

Demographic features of industrial serfs in the 18th-19th centuries: parish registers of the village of Kudinovo in the Bogorodsky district, 1777-1862

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Abstract: *The author uses parish registers of Kudinovo in the Moscow region as a source of information about the demographics of serfs employed in industrial production of textiles and bricks. The neighboring parish of Biserovo, with state peasants and no industrial facilities, is used for comparison. Nearly all demographics of industrial serfs are higher than those of their free neighbors. Industrial serfs married earlier, wedded younger women, had more sons surviving to adulthood, and their population grew by a third faster despite lower adult life expectancy. Economic protection by the nobility, most notably their exemption from income tax, allowed many peasants to run their own business and then move into the merchant class.*

Keywords: *Russia, historical demography, marriages, births, deaths, parish registers, eighteenth century, nineteenth century, industrialization, peasants.*

Acknowledgments: *To my teacher Vladimir Nikolaevich Gorlov (1939-2016), an expert on the economics and geography of Russian industry, associate professor at Moscow State University, grandson of an Orekhovo-Zuevo weaver.*

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Introduction

Analyzing the demographic processes of the past is important for understanding the driving mechanisms of population dynamics, testing and correcting relevant theories and hypotheses, and shaping effective demographic policy that takes into account the historical and cultural characteristics of the population. By using long time series of demographic indicators, we can draw unbiased conclusions about the general socio-economic and cultural trajectory of individual communities, territories and countries.

Modern sources of demographic statistics are data from registry offices, population censuses and targeted research. Works on historical demography, as a rule, are based on individual lists of the population - a description of the sex, age and family structure at a certain date. The sources of continuous time series are parish registers and databases created on their basis, which can additionally rely on any other references to people and events in their lives. In foreign, primarily European, practice, such databases have long been extensively used in historical and demographic research.

In Russia, for a long time, only highly aggregated indicators obtained from parish registers, collected by statistical authorities since the middle of the 19th century, were available for scientific use. Work with primary sources of information was hampered by the restrictive nature of Soviet and later Russian archives, the unreadiness to use automatic data processing methods, and the almost complete lack of state funding for this important area of science (Vladimirov, Sarafanov, Shchetinina 2019). Among the few completed and published Russian studies based on a continuous array of parish registers it is worth noting works on the Vykhino estate of the Sheremetevs in the Moscow district in 1815-1917 (Avdeev, Troitskaia, Blum 2004) and on the Intercession parish of Barnaul in 1877-1886 (Vinnik 2012), as well as the author's work on three parishes in geographically different parts of European Russia in 1758-1862 (Ryazanov 2021). The latter revealed a large spatial difference of demographic indicators depending on local socio-cultural characteristics, with common features of long-term dynamics from the mid-18th to the mid-19th centuries: the postponement of marriage and the decrease in fertility amid an increase in mortality of both the child and adult population.

In a detailed review of long-term demographic studies of the Skåne region in southern Sweden, Lund University researchers T. Bengtsson and M. Dribe (Bengtsson, Dribe 2021: 80) came to similar conclusions. The population of this territory in the 18th and 19th centuries experienced a mass postponement of marriages, the impossibility for many of creating a family, and a decrease in fertility with high mortality. An article about the sad pages of the demographic history of their country, which don't really fit the classical theory of demographic transition, which assumes a decrease in fertility as a reaction to a decrease in child mortality (Vishnevsky 2006: 9), was called by the authors "The Long Road to Health and Prosperity". The reason for the crisis was the "downward" social mobility of the bulk of the rural population as the grain export economy progressed.

The demographic problems of traditional rural communities as a result of the development of a market economy were also noted in Russia, where works in this area of study mainly used the figures of the second half of the 19th century (Vishnevsky 2006: 18). The keen interest in this period in Soviet and post-Soviet historiography and demography is related to the fact that it preceded the revolution of 1917. Attention to the demography of an earlier era, before the abolition of serfdom, was associated with attempts to estimate the population dynamics of the serfs. The large body of works in this area relied only on the data of revision lists

and led to a consensus on the demographic decline of the serf population before 1861 due to "landlord exploitation" (Perkovsky 1977). This conclusion correlated well with the official political guidelines of the pre-revolutionary, Soviet and early post-Soviet years (personal freedom as an undoubted good), but ignored, for example, the ultra-high (2-3% per year) natural increase of slaves in the United States in the first half of the 19th century (U.S. Census ... 1870: 7).

