The Baptism-Birth Time Gap and Infant Mortality Rate in Ekaterinburg around 1900

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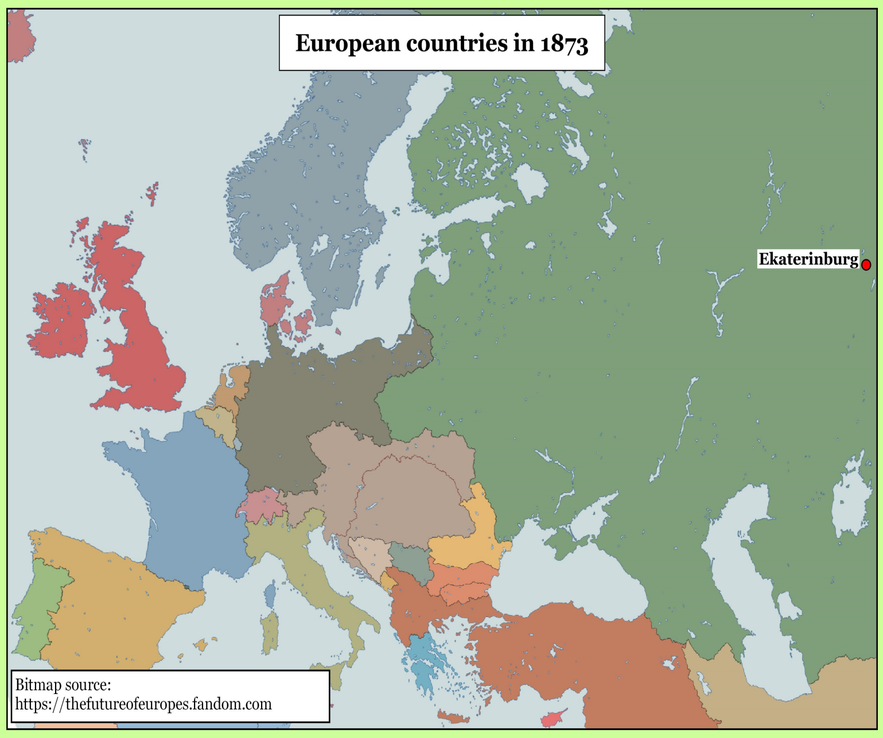
Research problem

This paper presents preliminary results of the research project «Spatial Analysis of Child Mortality in the late 19th and early 20th century Urals». It focuses on the high infant mortality in Ekaterinburg city (Urals, Russia) around 1900, with around 300‰ among the Russian Orthodox Church members. We assume that the birth-baptism time gap influenced the IMR among other factors. The paper aims to reveal any connection between early baptism and high IMR in Ekaterinburg.

"The Baptismal Ceremony", Tupylev 1800

Ekaterinburg: geographic and medical setting

Ekaterinburg, then and now, is the leading city of Ural region which is great historical and geographical area between Europe and Asia named after the Ural mountains. It was the economic capital of the huge Perm' province, and one of the most important cities in Asian Russia around 1900 with the Ural mining and metal production headquarter, as well as a key railway hub and social modernization driver. The demography of Ekaterinburg was developing extremely fast: the number of city dwellers increased from 37 309 in 1887 to 103 265 in 1912 mostly due to in-migration. Urbanization decreased infant mortality in the city, which was bad originally. Towards the end of 19th century, Russia had the first position among European countries in terms of infant mortality rates with 250‰; and Perm' province was the worst in European Russia with around 425‰. Ekaterinburg's population in 1889–1919 had somewhat better rates –352‰ as overall rate and 284‰ for burials linked to baptism records. Many factors influenced this situation, including bad sanitation, poor medical services and inadequate breast-feeding and other infant care practices. One of them we assume was the extremely short birth-baptism time gap – understudied thing in Russian historical demography despite European researchers [Berry and Schofield 1971; Dewhurst, Hinde 1996; Gourdon 2006; Minello, Dalla-Zuanna & Alfani 2017].



