

Mortality Working Group Report: AAE Spring Meeting 2023

Bratislava, 19 - 21 APRIL 2023

Content;

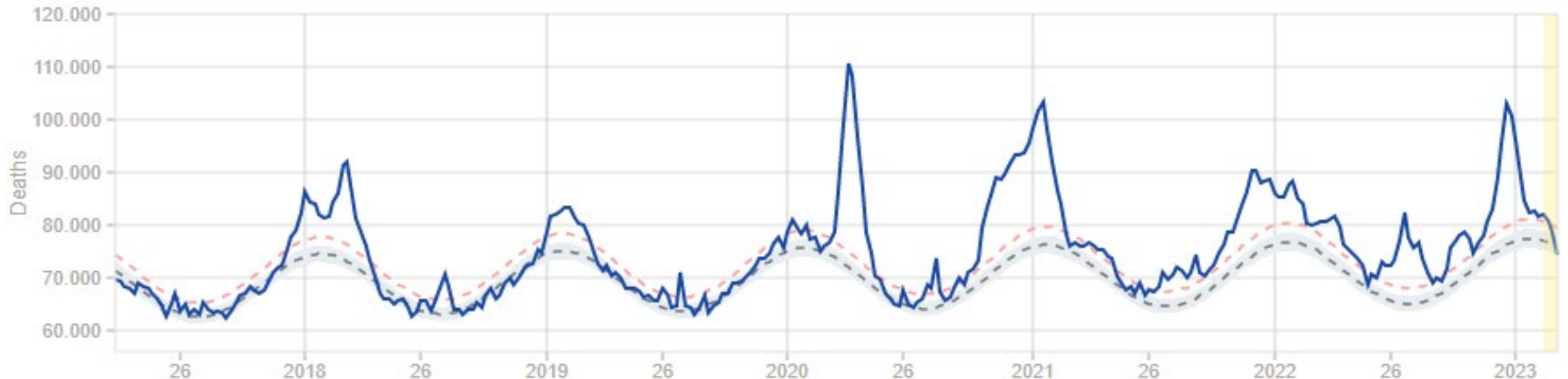
1. COVID-19 and Developments in Excess Mortality
2. OECD publication: Mortality and the Provision of Retirement Income
3. Mortality and Age-Friendly Environments

COVID-19 and Developments in Excess Mortality

All ages

— Pooled deaths ■ Normal range ---- Baseline - - - Substantial increase ■ Corrected for delay in registration

All ages

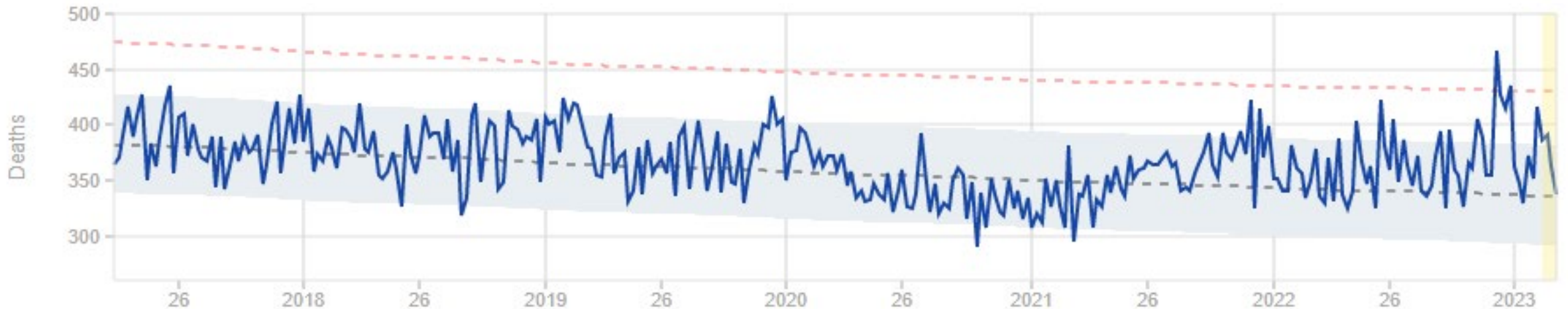


Source: EuroMOMO - a European mortality monitoring activity

COVID-19 and Developments in Excess Mortality - for population 0-14 years old

— Pooled deaths ■ Normal range ---- Baseline - - - Substantial increase ■ Corrected for delay in registration

0-14 years

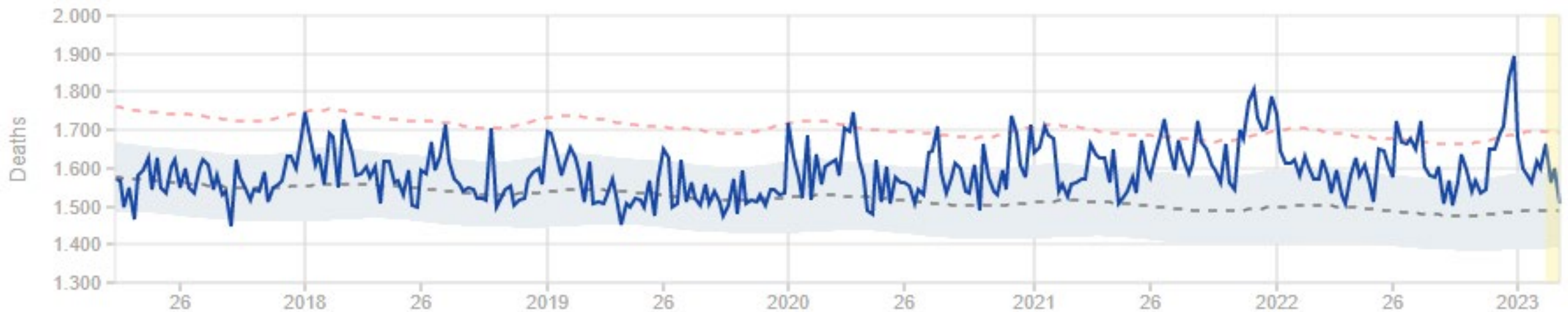


Source: EuroMOMO - a European mortality monitoring activity

COVID-19 and Developments in Excess Mortality - for population 15-44 years old

— Pooled deaths ■ Normal range ---- Baseline -.-.- Substantial increase ■ Corrected for delay in registration

15-44 years

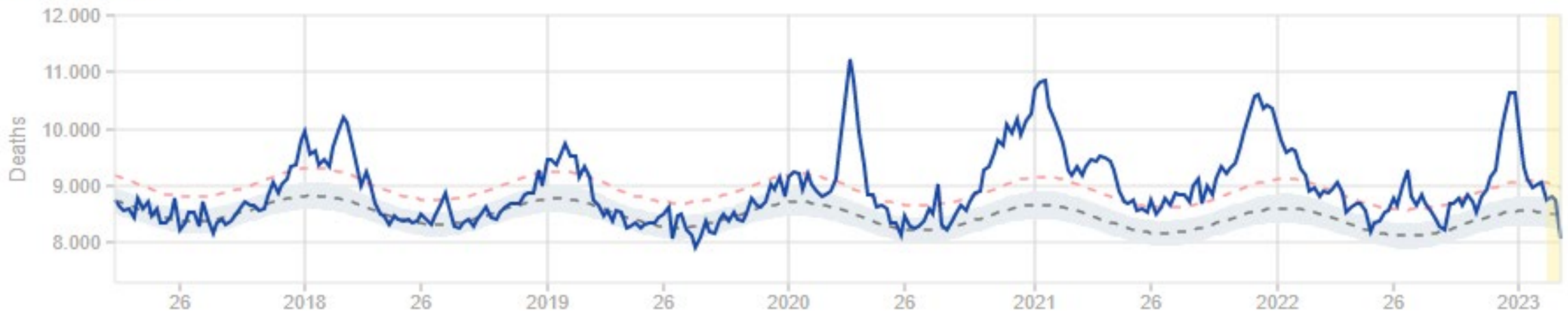


Source: EuroMOMO - a European mortality monitoring activity

COVID-19 and Developments in Excess Mortality -for population 45-64 years old

— Pooled deaths ■ Normal range ---- Baseline -.-.- Substantial increase ■ Corrected for delay in registration