One of the key components of the classical theory of demographic transition is urbanization, which in the 18th and 19th centuries was usually associated with the development of industry and trade. In Russia at that time, the share of the urban population, according to revision data, was small, 7-8% in 1811 and 1856 (Rashin 1956). As we will see below, even these small figures are most likely overstated. Industrial activity during that period was concentrated mainly in rural areas (Stolbov 2013). So, this work is devoted to the study of the demographic indicators of the rural industrial serf population.

Information sources

The basis of the present research is parish registers of two neighboring churches of the Bogorodsky district of the Moscow province in 1777-1862: one of Biserovo and one of Kudinovo. The focus of this work is the parish in Kudinovo, while the adjacent parish of Biserovo, discussed in detail in an earlier article by the author (Ryazanov 2021), is used for comparison. The fundamental difference between the populations of the two adjacent parishes was the class of the inhabitants (state peasants in Biserovo, serfs in Kudinovo), as well as the presence of industrial enterprises in the Kudinovo parish that were significant for that time, and not just home handicraft production (table).

Industry in the infertile eastern part of the Moscow outskirts emerged as an additional source of income for the local population, which became especially important starting in the mid-1760s¹. Thanks to easily accessible clay layers, brick and then faience production was developed in Kudinovo (Lyubavin 2010). In 1770, in the village of Kamenka of the same parish, landowner M.G. Okulov built a textile factory (Lyubavin 2004). The progress of local production was facilitated by the renaissance of construction and trade in Moscow with an increased attention to the city after the plague and riots of 1770-1772². The industrial development of Kudinovo continued well beyond the period under review. In 1908 the first carbon black plant in the country was built nearby, and in 1956 most of the former villages of the parish became the city of Elektrougli. Now the entire area of interest is a part of the Bogorodsky urban district (formerly the Noginsk district).

¹ In 1766, the government of Catherine II reduced export duties on grain, which led to a doubling of bread prices in 10 years (Mironov 1985:48). In regions with low yields, this caused a sharp drop in living standards, leading, already in 1767, to the legalization of cottage weaving, with which peasants could support themselves.

² Major construction projects of that time were the Tsaritsyno estate, the Mytishchi water pipeline, the University on Mokhovaya, the Petrovsky Travel Palace, Demidov's house, Pashkov's house and the house of Yushkov, the owner of two Kudinovo villages. At the same time, the Great Broadcloth factory near the Stone Bridge, from which the plague epidemic began, fell into decay, giving the market to private manufactories.

Table. Information about the parishes studied

	Biserovo	Kudinovo
Parish church	Church of the Epiphany	Church of the Intercession of the Mother of God
Years of skipped parish registers	1780, 1782, 1799, 1801, 1803, 1805, 1809, 1812, 1814, 1820, 1826, 1828, 1829, 1857-1859	1780, 1782, 1801, 1803, 1805
Birth records, total	3952	7859
Marriage records, total	786	1560
Death records, total	2878	5217
Parish composition	State peasants	Landlord peasants
Reference lists of the population	RL 1773, 1811-1858, HC 1869 + CR 1786 и 1799 For Biserovo, Novaya, Chernaya and Vishnyakovo	RL 1816 (all), 1834 (part), 1850 (all) + CR 1786, 1804, 1828, 1833, 1860 For Kudinovo, Belaya, Cherepkovo, Sokolovo (Bykovo), Isakovo, Safonovo, Vasilievo, Kamenka with offshoot settlements
Local geography of the parish	The village on Biserovo Lake, villages on Vladimir and Nosovikhinsky tracts	Villages around the Nosovikhinsky tract, the village to the north of it
Population growth rate per year in 1786-1860, %	0.88	1.17

Note: RL - revision list, HC - household census, CR - confession register.

