

Parallel ageing

A uniform pace of somatic and reproductive ageing

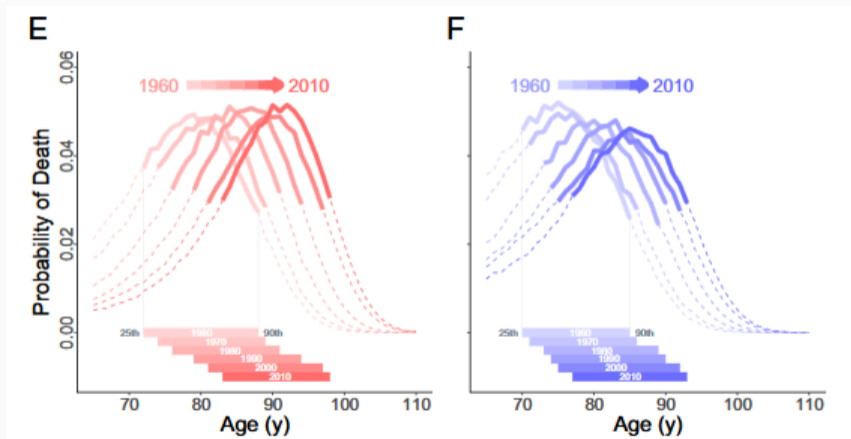
Serena Vigezzi & Annette Baudisch

10th March 2026 - A Unified Perspective on Formation and Dissolution Processes in Demography



CONTINUED POSTPONEMENT OF MORTALITY

Old-age mortality is being continuously postponed



Zuo *et al.* (2018)

WHAT ABOUT FEMALE FERTILITY?

Similarities with mortality

- at the aggregate level
- links at the physiological level

[Gagnon, 2015, Smith et al., 2009, Banerjee et al., 2014]

But known physiological limit

[Raeisi-Dehkordi et al., 2022, Wood, 2017, Eijkemans et al., 2014]

- menopause around age 50
- sterility between ages 40 and 50

RESEARCH QUESTIONS?

Are there similarities in the postponement of mortality and fertility, also considering the shape of the distributions?

How do aggregate fertility trends behave at the approach of a physiological limit?
Can this inform mortality analyses?

DATA AND METHODS

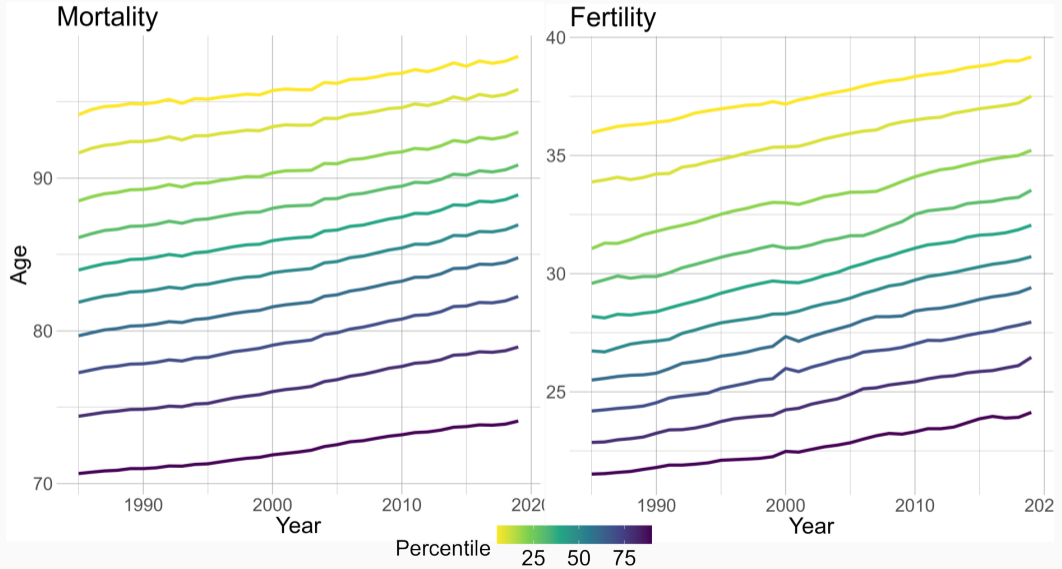
Data from Human Mortality and Fertility Databases (HMD and HFD)

- Only women
- Deaths 65+ and births 20+ (main results hold for higher cut-off ages)
- Period data 1985-2019

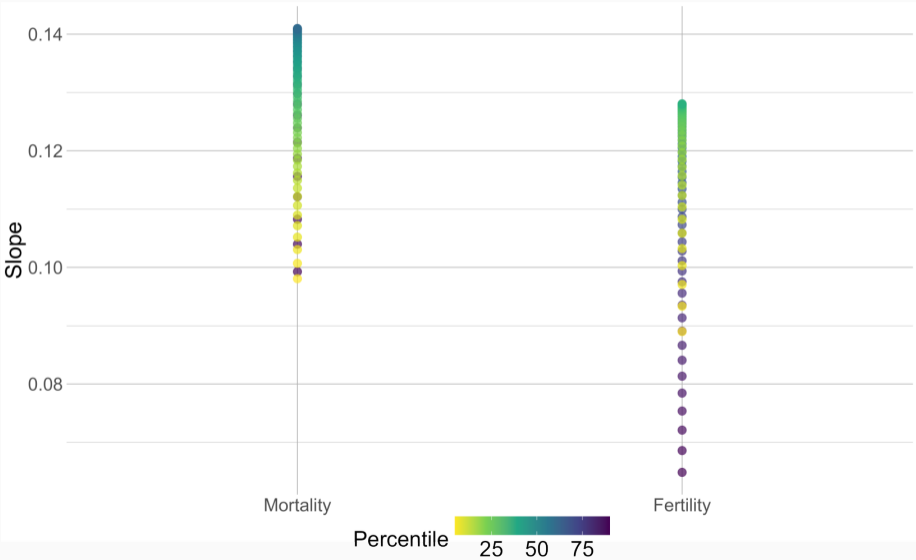
Analyse the shape of the age distributions