45-64 years

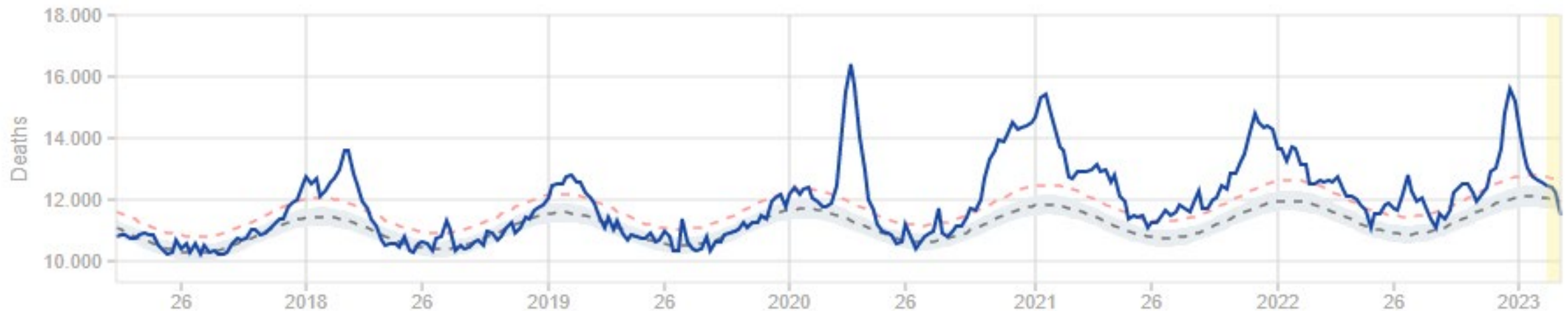


Source: EuroMOMO - a European mortality monitoring activity

COVID-19 and Developments in Excess Mortality - for population 65-74 years old

— Pooled deaths ■ Normal range ---- Baseline - - - Substantial increase ■ Corrected for delay in registration

65-74 years

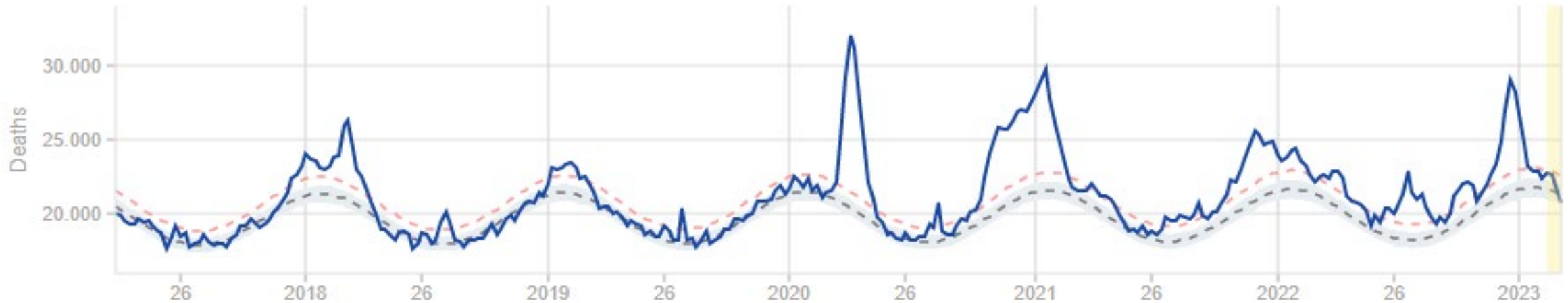


Source: EuroMOMO - a European mortality monitoring activity

COVID-19 and Developments in Excess Mortality - for population 75-84 years old

— Pooled deaths ■ Normal range ---- Baseline - - - Substantial increase ■ Corrected for delay in registration

75-84 years

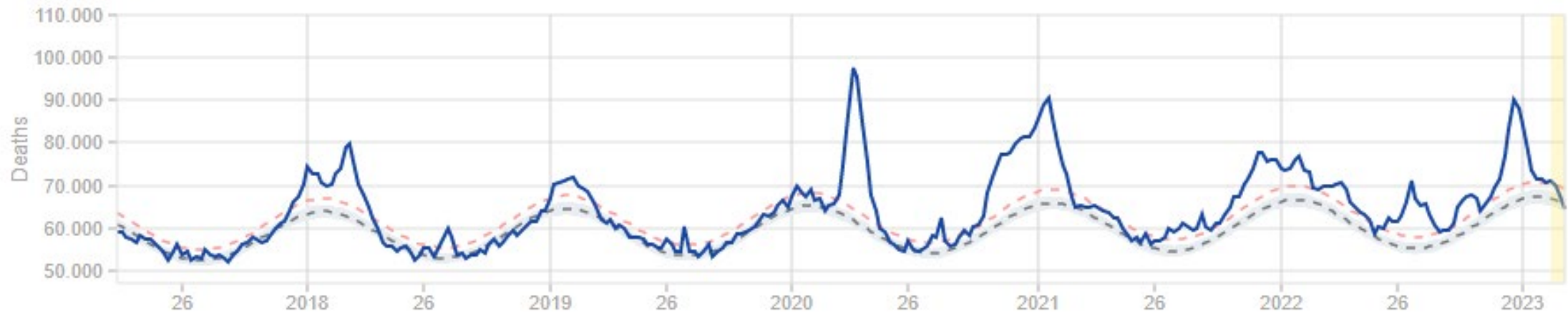


Source: EuroMOMO - a European mortality monitoring activity

COVID-19 and Developments in Excess Mortality - for population 65+

— Pooled deaths ■ Normal range ---- Baseline - - - Substantial increase ■ Corrected for delay in registration

65+ years

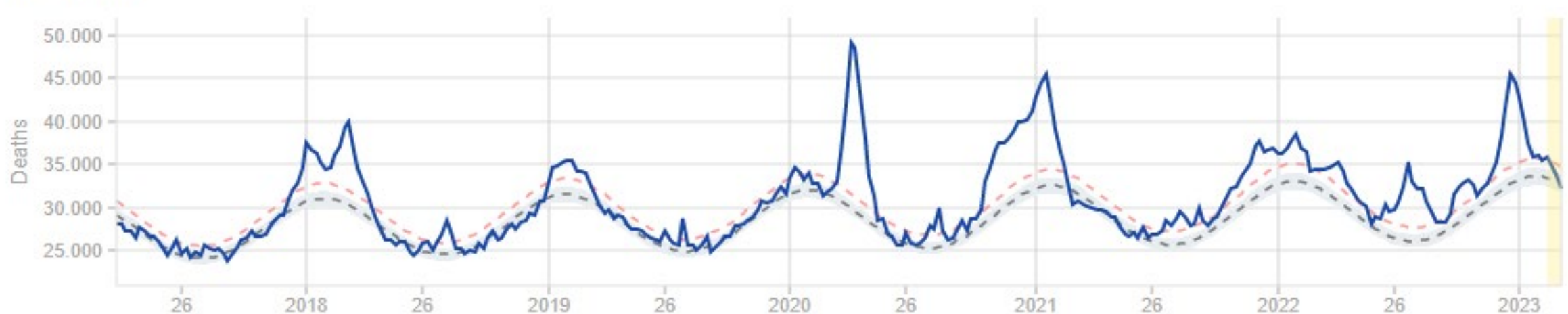


Source: EuroMOMO - a European mortality monitoring activity

COVID-19 and Developments in Excess Mortality - for population 85+

— Pooled deaths ■ Normal range ---- Baseline -.-.- Substantial increase ■ Corrected for delay in registration

85+ years



Source: EuroMOMO - a European mortality monitoring activity

2. OECD publication: Mortality and the Provision of Retirement Income

1. Longevity trends
2. The impact of the COVID-19 pandemic on mortality
3. Modelling choices for the development of standard mortality tables
4. Global approaches to developing standard mortality tables for the provision of retirement income