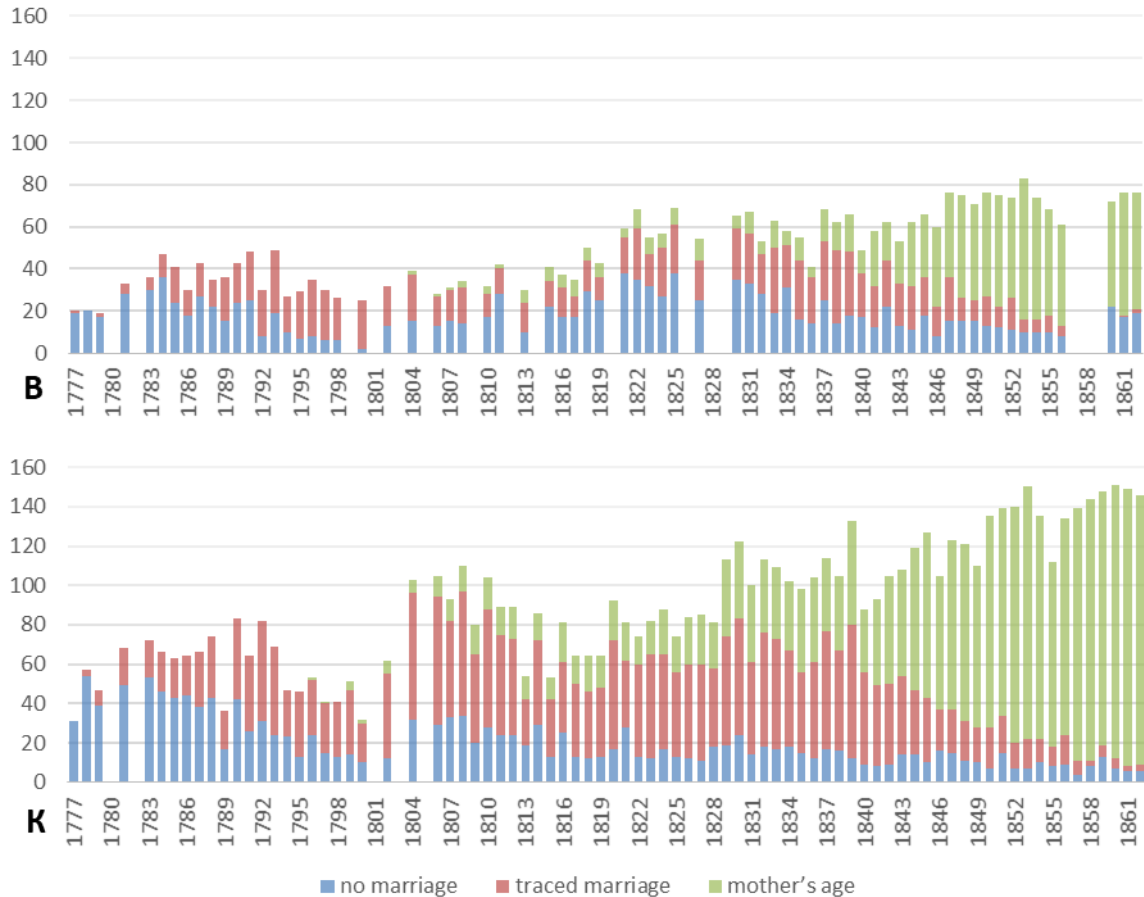
The parish of Biserovo included the former possessions of the Moscow Spaso-Andronikov Monastery, one of whose villages (Vishnyakovo) was surrounded by the twice as large parish of Kudinovo. Despite this, before the provincial reform of 1775, they belonged to different *stany* of the Moscow district (the parish of Kudinovo to Kamensky, and the entire estate of Biserovo to Pochernev). At the end of the 1810s, the northern part was separated from the Kudinovo parish (not considered in this study), and by the middle of the century new settlements were founded within it. The large number and frequent change of owners of villages in the parish of Kudinovo make it very difficult to form a reference set of lists of the population according to revision lists; for this, confessional registers were used along with revisions.

