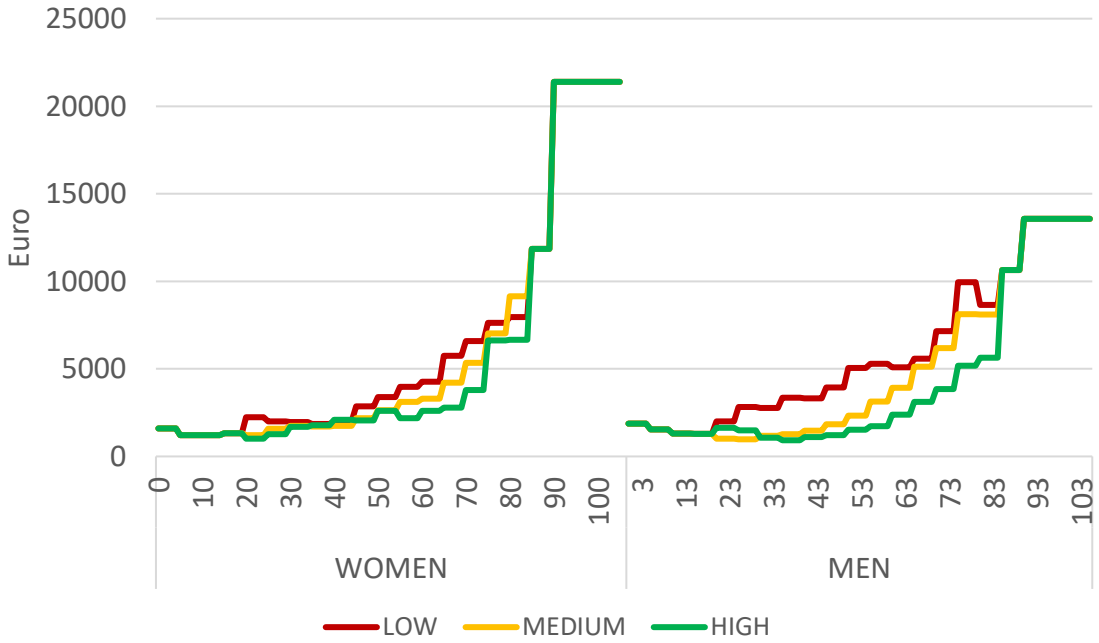
Scenarios ALT

How does total HCE change over time (2020 -2060) assuming…



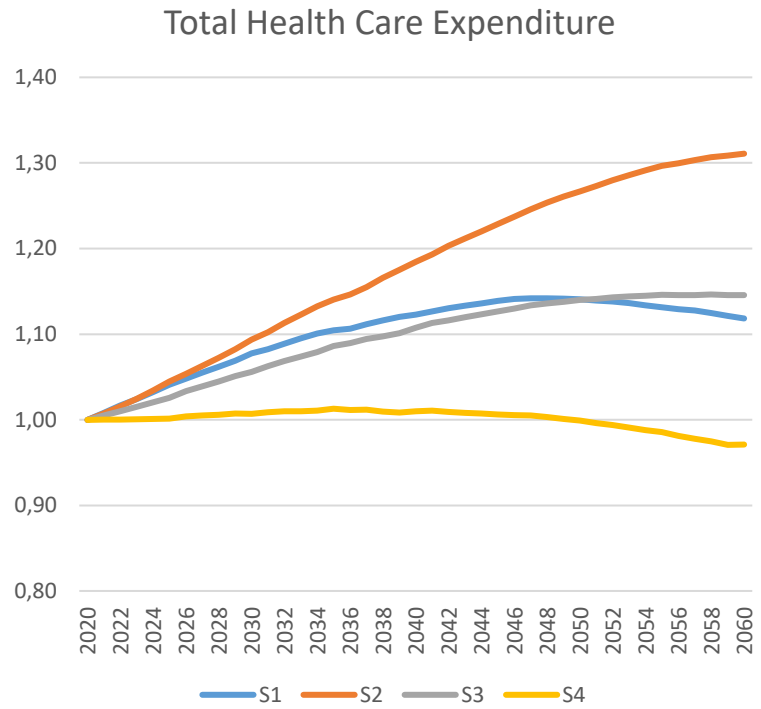
Results

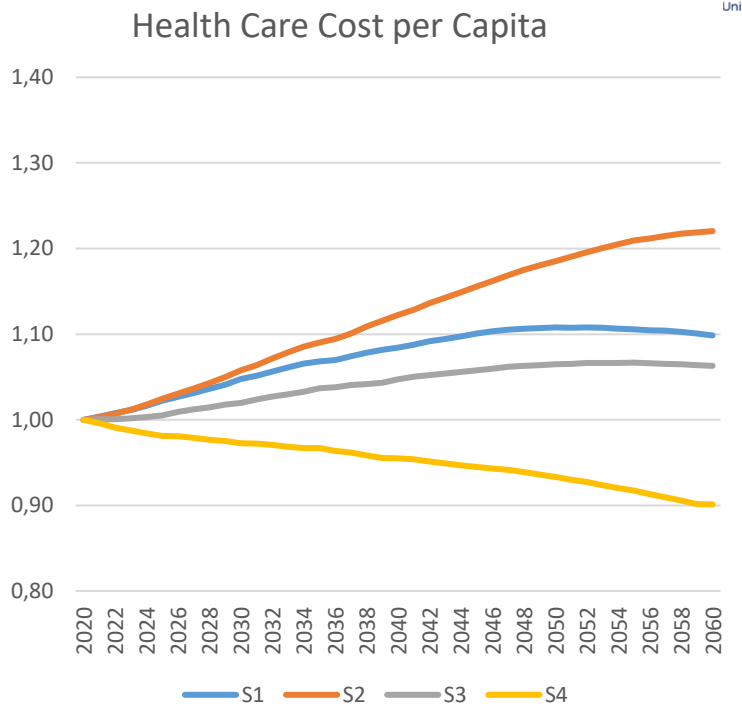
Health Care Expenditure by Gender, Age and Education



Note: XXX.

Results





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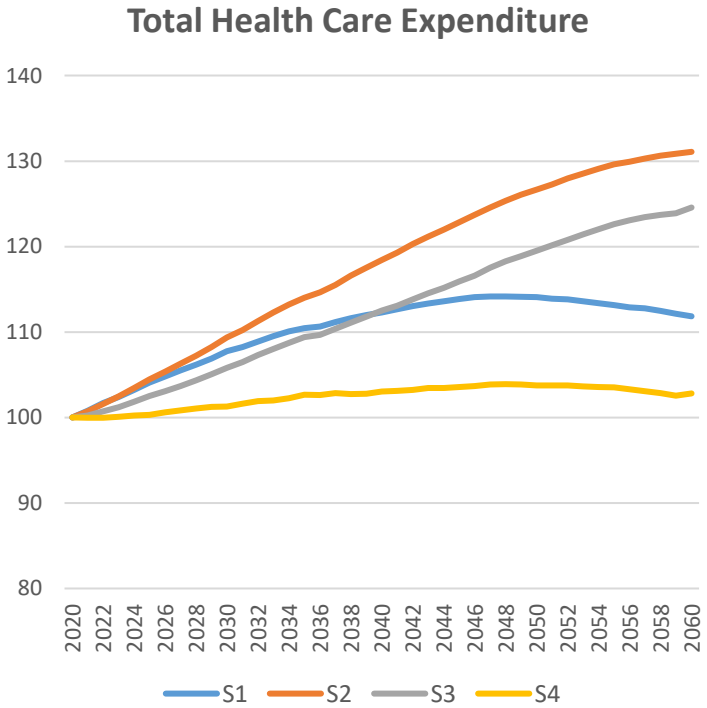

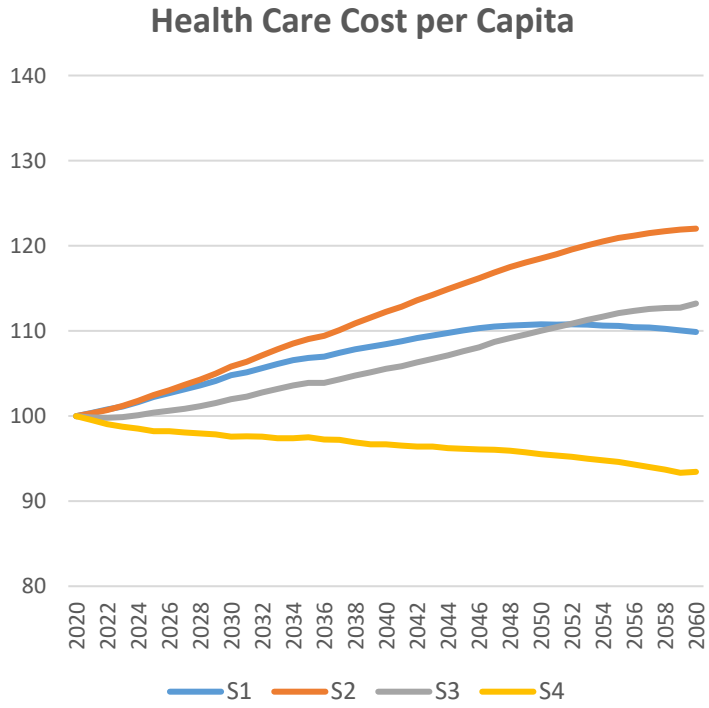

Note: XXX.

Conclusions

- High uncertainty in projections of future HCE – microsimulation useful tool for what-if and sensitivity analysis
- Without increases in life expectancy, population ageing has a comparatively modest impact on long-term cost dynamics, especially when factoring in composition effects due to the educational expansion
- Increases in life-expectancy double the impact of ageing on HCE. Uncertainty, how compression of morbidity (and accounting for end of life costs) can mitigate effects
- Future HCE very sensitive to assumptions on morbidity by age and extent to which socio-economic factors lead to persistent differences in health outcomes
- Policies that specifically reduce the above-average healthcare costs of the low-skilled can significantly contribute to counteract cost dynamic