Figure 1: World Death Rate 1950-2023

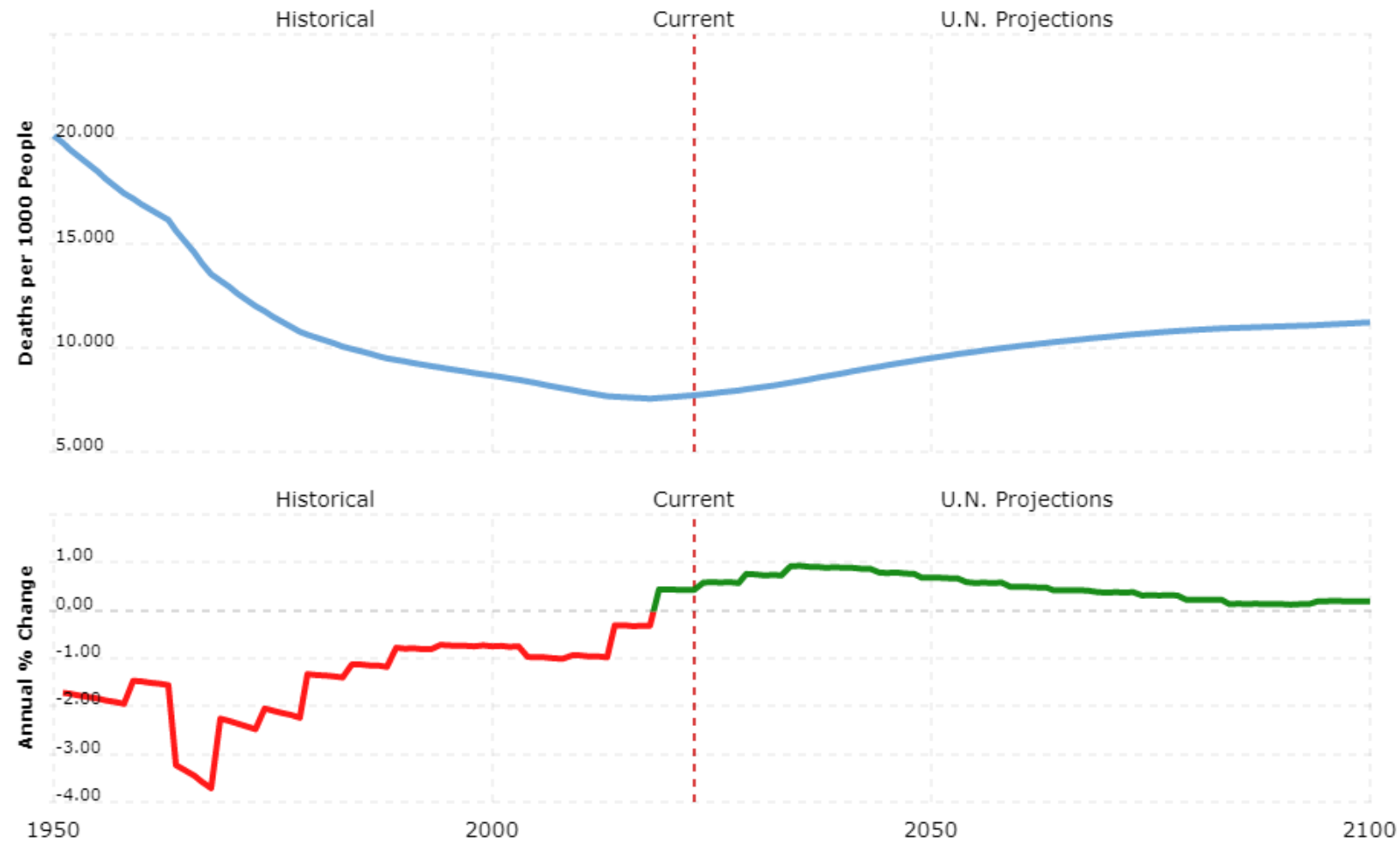


Figure 2: Weekly excess mortality during the COVID-19 pandemic, 2020-21

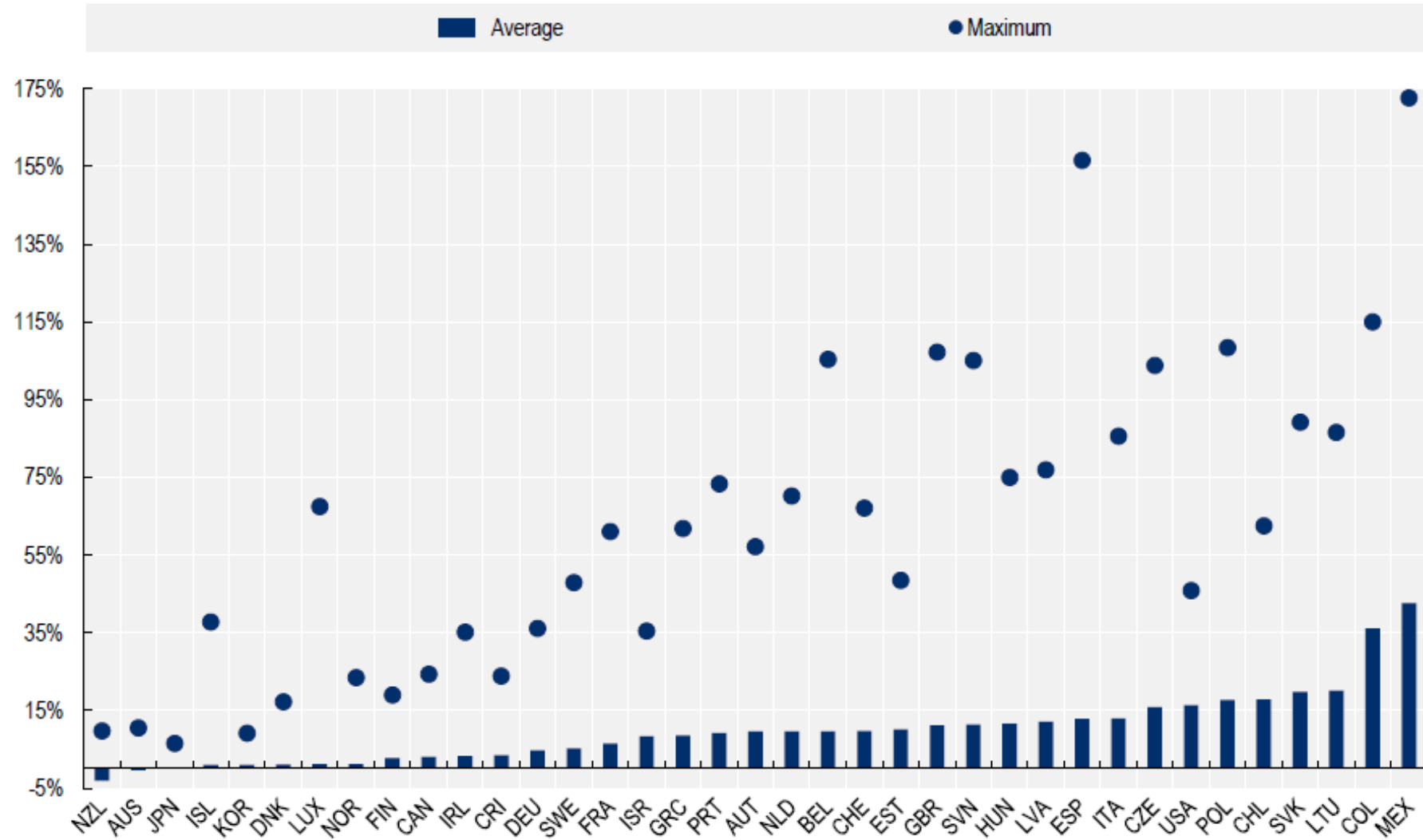


Figure 3: Change in period life expectancy at age 60 in 2020 compared to 2019

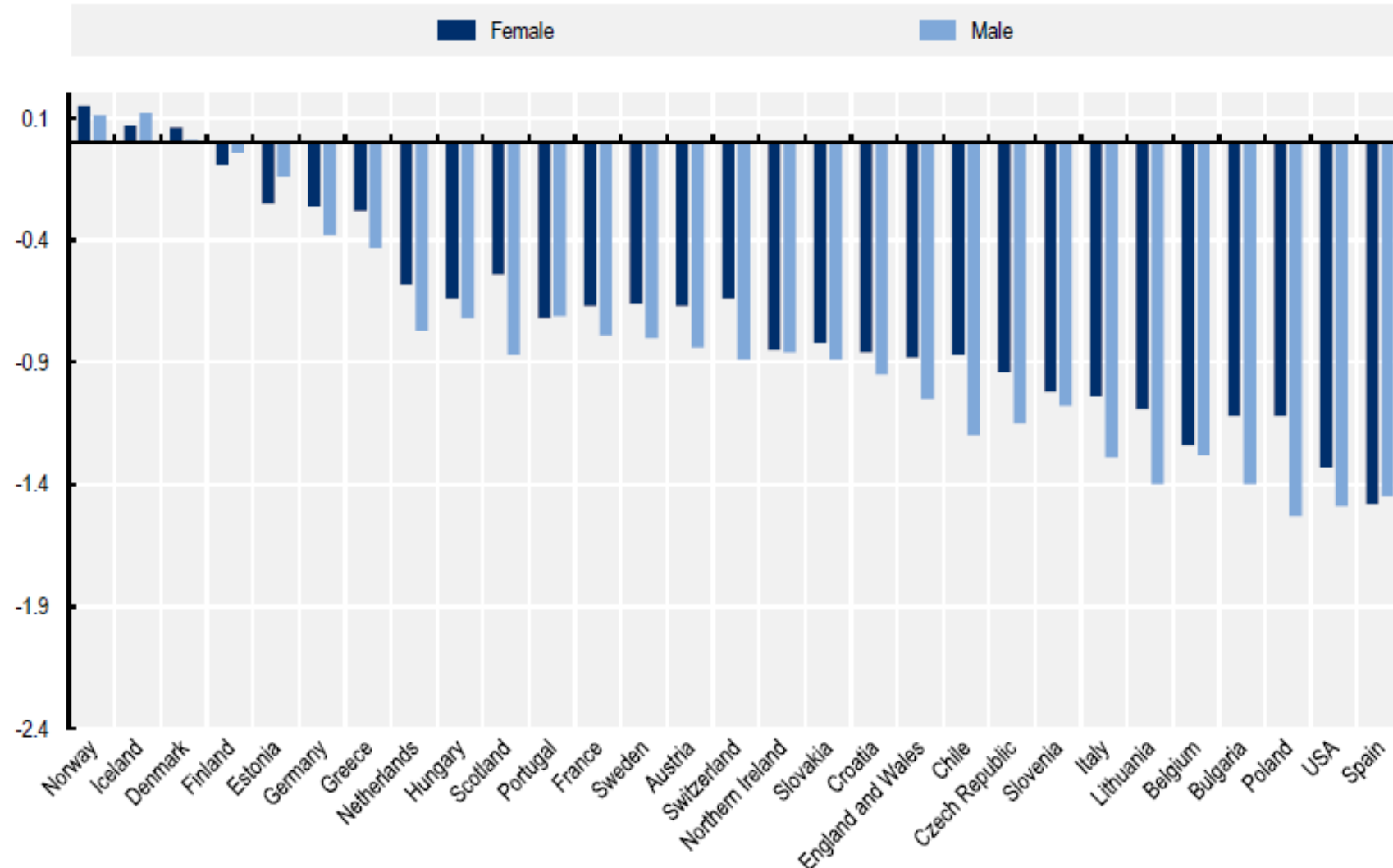