The methods of studying parish registers were described in the author's previous work (Ryazanov 2021) and remained unchanged for this study. Automatic data processing (the search for links between the three parts of parish registers using Excel formulas) with manual verification through population lists was applied³. This made it possible to correct errors and determine the exact age of newlyweds (Figure 1) and the names of mothers in years when these details were not yet mandatory for Bogorodsk parish registers (until 1839 and 1830, respectively), as well as to prove the reliability of marriage records as early as the end of the 18th century (according to the share of children whose parents' marriage was traced in the registers).

³ So, to determine the exact age of newlyweds, the formulas look for the number of newborns in part 1 of the register of the appropriate age, place of birth, first name and patronymic, for which there were no records of death in childhood in part 3 and there is no marriage mark yet. The author manually checked the records found for compliance with information about the parents of the newlyweds, if any, with simultaneous verification through revisions to exclude persons of the same name, and only in the case of an unambiguous correspondence made a marriage mark.

All source materials (databases of parish registers and lists of the population) are posted by the author in the public domain on the All-Russian Genealogical Tree portal⁴.

Figure 1. The number of newborns by years and information about the marriage of their parents (including those where the age of the bride is known) in Biserovo (B) and Kudino (K), persons



Source: Author's calculations.

Marriages

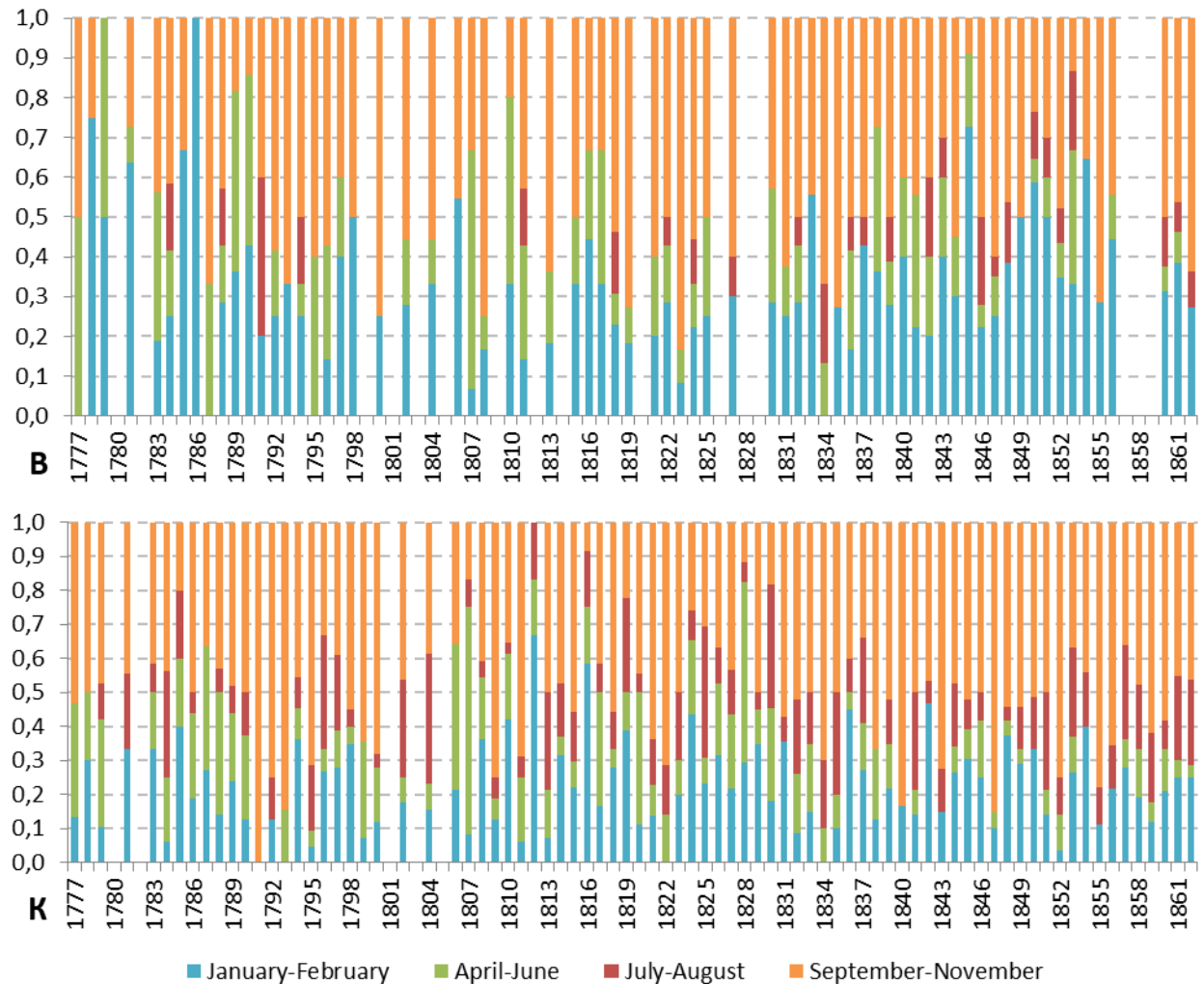
An analysis of the seasonality of weddings (Figure 2) already shows clear differences between the two parishes. Each of the marriage seasons between multi-day Orthodox fasts⁵ had advantages and disadvantages for the rural population, which were determined by the proximity of the fasts and the strictness of their observance, the cycle of labor-consuming agricultural work and the related amount of food stocks in households. In Kudino, autumn and even summer marriages were popular, while in Biserovo, over time, weddings increasingly took place at the beginning of the year. The seasonality of the brick industry was the opposite to that of agriculture – the inhabitants of Kudino dug clay in the winter, while bricks were produced in the summer (Lyubavin 2010). This explains the low popularity of winter marriages and the relatively large

