



Cohorts' Working Life Expectancies and Working Years Lost in 21 European Countries

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Background & Objectives

The **extension of working lives** has been a major policy goal in Europe since the mid-90s. Demographic indicators are well-suited to provide comparative evidence on countries' progress towards achieving this goal.

Much recent research has estimated working life expectancy (WLE) and working years lost (WYL), but **studies are lacking that provide these estimates on the cohort-level, for more than one country, and adjusted for mortality and working hours**. These adjustments are crucial to reflect large disparities in longevity and working time arrangements across Europe.

Against this background, this paper has **three main objectives**:

1. To conduct a **comprehensive review of all prior estimates of WLE and WYL** in European countries
2. To estimate, for the first time, **WLE and WYL on the cohort level** for European countries
3. To provide, for the first time, **estimates of WLE and WYL adjusted for average working hours and mortality**

Review of Prior Estimates of WLE and WYL

Following a systematic literature search and review approach, I find a **total of 38 studies** of WLE and WYL. **Three main findings** stand out:

1. Period- and cohort-level WLEs have drastically increased in most countries for both men and women
2. Large inequalities exist in WLE and WYL, especially by country, gender, education, and health
3. Adjustments for health and working conditions (e.g., disability, precarity or care work) reveal even larger inequalities in WLE

Shortcomings of the available literature: Few studies of WYL; Few cohort-level analyses; Few comparative studies; Few studies adjust for mortality and working hours; Different age ranges and methods

Data & Method

I use the largest available micro-level data for Europe: the **European Labour Force Surveys (EU-LFS)** from 1991 to 2021.

	Ages 55-64	Ages 65-74
Cohorts	1927-56	1927-1946
Projected cohorts	1957-66	1947-56
Person-years	10.212.091	5.226.326

Following Dudel et al. (2023), I use a **modified version of Sullivan's method** to estimate WLE and WYL to retirement, unemployment, and inactivity: WLE and WYL as the sum of the prevalence rates of each state at each age.

Adjustments for working hours and mortality by multiplying the prevalence rates by the survival probability and the normalised average working hours of each cohort and gender at each age.

WLE and WYL are projected by carrying forward last observed rates for partially observed cohorts (Leinonen et al., 2018)