Figure 4: Average weekly excess mortality during the COVID-19 pandemic by age group

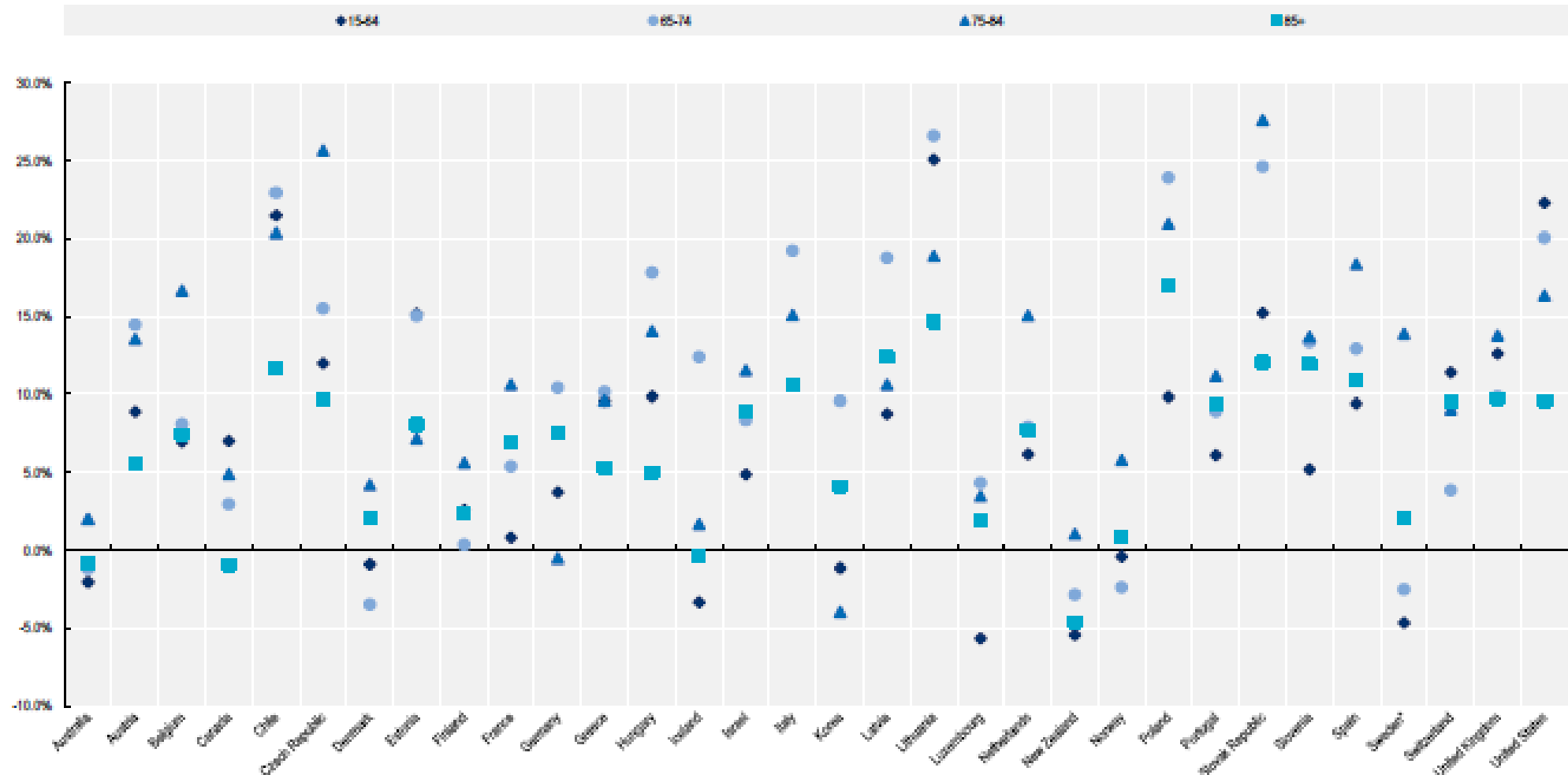


Figure 5. Excess mortality relative to officially reported COVID-19 deaths, 2020-21

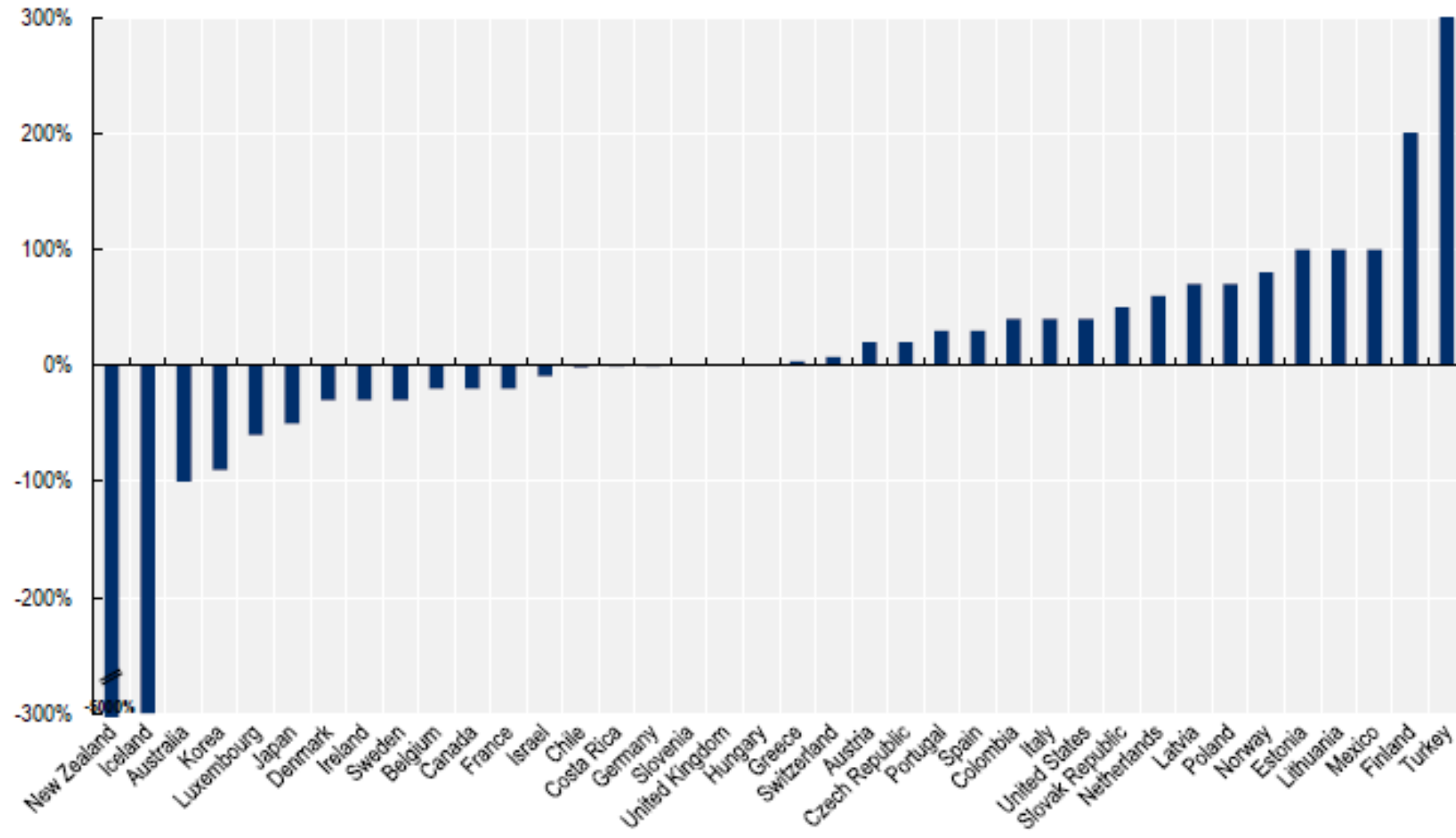


Figure 6: Decomposition of the change in period life expectancy at birth from 2019-20