⁴ <https://vgd.ru/>

⁵ According to the rules of the Church, weddings are performed in four periods: in the winter from Epiphany to the beginning of Shrovetide, in the spring from the end of Holy Week to the beginning of St Peter's Fast, in the summer from the day of Peter and Paul to the beginning of the Dormition Fast, in the fall from the Dormition of the Mother of God to the beginning of the Nativity Fast.

number of weddings in summer, when the agrarian population was reluctant to marry. Winter marriages added working women to the families before the agricultural season, but for the industrial population this was not so important, so weddings in Kudino tended towards the well-stocked autumn off-season.

Figure 2. Seasonal distribution of weddings in Biserovo (B) and Kudino (K) by years, shares of 1

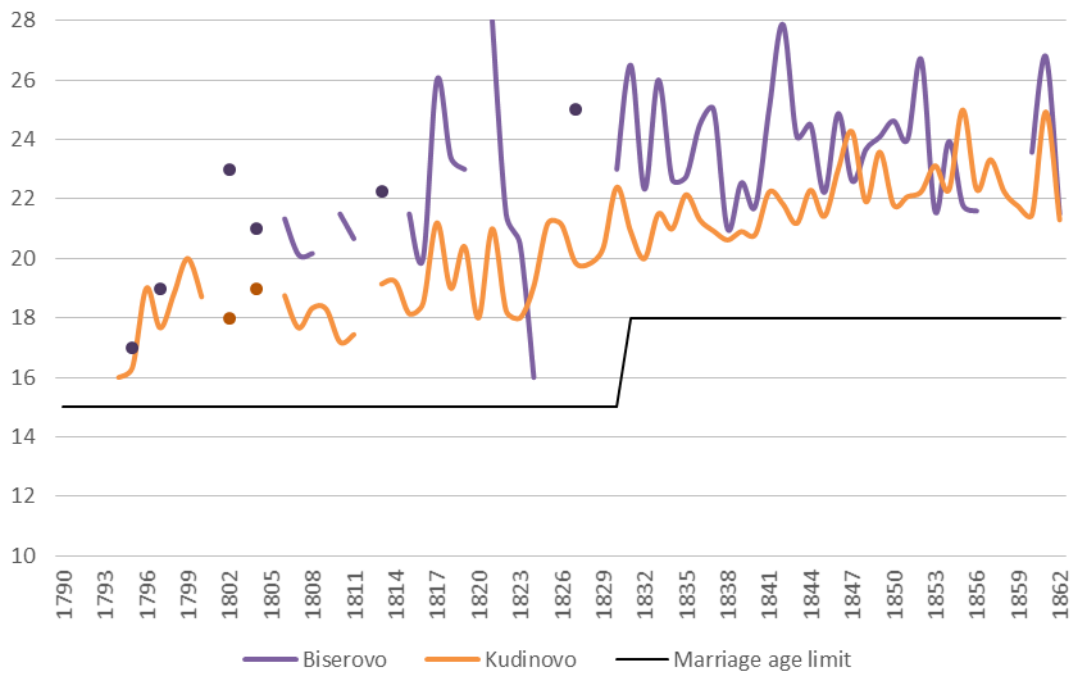