Figure 1. WLE adjusted for mortality and working hours

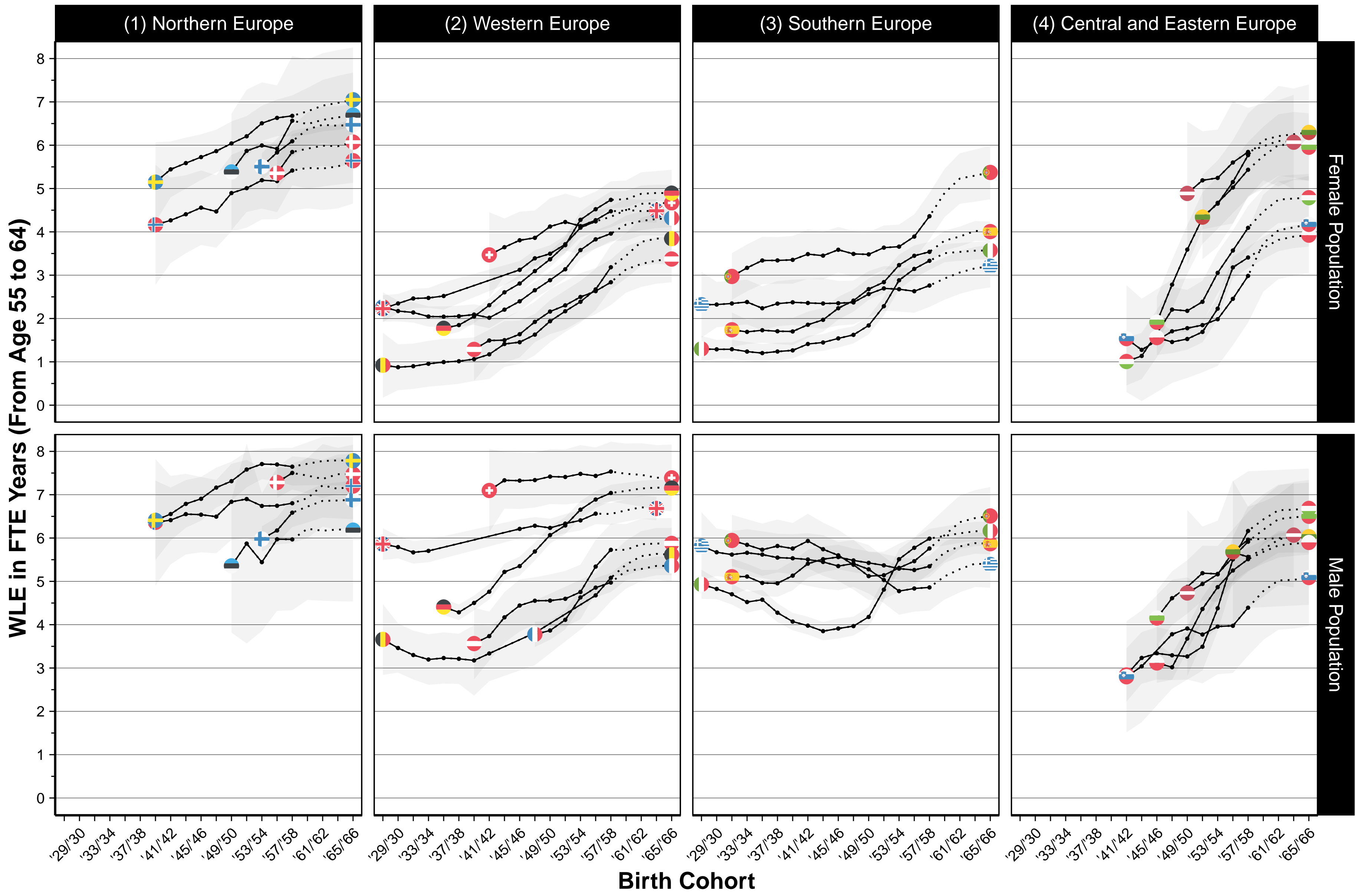