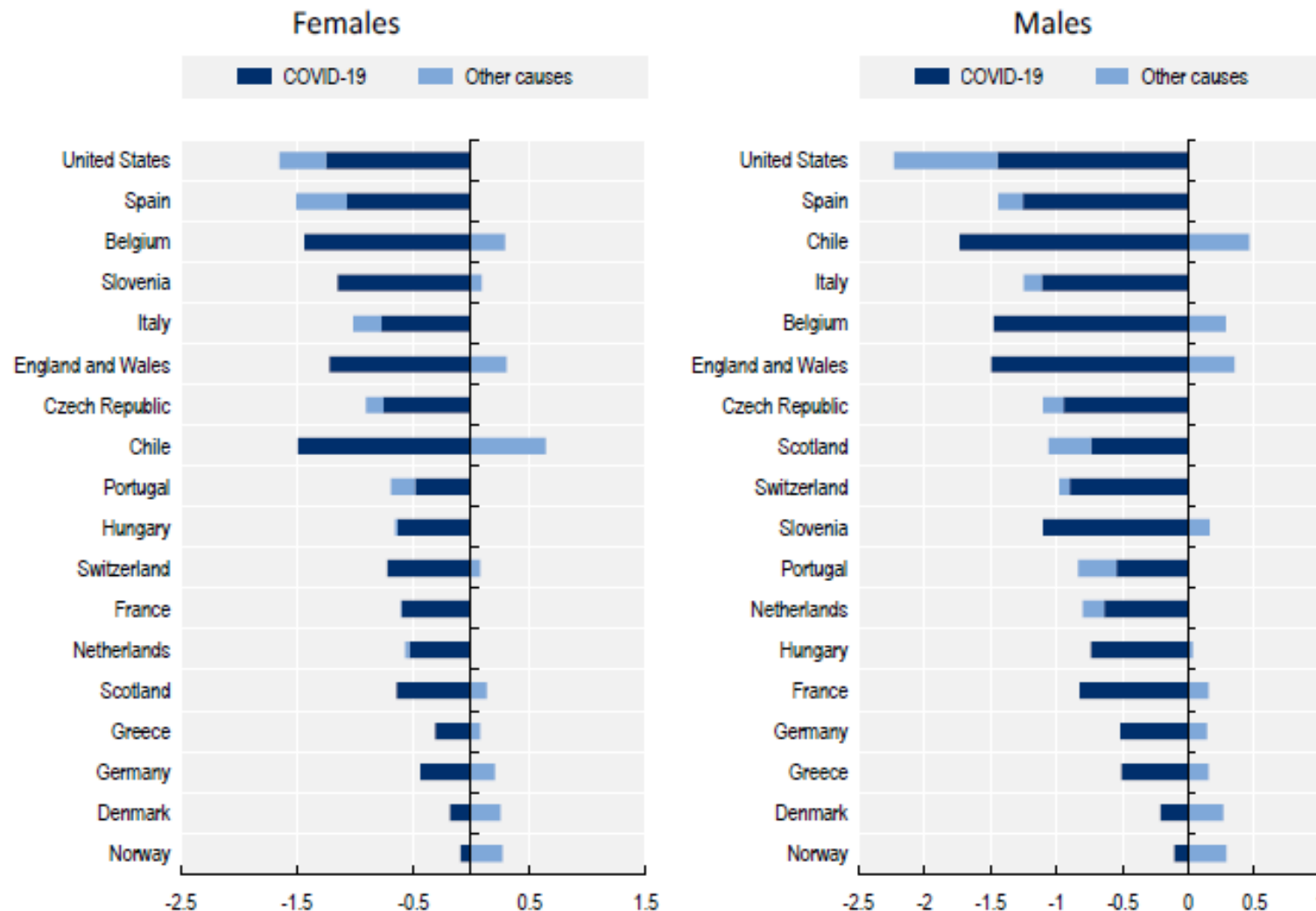


Figure 7: Illustration of slope of mortality curves for higher and lower income countries

