Social differences in fertility transition in rural Estonia, birth cohorts 1820–1879.

Hannaliis Jaadla, Kersti Lust, Mark Gortfelder, Martin Klesment

Background

Estonia was among the forerunners of the fertility transition in Europe, with fertility declines occurring already for cohorts born before 1840. Prior research on historical fertility change in Estonia has highlighted that the early phases of fertility decline were not driven by parity-specific control. Instead, the national-level evidence indicates parallel declines across all parities, which has been characterised in the demographic literature as non-parity specific stopping or parity-independent curtailment (Gortfelder and Puur, 2019). While overall, national-level patterns have been documented, we know much less in the Estonian and Eastern-European context about socio-economic status (SES) differences in fertility and how these patterns changed during the demographic transition in these settings. Much of our understanding of the demographic transition still draws on Western and Northern European experiences of it, and in this way, this study fills an important gap in understanding the heterogeneity of transitions from the Eastern European perspective.

Already in 17th and 18th century pre-transitional Europe, there were considerable differences in fertility by socio-economic status, mainly influenced by age at first marriage and differences in levels of singlehood. In general, higher social groups tended to have larger families than lower social groups, but these differences were often not large or even constant over time and might have changed (Skirbekk, 2008). Possibilities for social mobility and overall prospects for offspring were limited by the possession of land and other resources in traditional rural societies (Knodel 1988). Therefore, within the context of European Marriage Pattern it was easier to set up new households and marry for higher social classes, whereas, lower social classes often had wait longer to get married, which in turn influenced fertility patterns (Alter, Neven and Oris, 2010).

Social differences in fertility emerged much more clearly during the demographic transition period, but in the opposite direction with urban elites and upper middle classes experiencing changes in their fertility behaviour first and rural farmers and agricultural labourers tending to lag behind (Dribe et al 2014a; Jaadla et al 2020). The slow emergence of modern fertility behaviour among the latter group was not reducible to fewer opportunities, networks and less awareness of family planning but purely from an economic perspective, the readiness and willingness of farmers and farm labourers remained limited until much later in the fertility transition. In the rural setting of Northern and Western Europe, farmers, compared to labourers in rural society, usually started to have smaller families earlier (Dribe et al 2014b).

This paper will use a novel family reconstitution dataset based on parish registers, "soul revisions" and civil records of migrants for two rural parishes in Estonia from 1826 to 1926 to study two aspects of fertility change. Our aim is to analyse (1) how SES differences in fertility and modes of reduction by SES change over this period; and (2) the contributions of different modes of fertility reduction — delayed starting, earlier stopping, spacing and childlessness — influenced the overall change in the mean number of children.

Data and methods

Our study is based on individual-level data that combines birth, marriage and death registers of Lutheran and Orthodox churches in Helme and Paistu parishes in southern Estonia. We also use listings of migrants and marriage records to identify in and out migrants to these parishes. The area of our study includes seven neighbouring manors in Helme and another manor in Paistu. Based on the1834 poll-tax list or 'soul revision' the number of people living in those communities in Helme was 4,704 and 2,550 in Holstre parish in Paistu.

In order to analyse changes in fertility behaviour our analytical sample includes women who were born between 1820 and 1879 and who married in these two parishes and whose full fertility histories between the ages of 15 to 49 can be followed. Our selection criteria is similar to ones previously used when analysing family reconstitution data (Alter, Newton and Oeppen, 2020).

Our aim is to use a mixture cure regression model that will allow us to differentiate between timing and quantum of fertility and to estimate the effect of socio-economic status and other control variables on stopping and spacing. Based on father's and husband's occupations listed in parish registers, the SES is divided into two larger groups: (1) farmers and (2) landless agricultural labourers. A small share of the population were also skilled labourers.

Table 1 below shows the size of our analytical sample, 69% of the women were married to landless agricultural labourers and only 24% married to landholding farmers. The region in Southern Estonia had slightly larger share of landless population – because of much higher population density and larger farmsteads. Nevertheless, the majority of population across rural Estonia were landless during the 19th century.