Source: Author's calculations.

The age of men at first marriage (Figure 3) in Kudino was 2-3 years lower than in Biserovo for almost the entire period reviewed, excluding the end of the 18th century. However, even at that time, the average age of the first wedding of young men in both parishes was noticeably higher than the minimum allowed (15 years). By the middle of the 19th century, first-time grooms in Kudino had become 4.5 years older, while in Biserovo they were 6.5 years older, and in some years the average age of the grooms there was close to 30.

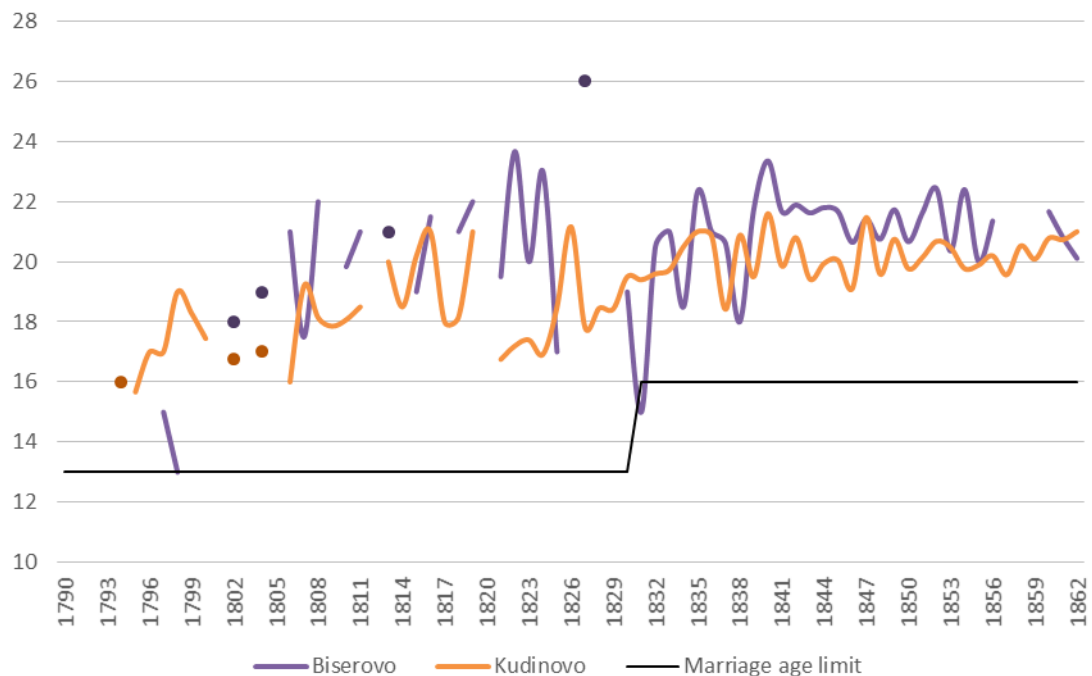
The increasing postponement of first marriages occurred in Kudino only in the 1820s-1830s, while in Biserovo it began much earlier and lasted several decades. Kudino's indicators are in good relation with figures of the Vykhino estate (Avdeev, Troitskaia, Blum 2004).