- Calculate survival curve → percentile ages
- Average percentile ages across populations → meta-population
- Estimate pace of postponement by percentile for mortality and fertility

PERCENTILE AGES



LINEAR MODEL



PARALLEL AGEING

Similar pace of postponement for mortality and fertility

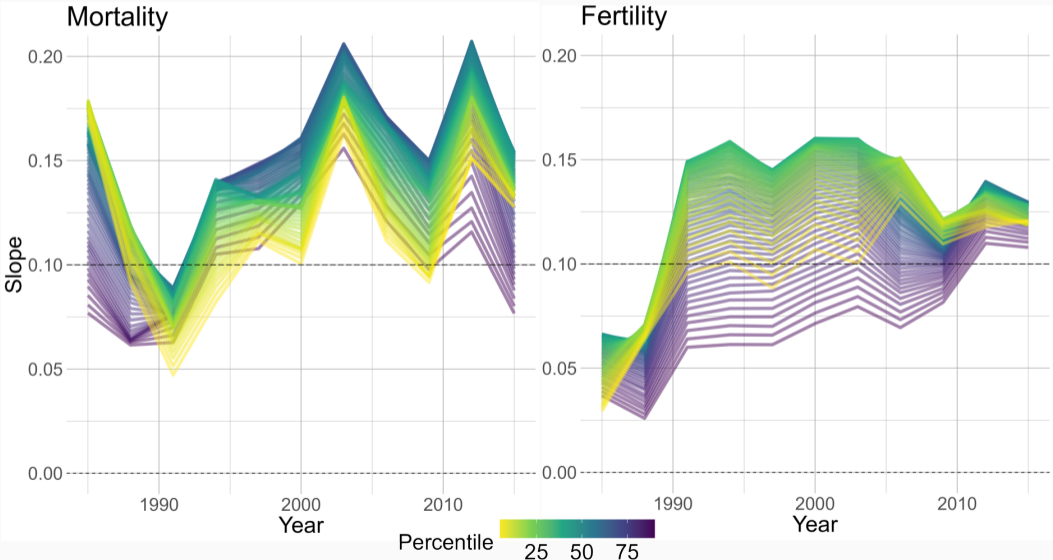
- Slightly faster for mortality → wider age-scale?

Similarities between mortality and fertility postponement

→ despite known differences (physiological and social)

→ common factors or coincidence?

IS THERE A CONTRACTION?



NO IMPENDING LIMIT

Similar pace of postponement across percentiles

- Zuo *et al.*'s hypothesis: no contraction, no impending limit
- Known impending limit to female fertility, but no contraction

Aggregate trends move too slowly to show relatively close limits

→ 100 years to bridge a 10-years-of-age distance

Other aggregate dimensions may be more informative

LIMITATIONS

Age at menopause may be shifting by .1 every year
[Gottschalk et al., 2020, Rödström et al., 2003]

Thank you for the attention!




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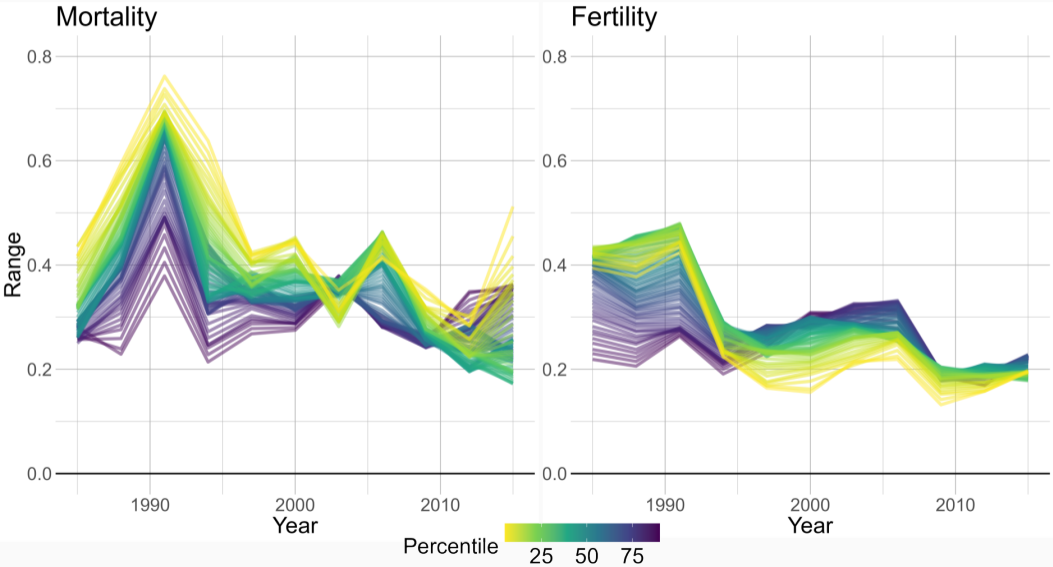
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RANGE OF COEFFICIENTS



RANGE OF COEFFICIENTS

Limit to fertility ageing constrains the *speed* of postponement, not postponement itself

- Convergence of pace of postponement for fertility
- No such convergence for mortality