A comparative perspective on male fertility in 14 high-income countries

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Main contribution

- Time series of age-specific fertility rates (ASFRs) for males for 14 countries
- Will be made available online

Motivation

- Male and female fertility can differ considerably (Schoumaker 2017; Dudel & Klüsener 2016)
- But still lack of studies assessing male fertility (Coleman 2000)
- Partly due to missing values: *Age of father is often not known for a non-negligible number births*

Calculating fertility rates with missing values

Unconditional method (used in the literature)

$$f_x = \frac{B(x) + B(*)P(x)}{N(x)}$$

Conditional method (Dudel & Klüsener 2017)

$$f_x = \frac{B(x) + \sum_{j=\alpha}^{\beta} B(*,j)P(x|j)}{N(x)}$$

Where:

f_x = Age-specific fertility rate
$B(x)$ = Births to fathers aged x
$N(x)$ = Population at risk aged x
$P(x)$ = Proportion of births with father aged x
$P(x|j)$ = Proportion of births with father aged x and mother aged j

Extensive simulations show that the conditional approach outperforms the unconditional approach.

Data sources

- Population exposures: Human Mortality Database (www.mortality.org)
- Birth counts: National statistical offices, NBER
- Birth register data, except for the first years of US data

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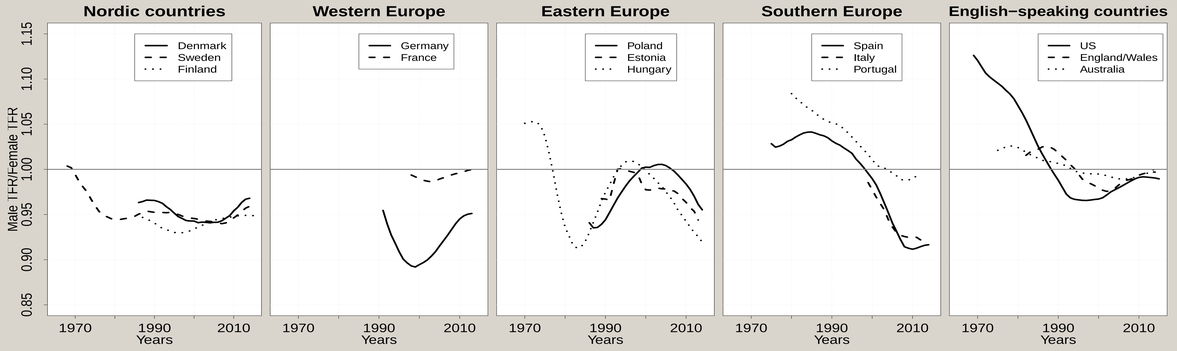
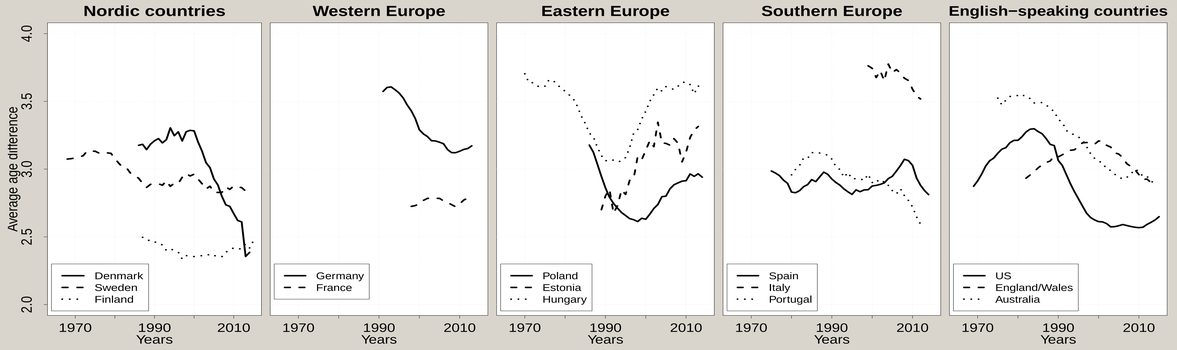
Selected findings: Ratio of male TFR to female TFR



Selected findings: Average age difference between males and females



Potential explanations for TFR ratios

- TFRs for males and females are based on the same total number of births...
- ...but differ with respect to the denominators of the ASFRs
- Two main reasons for differences in denominators: cohort size and migration
- Cohort size, simplified example:
  - Males of cohort c have children with females of cohort c'.
  - Number of births is b, size of male cohort c is n_m, and size of female cohort c' is n_f
  - Birth rates are b/n_m and b/n_f
  - Ratio of male to female birth rate is n_f/n_m
- Migration: Similar reasoning to cohort size
- Other explanations also possible (e.g., war), but unlikely for the countries and years we study

Summary

- In the countries we study, male fertility has mostly been lower than female fertility in recent years
- However, in some countries male fertility has been higher in the past (see also Schoumaker 2017 for present-day examples from Africa)
- Trends in the male-female TFR ratio are somewhat similar within country groups
- At childbirth, males are on average three years older than females
- Trends in the age difference at childbirth are heterogeneous and show variability within country groups

Our previous papers on this topic:
Dudel, C., Klüsener, S. (2016). Estimating male fertility in eastern and western Germany since 1991: A new lowest low? Demographic Research 35: 1549-1562.
Dudel, C., Klüsener, S. (2017). Estimating male fertility from vital registration data with missing values. Forthcoming in Population Studies, available as MPIDR working paper.

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