Figure 2. WLE adjusted only for mortality

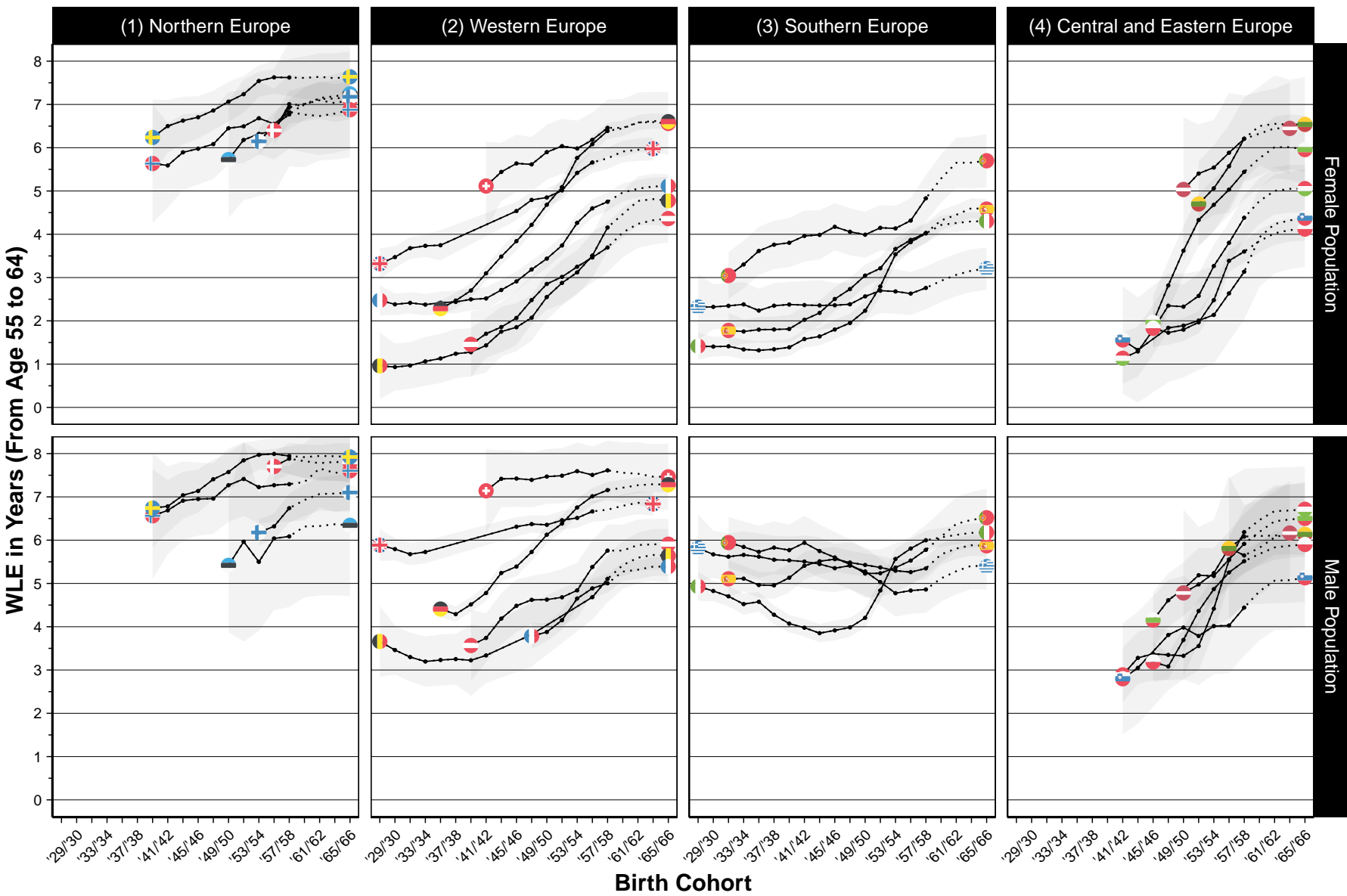


Figure 4. WYL to UNEMPLOYMENT