Figure 3. Average age at first marriage for men and minimum age of marriage by years, years



Source: Author's calculations.

Figure 4. Average age at first marriage for women and minimum age of marriage by years, years

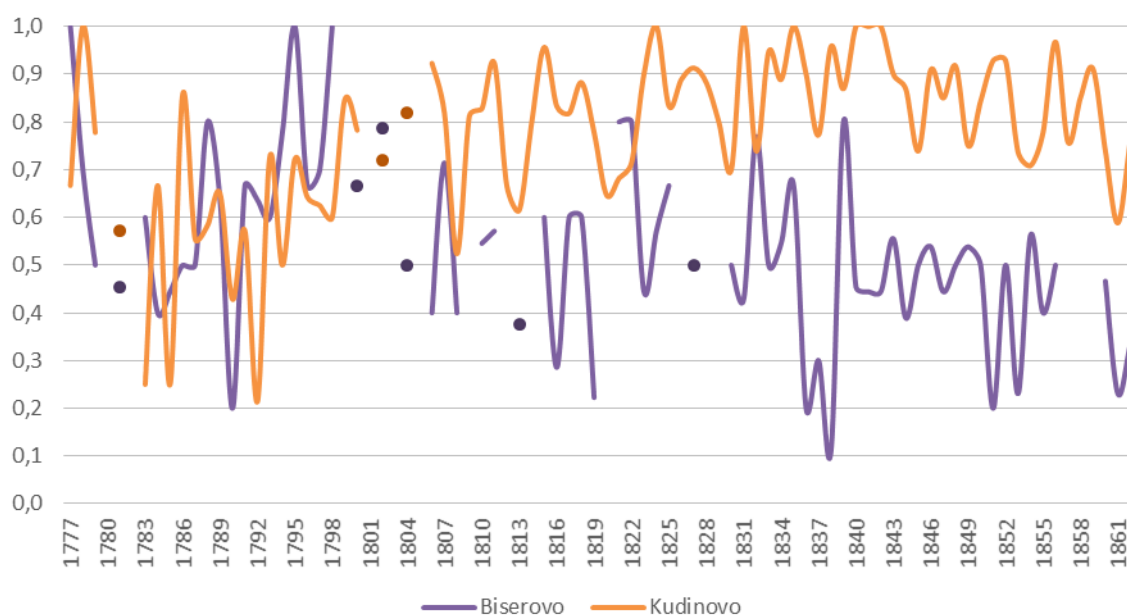


Source: Author's calculations.

In Kudinovo, the age of brides (Figure 4) at their first marriage increased by about 3 years in the first quarter of the 19th century and starting in the 1830s was about 20 years, while in Biserovo women married an average of 2 years later. In both parishes, marriage among the

female population was not universal, but while in Biserovo this trend, associated with the postponement of marriage by men and their higher mortality, manifested itself already at the end of the 18th century, in Kudino it became the reality only by the middle of the 19th century. The age of marriage in both parishes was much higher than the minimum allowed; breaches of this, when the bride or groom was underage, were extremely rare. The situation when the groom was younger than the bride, which is common in multigenerational families, was quite common in both parishes. In Kudino in the first third of the 19th century, 39% of fiancés were younger than their future wives; in subsequent decades this proportion dropped to 21%. The picture in Biserovo was similar.

Figure 5. Share of brides from the same parish by years, shares of 1



Source: Author's calculations.

