Socio-economic status and fertility in an urban context in the late 19th c. A linked records study from Tartu

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Theoretical considerations

- Historical fertility decline has long been a major research focus in historical demography
- The framework for explaining fertility decline distinguishes between two broad concepts of behavioural change: 'innovation' and 'adjustment'
  - **Adjustment perspective**: changing behaviour in new circumstances and a greater motivation to limit family size
  - **Innovation perspective**: diffusion of new knowledge and social acceptability of fertility control
- Number of studies highlight the emergence of significant differences in fertility between social groups during the transition.

Fertility transition in Estonia

- Estonia was among the early adopters of modern fertility behaviour.
- Family limitation began with the cohorts of women born in the 1830s and 1840s – from the 1850s and 1860s in period terms (Gortfelder & Puur, 2019a; Katus 1994).
- Previous work has suggested that Tartu and the other urban areas were among the forerunners of this development.
- Little is known about socio-economic differences in fertility during the demographic transition in Estonia.

Motivation

- Our aim is to investigate changes in fertility and the influence of socio-economic status on marital fertility in an urban population in the late 19^{th} c.

- The main contributions to the existing literature:
  - Extending the evidence regarding historical fertility differentials by social status beyond Western Europe and North America.
  - This study focusses on fertility in an urban areas, whereas most case studies have dealt with rural settings.
  - Utilising different data sources and combination of methods (cross-sectional and event-history approach).

Data

- Combination of data sources:
  - Individual-level records of 1867 and 1897 census in Tartu
  - Baptism and burial registers for all the Lutheran parishes, 1897–1899.
- We limit the study only to Lutheran population, who comprised the largest religious group in Tartu (84% in 1897)

Methods: cross-sectional approach

- Own-child method to estimate the level of fertility
  - a. 1867 census
  - b. 1897 census
- Linear regression - SES differences in net fertility
  - Study sample: women aged 15–49 with spouse present
  - Dependent variable: number of children below the age of 5
  - Variables of interest: socio-economic status, education & place of birth

Results: cross-sectional approach I

Table 1:Total marital fertility rates (TMFR20) for married women aged 20 to 49, Tartu

	1862-1867	**1892-1897**
Tartu (overall)	6.04	5.20
Lutheran population	6.91	5.23

Comparison at the end of the century: Oxford 6.9, Cambridge 6.3, Rostock 5.7, Stockholm 6.0, London 6.0.

Results: cross-sectional approach II

Table 2:Linear regression results of net marital fertility, 1897, Tartu

	coef	**p-value**
Husband's social class		
Elite and sales	Ref.	
Professional	0.15	0.022
Skilled manual	0.13	0.001
Service personnel	0.03	0.607
Unskilled manual	0.13	0.001
Woman's education		
Primary	Ref.	
Secondary	-0.03	0.536
Woman's place of birth		
Tartu	Ref.	
Tartu county	-0.03	0.396
Estonia	-0.05	0.283
Abroad	-0.04	0.508
R-squared	0.13	0.000
N of women	3718	

Methods: event-history approach

- Discrete-time event history analysis to examine the occurrence of a subsequent birth
- Study sample: Only mothers and younger than 45 and last child was born during 3 years prior to the census
- Follow up time: birth year of the youngest child alive in the census
- Analysis time lasts until the birth of the next child or censoring event: i) death of the woman; ii) death of the husband; iii) the year 1900
- In order to study differences across parity progression, 4 subsamples:
  - i) all mothers
  - ii) mothers with 1 child
  - iii) mothers with 2 children
  - iv) mothers with 3 or more children

Results: event-history approach

Table 3:Discrete-time event history models, the probability of another birth

	All	**1→2**	**2→3**	**3+→n**
Husband's social class				
Elite and sales	Ref.	Ref.	Ref.	Ref.
Professional	*1.42*	0.77	*2.27*	*1.95*
Skilled manual	1.45*	1.09	*1.42*	1.98*
Service personnel	1.24	1.10	1.18	0.99
Unskilled manual	0.91	0.70	0.84	1.32
Woman's education				
Primary	Ref.	Ref.	Ref.	Ref.
Secondary	0.86	0.84	0.66	0.99
Woman's place of birth				
Tartu	Ref.	Ref.	Ref.	Ref.
Tartu county	1.17	0.85	1.21	1.81*
Estonia	1.35†	1.26	1.58	1.42
Abroad	0.69	0.88	0.46	0.77
N of women	1255	373	365	517

Notes: †$p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Conclusions

- Fertility levels in Tartu were declining in the second half of the 19^{th} c.
- We find considerable socio-economic differences in fertility in Tartu at the time, bearing in mind that it was a relatively small town, in which social stratification might have not been as pronounced
  - Women married to men in the highest social group demonstrated lower level of fertility than other groups.
  - Surprisingly, women married to professionals (i.e. teachers, lecturers, doctors, officials etc.) had the highest fertility in town, together with women married to skilled manual labourers.
- There is no evidence that women's level of education affected fertility in late-nineteenth-century Tartu.