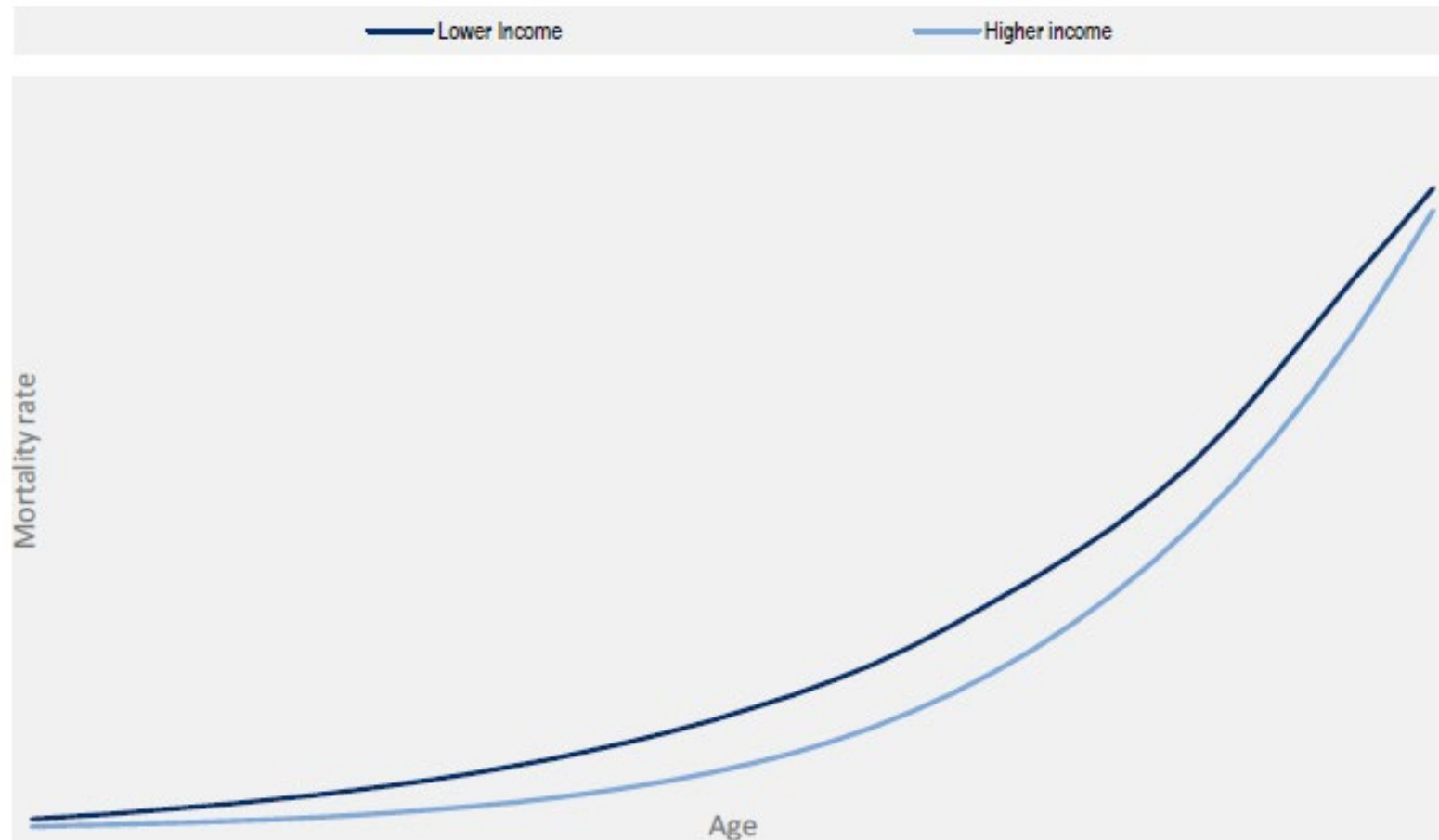


Figure 8: Percent of male confirmed COVID-19 cases and deaths in OECD countries

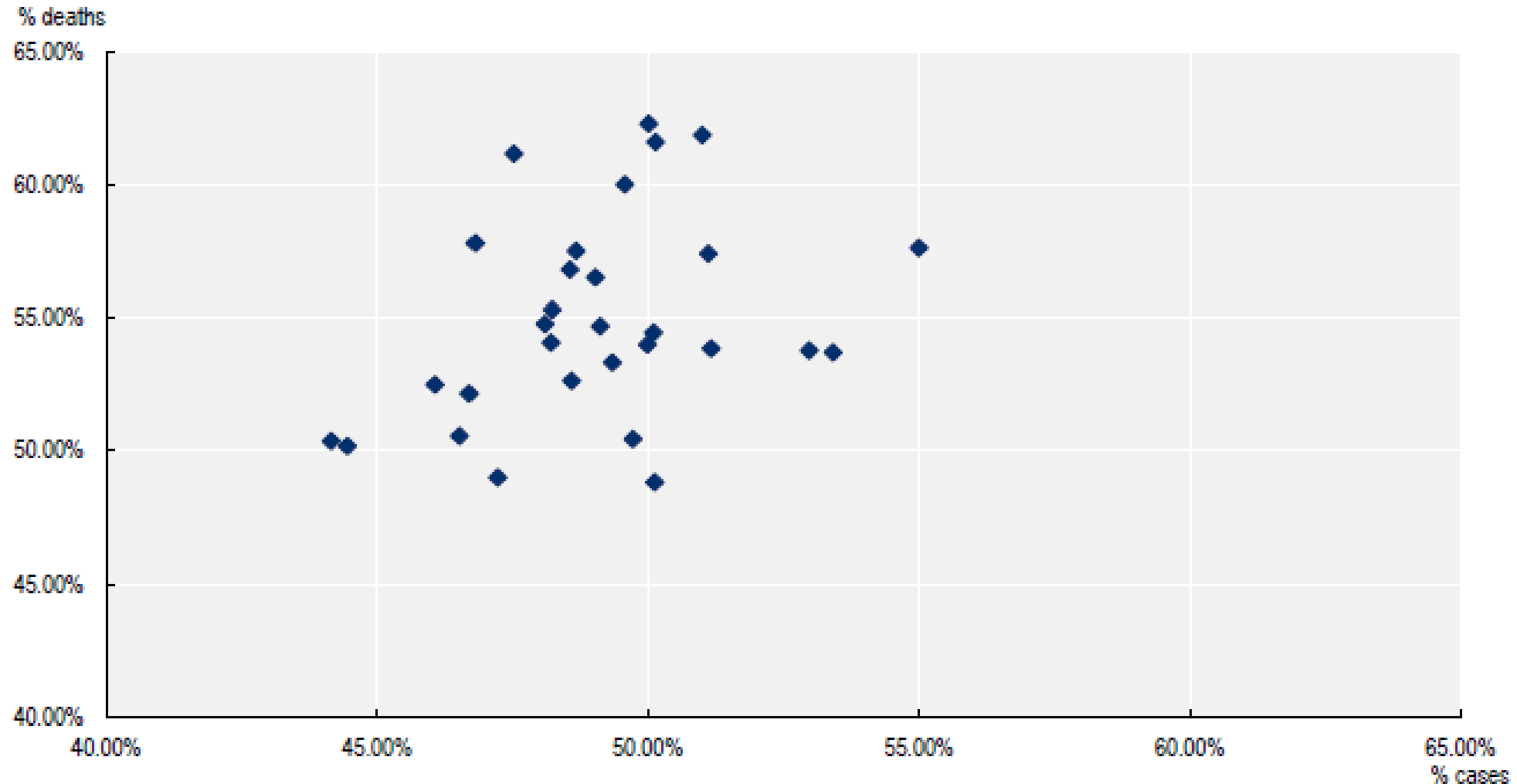


Figure 9: Life expectancy at birth vs. Liberal Democracy Index, 2019

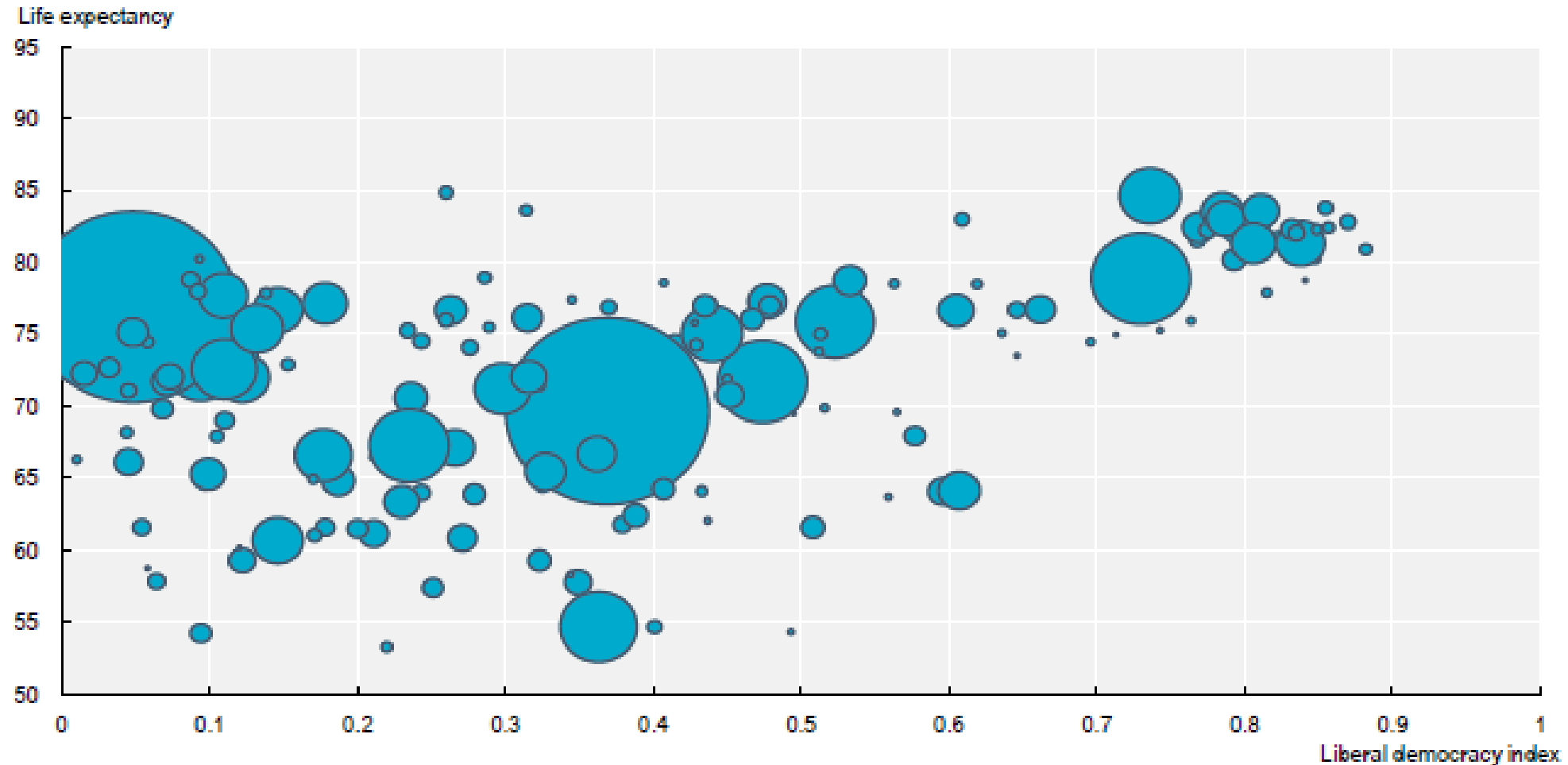


Figure 10: Life expectancy at birth around the Spanish Flu of 1918-19 for selected countries