Data

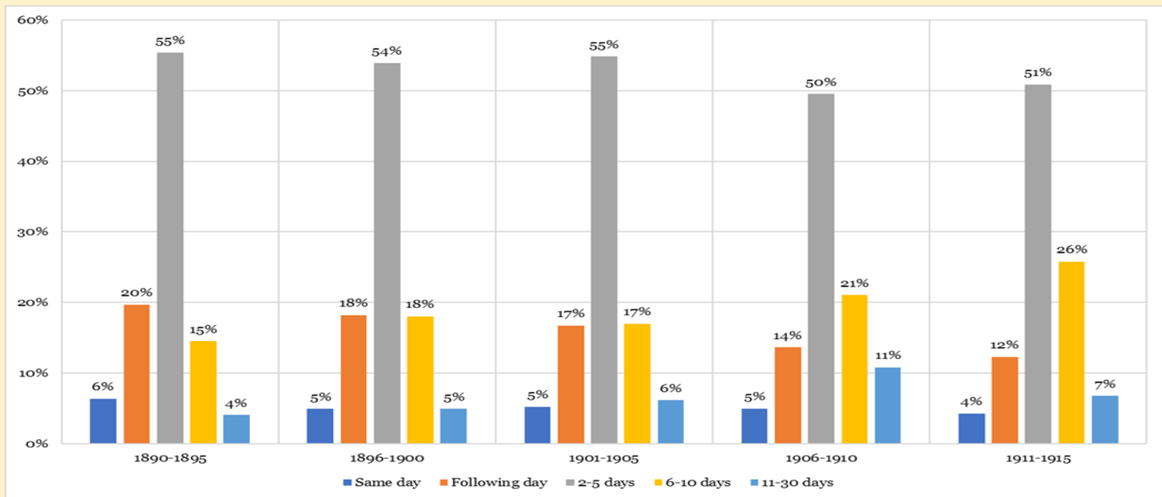
We use an individual-nominative linked database of 7 814 births/baptisms and 2 266 deaths/burials of the Ascension Church parish in Ekaterinburg from 1889 to 1917, transcribed from the church records into the Ural Population Project (UraPP) database.

The Ascension Church of Ekaterinburg in the end of 19th century

Results

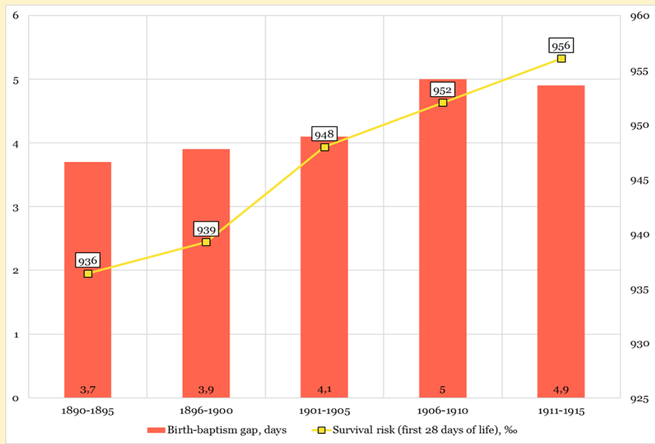
The UraPP data analysis allowed us to find out that the Ascension Church parish members birth-baptism time gap was mostly 2–5 days during the 25 years around 1900.

Birth-baptism time gap in the Ascension Church parish of Ekaterinburg (Perm' province, Russia), 1890–1915 (% of baptisms)



In spite of a generally stable level over the period, we can highlight some positive trends. First, the extremely short baptisms' share is obviously decreasing: from 6 to 4 % for same day baptisms and from 20 to 12 % for the following day. Second, a serious growth of the 6–10 days (later and safer) before baptism was noticed These are signs of improving child care practices.

Neonatal mortality and birth-baptism time gap in the Ascension Church parish of Ekaterinburg (Perm' province, Russia), 1890–1915



We next attempt to see the relation between birth-baptism interval dynamics and neonatal mortality. However, at the present stage of research it is difficult to provide a complicated regression model for our database since our data includes too many small identical values because of the common short birth-baptism period. Therefore, we use the quartiles method.

Quartile intervals for birth-baptism time gap, in days

25 %	50%	75%	Semi-inter quartile range
1	2	6	4

Mortality rates for babies during 28 days after baptism,

	1	2	3	4
Mortality rate	190	67	42	31

Mortality rates for the quartiles groups cannot give us strong statistical evidence that a significant relation exists, but can be used as extra evidence. Thus, the serious and obvious differences between the groups reinforces our hypothesis about a connection between early infant mortality and a short birth-baptism time gap, which is usually based only on common sense.

Conclusion

The data we analyze in this paper allow us to make some general conclusions. Ekaterinburg's (and probably the Russian) population around 1900 practiced extremely short birth-baptism time gaps: almost 70% of the babies were still baptized during the first week of their life in the beginning of the 20th century. We find a weak but stable improvement, when baptisms time gaps were gradually increased. Also, quartile group analysis showed clear differences between the mortality risks of infants baptized early and later. This result demonstrates a connection and gives the basis for further research into the causes.

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