Table 1. Analytical sample of women, aged 15–49, by birth cohorts, parish and socio-economic status

	1820–29	**1830–39**	**1840–49**	**1850–59**	**1860–69**	**1870–79**
Parish:						
Helme	129	223	183	263	359	293
Holstre	103	97	104	114	134	103
SES						
Farmers	51	87	81	96	111	62
Landless labourers	172	212	179	229	323	266
Skilled labourers and other	7	14	25	34	29	39
Total	232	320	287	377	493	396

Preliminary results

Descriptive results indicate that clear social and local differences in fertility emerged for almost all birth cohorts. In the initial phase of the demographic transition, the SES differences in fertility between the farmers and the landless group (i.e. agricultural workers) declined primarily because farmers' families began to intensively limit their fertility. Figure 1 shows this clearly, before the demographic transition, farmers' wives had on average two more children (5.9 to 6.7) than landless labourers (4.3 to 4.4). However for the 1860s-1870s birth cohorts the fertility levels were the same. Families of farmers contributed the most to the levelling of the gap, the average total number of children for them fell from 6.7 to 3.3, while the landless population had on an average of 1.2 fewer children compared to earlier birth cohorts, i.e. 3.2 instead of 4.4.

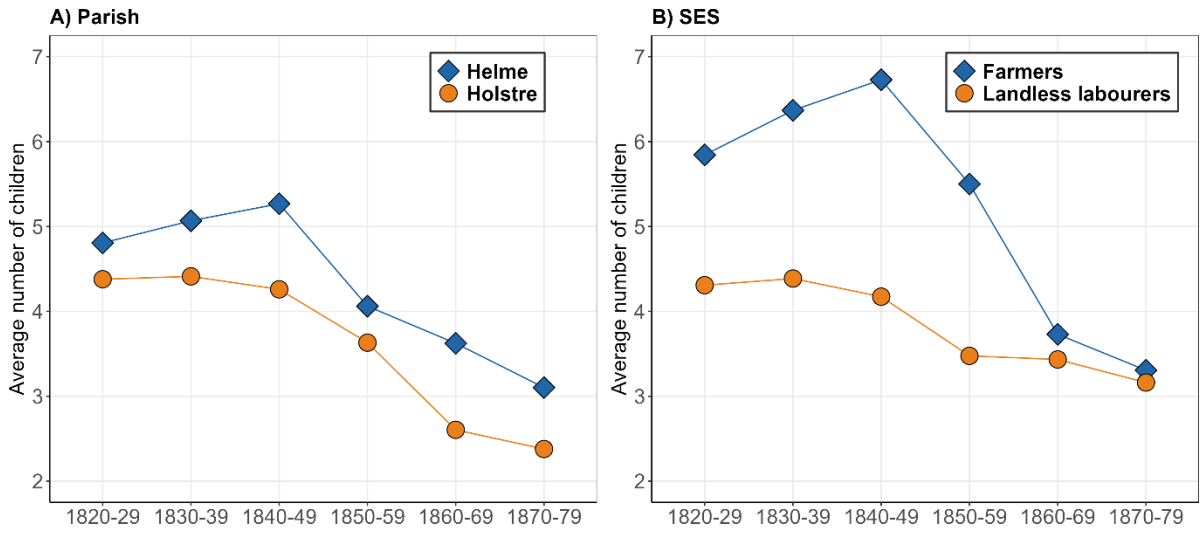

Figure 1. Average number of children by parish and SES, birth cohorts 1820–1879

The changes in fertility are also very clearly illustrated by parity progression ratios (PPR) in Figure 2. They show SES differences in the probability of having the next child depending on the number of previous births. For example, farmers' wives with one or two children had a very high probability of having another child (1→2, 2→3, 92–95%). The PPRs of the landless population were lower at every step, even the probability of having a second child is less than 90%. From the 1850–59 birth cohort the probability of a subsequent birth declines at all parities and for both farmers and landless population. However, parity-specific or "selective" fertility behaviour occurs somewhat later in Estonia. Gortfelder and Puur (2019) show that the preference for the two-child family model emerges in the 1890s birth cohorts at the national-level in Estonia. We do not yet observe such fertility behaviour among the observed Helme and Holstre women.