adjusted for mortality

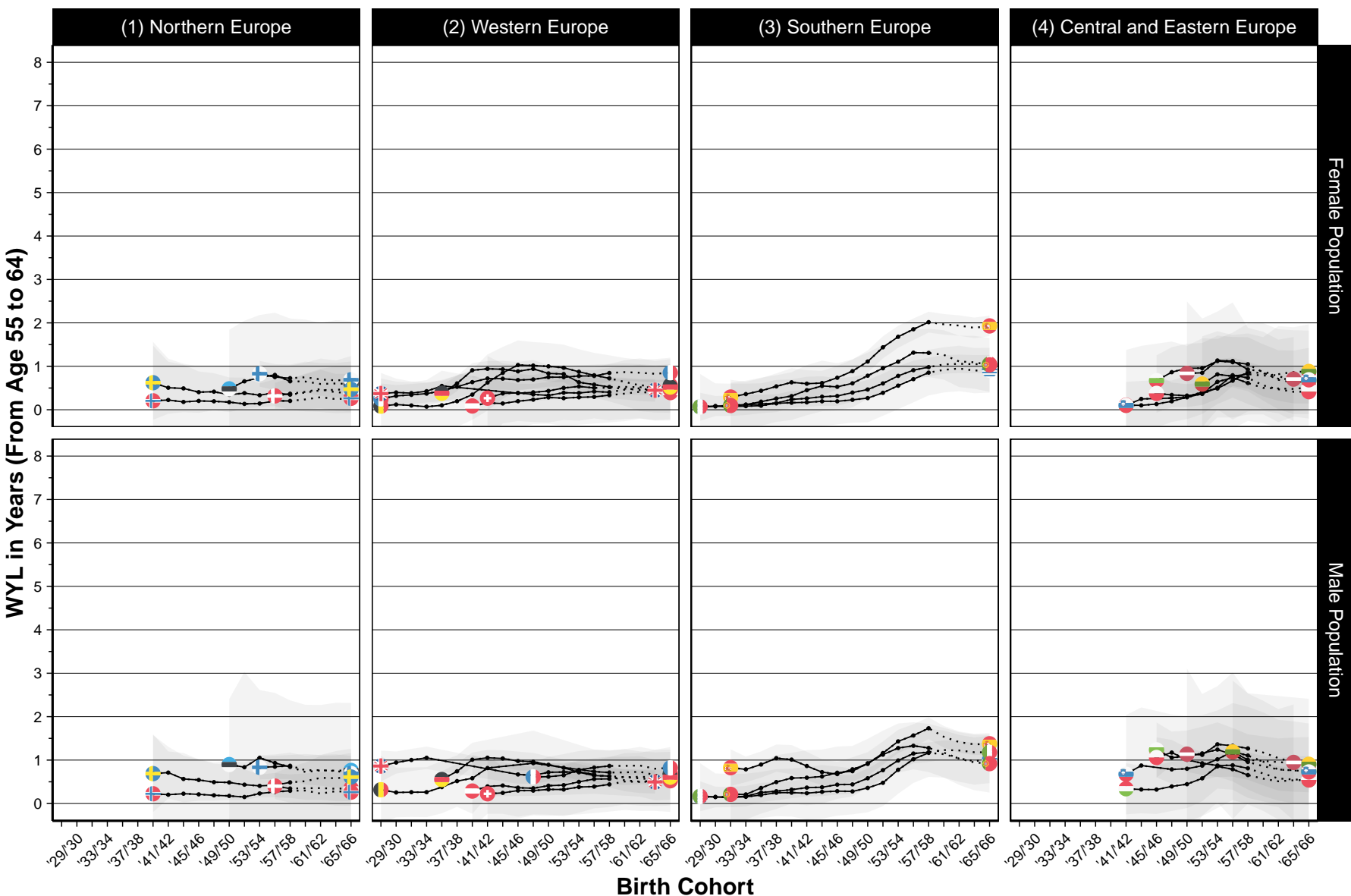


Figure 3. WYL to RETIREMENT