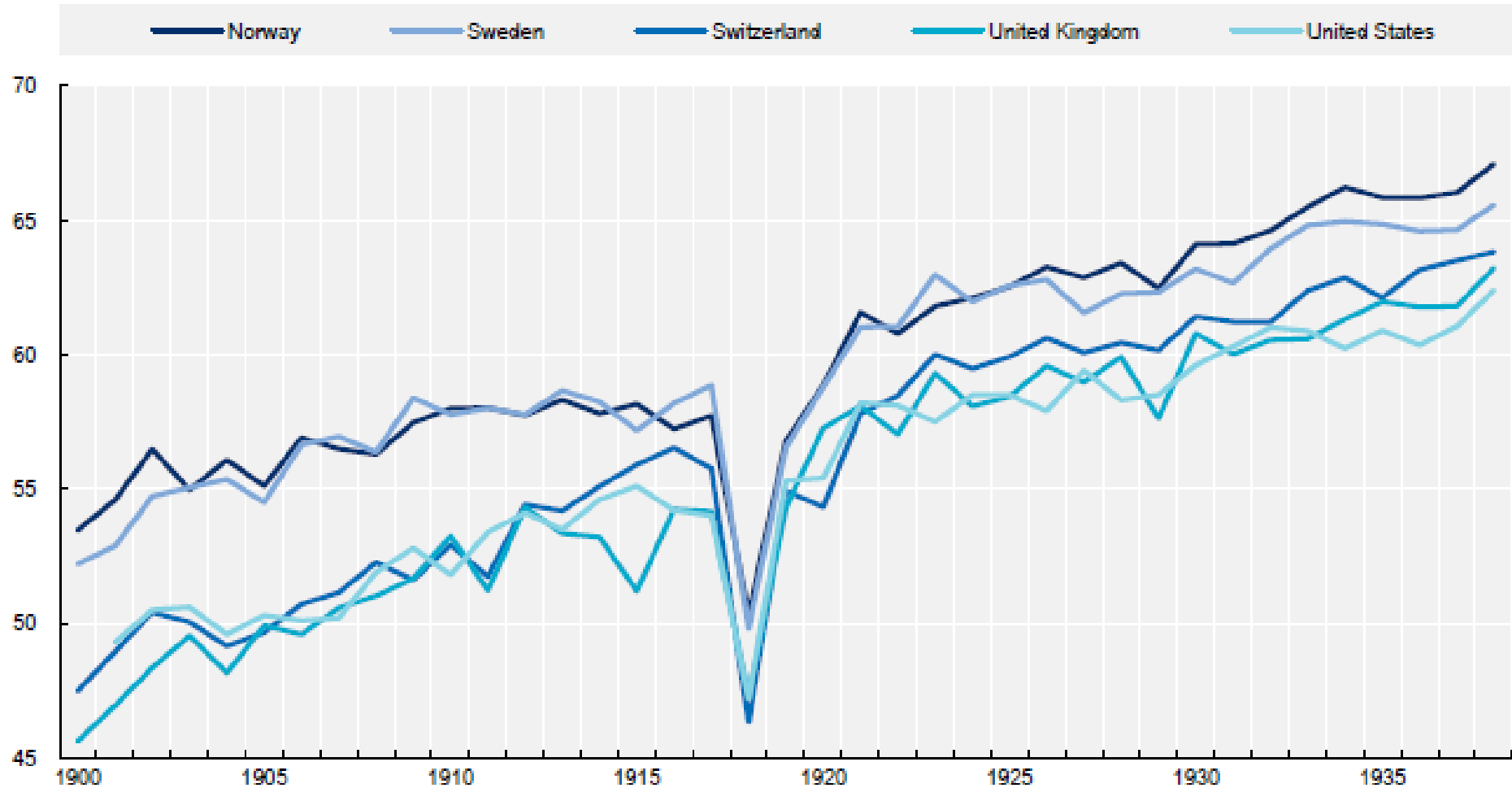


Figure 11: Additional life expectancy at age 65 due to selection and mortality improvements relative to the general population

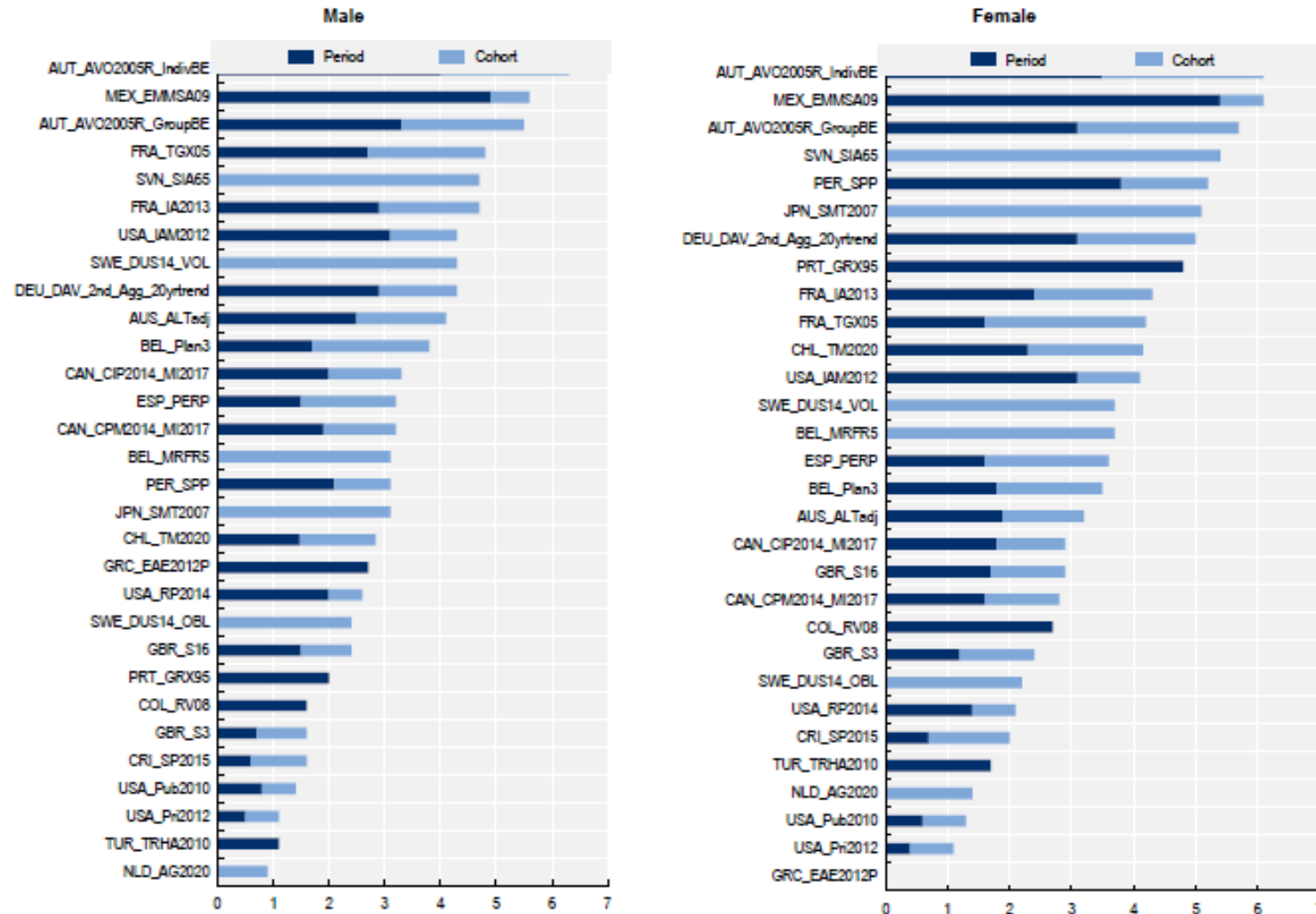
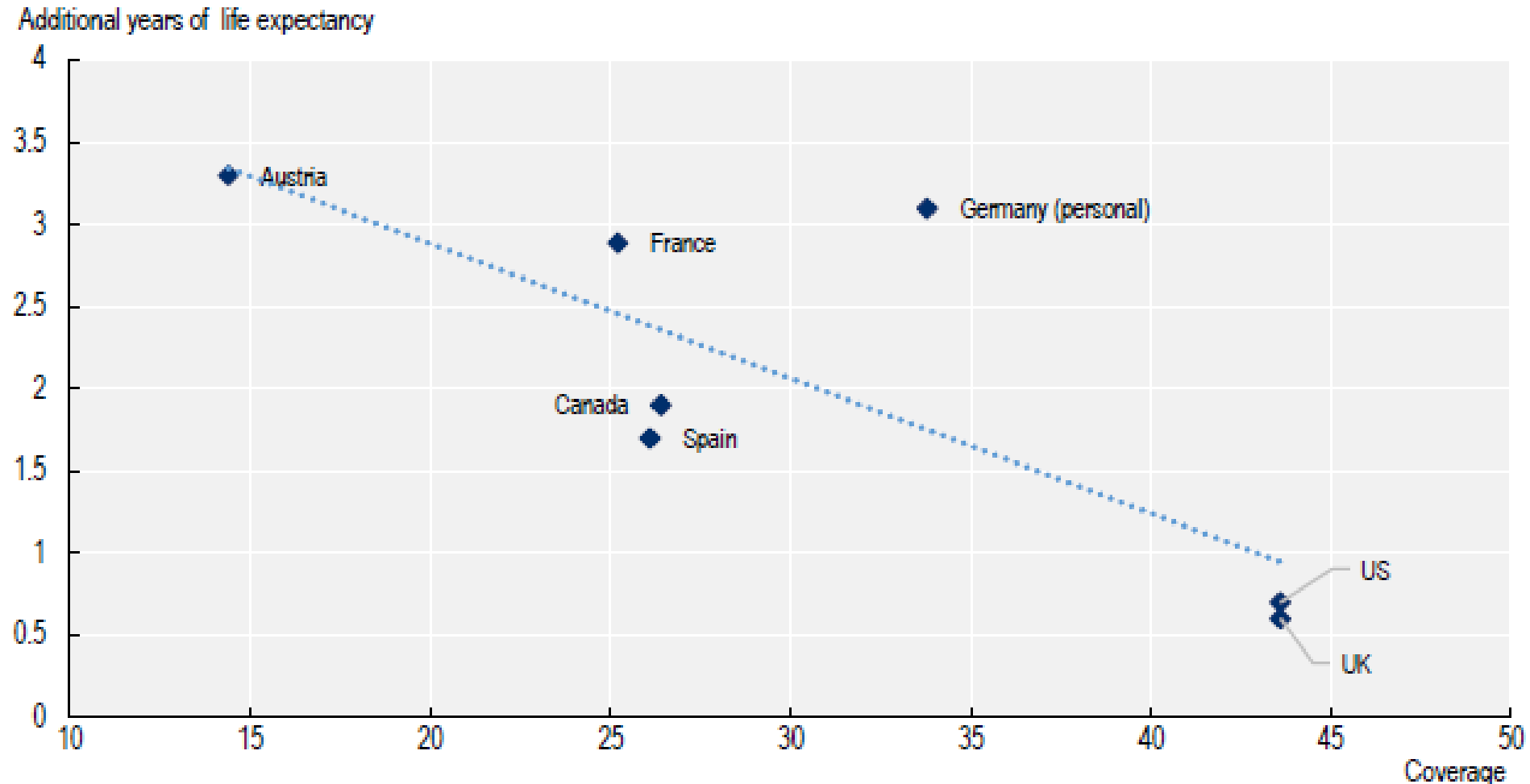