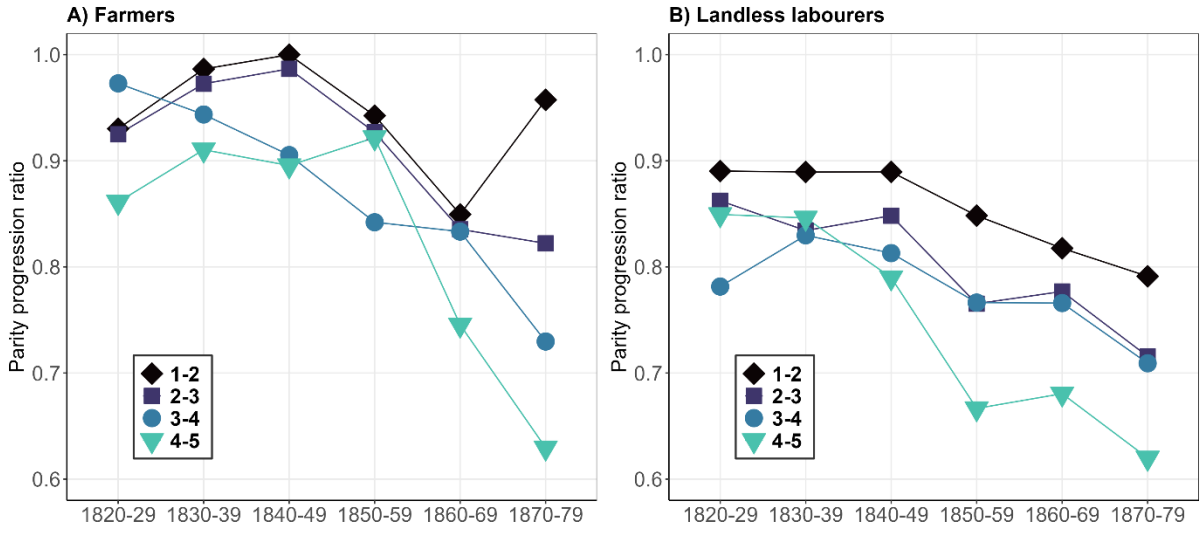

Figure 2. Parity progression ratios by parish and SES, birth cohorts 1820–1879

In these two rural communities, the fertility behaviour of different social groups started to become more similar over the course of the transition. Farmers' wives married later than before, and wives of landless labourers married a little earlier, which were distinct from patterns seen in Western European context (See Figure 3 below). The descriptive results indicate that the decline in fertility emerging from 1850s to 1870s birth cohorts was influenced by both earlier stopping in

childbearing (age at last birth declines from over 38 to only 34–35 in later cohorts for both social groups) but also in changes in birth intervals (increasing birth intervals over time) and the postponement of age at first birth for farmers' wives.

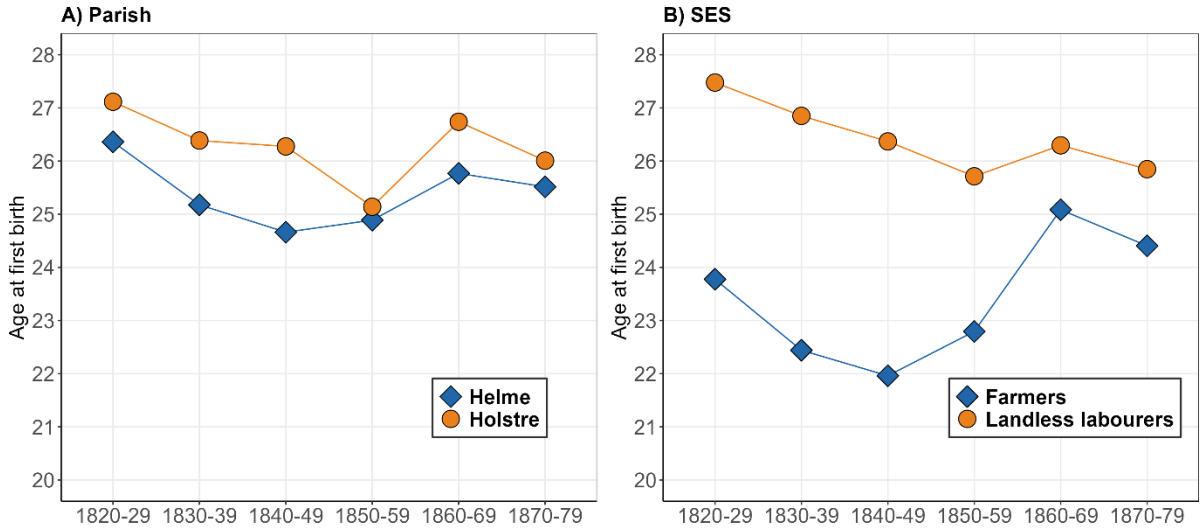

Figure 3. Average age at first birth by parish and SES, birth cohorts 1820–1879

These preliminary results highlight how the demographic transition resulted in a convergence of fertility levels between higher- and lower-SES rural populations; yet the pathways to fertility reductions varied across social groups. They also indicate how the SES gradient changed over the course of the transition. In our next steps, we will estimate the mixture cure models to characterize these changed patterns of fertility behaviours and contextualise these patterns against the broader national-level patterns within the demographic transition in Estonia, as well as in contrast to Northern and Western European experiences.

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