adjusted for mortality

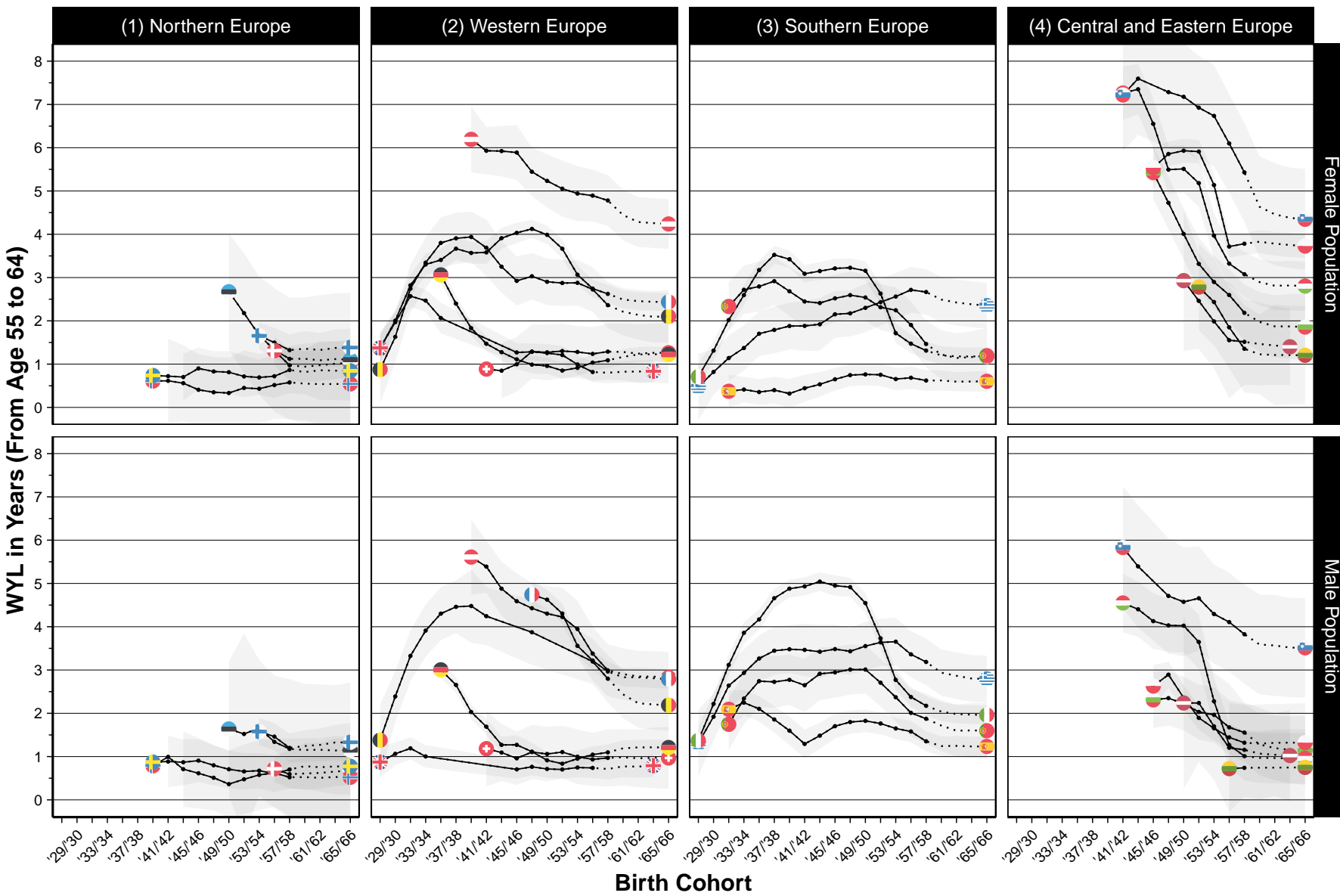
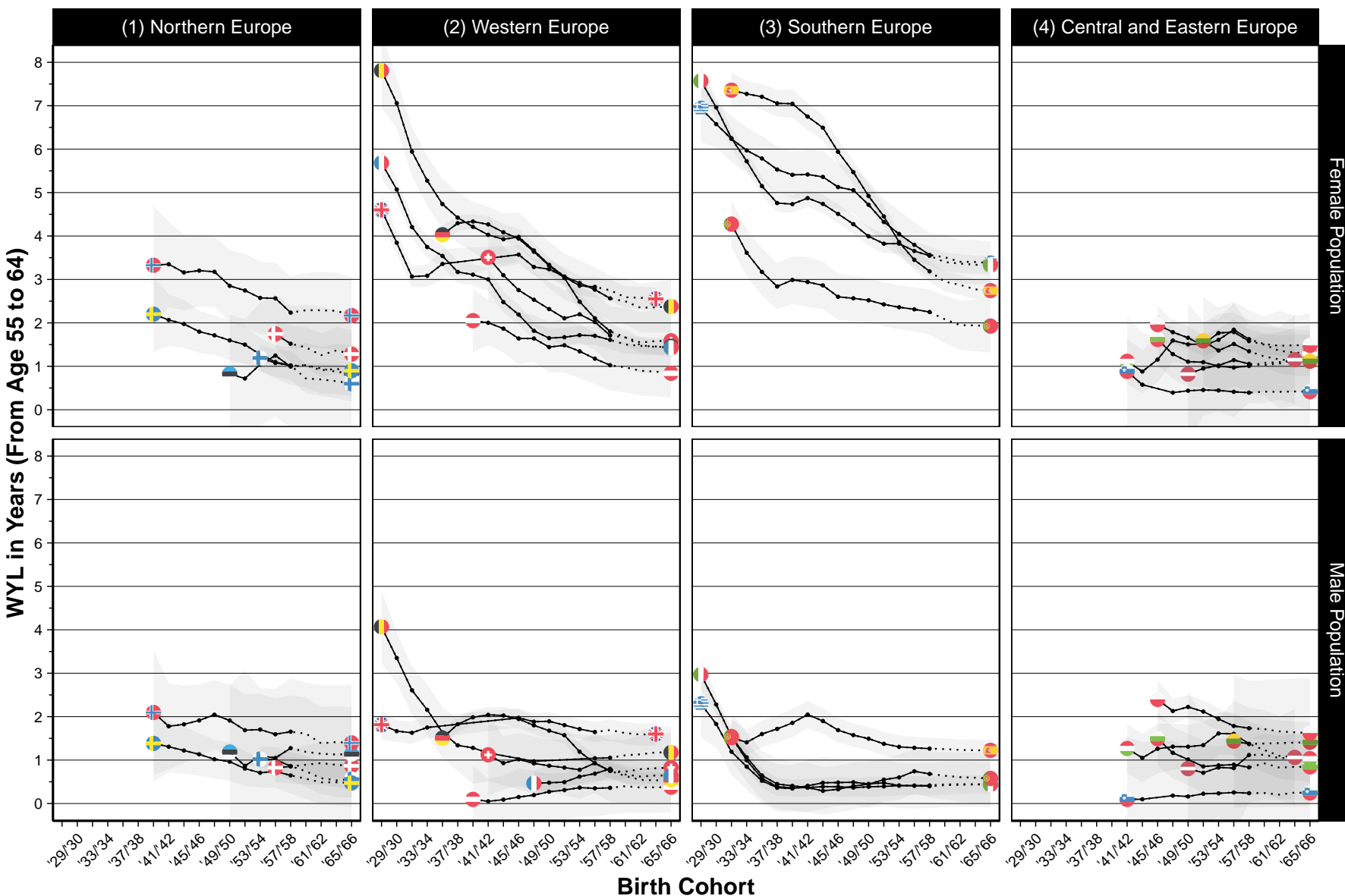