Figure 12: Relationship between coverage and extent of mortality selection



3. Mortality and Age-Friendly Environments

- Age friendly environments have significant impact on mortality and morbidity
- Claudia Wood, 2017, Social Value of Sheltered Housing, Demos
 - Reduction of incidence of falls (50%)
 - Reduces loneliness

Actuaries can contribute to better Mortality analysis and Projection methodology taking into account places where people live and Age-Friendliness of Environments

- **‘Does living in a retirement village extend life expectancy? The case of Whiteley Village’** investigates the possible benefits of retirement village life with respect to life expectancy i.e. whether Villagers live longer on average than the general population, using Whiteley Village as a case study. This joint report is produced by the International Longevity Centre – UK and Cass Business School.
- The report shows that there is strong statistical evidence that female residents, in particular, receive a substantial boost to their longevity when compared to the wider population – at one point in time reaching close to five years.
- Retirement villages can boost the longevity of women by as much as five years compared to the general population, according to a new Cass Business School report.
- Analysing 100 years’ worth of residents’ records from the Whiteley Homes Trust, a retirement village in Surrey which opened in 1917 to provide housing and support for people of limited means, the study suggests that this type of lifestyle in retirement is capable of combating the negative effects on health and social well-being of low economic means and isolation.

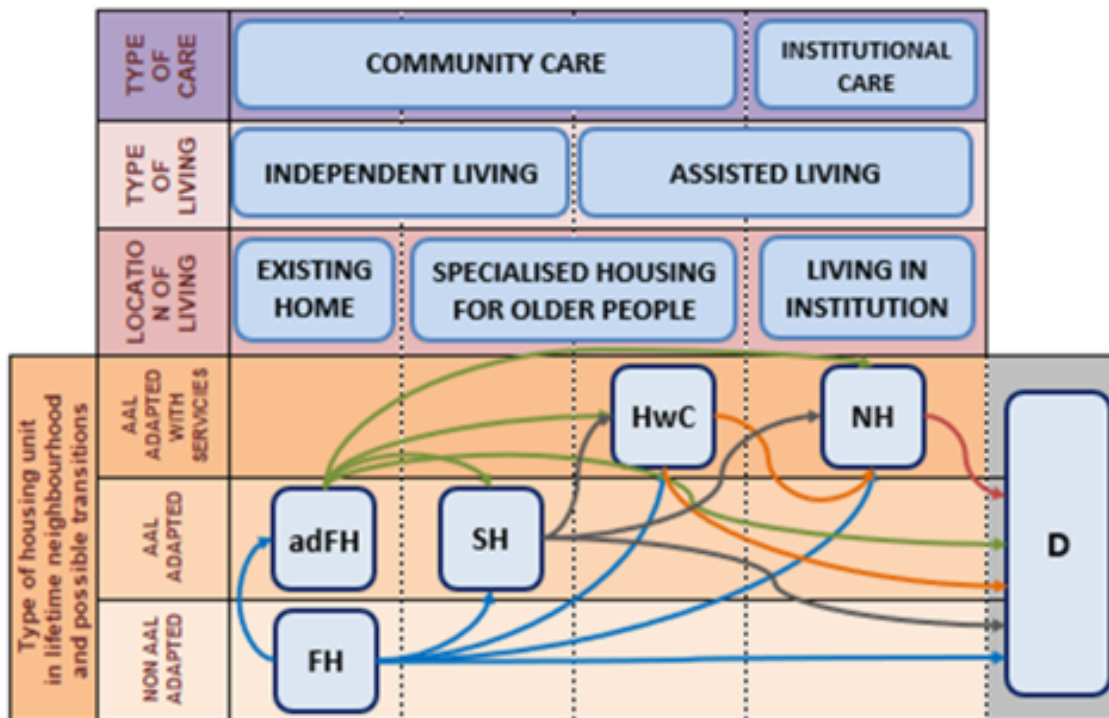
Report: Does living in a retirement village extend life expectancy? The case of Whiteley Village' investigates

Key findings:

- There is statistically strong evidence that female residents entering Whiteley Village between ages 65 and 69 have received a substantial boost to their longevity when compared to the wider population.
- In particular, living in Whiteley Village appears to have significantly improved the probability that a female resident survives beyond the median age of death of the wider population.
- The extent of Whiteley's longevity advantage has changed through time. It reached its highest level of 4.9 years in the 1960 cohort based on the median age to death for a woman entering the Village aged 67 when compared with a woman of the same age in England & Wales.
- In 1970 and 1980 this advantage lessened, mainly due to the increase in life expectancy of the general population. However, this fails to take into account that Whiteley only accepts poorer pensioners who have shorter life expectancy on average, and who may not have had such substantial increases in life expectancy.
- In fact, the median duration of a female entrant at age 67 in the 1980 cohort in Whiteley was between 2.7 and 3.3 years higher when compared to the poorest 20% of female 67 year olds in the wider population.
- Furthermore, Whiteley appears to confer a longevity advantage on female residents equivalent to them coming from quintile 1 or 2 when we would have expected a life expectancy consistent with quintile.
- While the report does not find sufficient statistical evidence that the male residents of Whiteley outlive their counterparts in the wider population, there is certainly evidence that the majority lived at least as long on average. In other words, being a resident in Whiteley seems to nullify the usual higher mortality rates experienced by members of the lower socioeconomic classes.
- The only exception to the improvements in the expected mortality rates was for the shortestlived males. However, the report postulates that such males had made lifestyle choices (e.g. smoking) that had led to underlying health impairments which could not be fully mitigated by the benefits achieved through the social interaction and on-site health support provided by Whiteley.
- The report concludes that retirement villages (or their equivalents) could help in the Government's aim to reduce mortality inequalities experienced in lower socio-economic groups.

3. Mortality and Age-Friendly Environments

Dynamics of transitions between care settings



Notation: FH – family housing unit; adFH – adapted family housing unit; SH – independent living housing unit in a retirement community; HwC – assisted living housing unit in retirement community; NH – nursing home; D – graveyard