Figure 5. WYL to INACTIVITY adjusted for mortality



How are changes WLE and WYL related?

Table 1. Association of intra-cohort changes in (a)WLEs and WYL by gender.

Female population	(1)	(2)	(3)	(4)
	$\Delta aWLE$	ΔWYL (Retire.)	ΔWYL (Unemp.)	ΔWYL (Inactivity)
ΔWLE	0.989*** (0.009)	-1.007*** (0.100)	-0.107* (0.054)	-0.069 (0.054)
R ²	0.989	0.669	0.124	0.635
Country-cohort obs.	161	161	161	161

Male population	(5)	(6)	(7)	(8)
	$\Delta aWLE$	ΔWYL (Retire.)	ΔWYL (Unemp.)	ΔWYL (Inactivity)
ΔWLE	0.899*** (0.023)	-0.915*** (0.121)	0.016 (0.049)	-0.148 (0.113)
R ²	0.930	0.537	0.046	0.219
Country-cohort obs.	181	181	181	181

Notes: Own calculations. SEs in parentheses are corrected for serial correlation. Models include country- and cohort-fixed-effects and control for the absolute levels of the lagged WLE and dependent variable. Data do not include projected estimates. *p > .05; ***p > .001

Key Findings

- Cohort-level male and female **WLEs have increased** in most European countries
- Adjustments for working hours reveal **even larger gender disparities in WLE** and show smaller gains among women
- Cohort-level male and female **WYL to retirement and inactivity have decreased**
- However, these positive developments **stagnate for Baby boomer cohorts**
- WLE has primarily been gained by cohorts losing **fewer working years to retirement**, and among men to unemployment

References & Acknowledgements

- [1] Christian Dudel, Elke Loichinger, Sebastian Klüsener, Harun Sulak, and Mikko Myrskylä. The Extension of Late Working Life in Germany: Trends, Inequalities, and the East–West Divide. *Demography*, 60(4):1115–1137, 2023.
- [2] Taina Leinonen, Pekka Martikainen, and Mikko Myrskylä. Working Life and Retirement Expectancies at Age 50 by Social Class: Period and Cohort Trends and Projections for Finland. *The Journals of Gerontology: Series B*, 73(2):302–313, 2018.

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