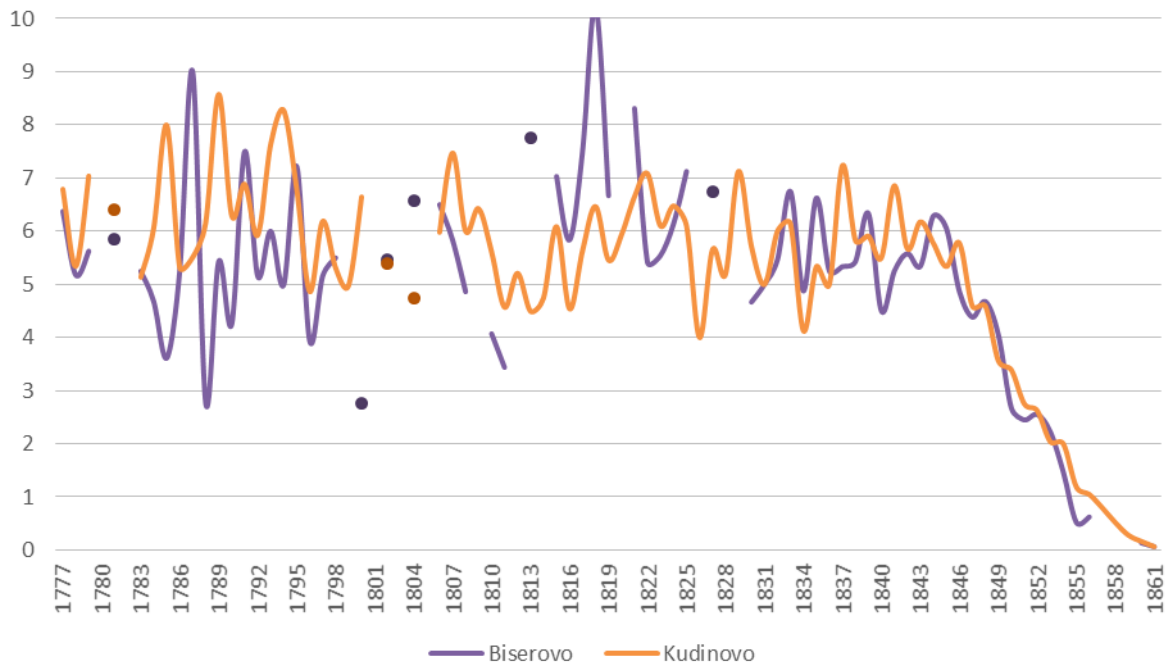
In Kudino, in contrast to Biserovo, there was a prominent local-territorial endogamy, and while the share of local brides in the first parish grew, in the second it steadily decreased (Figure 5). The extremely small exchange of brides between the two neighboring parishes is noteworthy: only 18 from the Biserovo parish to Kudino and 21 in the opposite direction. Moreover, most of these wedding trains from Biserovo set off in the 1840-1850s, while the grooms of the Biserovo estate took brides from Kudino mainly before the 1820s.

Births

Birth registration in the parish of Kudino, as well as in Biserovo, was reliable already in the first surviving parish registers, if we evaluate it by the ratio of girls and boys, which is close to 0.95 for natural fertility. However, later in Kudino, the quality of record-keeping dropped dramatically, and already in the 1790s this figure fell to 0.6, i.e., a third of the births of girls were not recorded. In the 1800s-1810s, this indicator averaged 0.8. Unsurprisingly for an industrial rural population, the appearance of additional females was less important than of men. Brickmaking required hard physical labor, and at Okulov's Kamenka manufactory the confession register of 1786 shows a lot of "single" boys aged 13–19, but not girls. To correct birth rates for "problem" years, we should multiply the known figures by $(1 + 0.95) / (1 + k)$, where k is the observed sex ratio, and to adjust for the years of absence of part of the parish registers, we should additionally multiply

by $1/(1-x)$, where x is the share of missing registers in female reproductive years.

Figure 6. Average number of known children of spouses by years of wedding (if there were children) adjusted for the absence of part of the entries in the registers and of the register books themselves, pers.



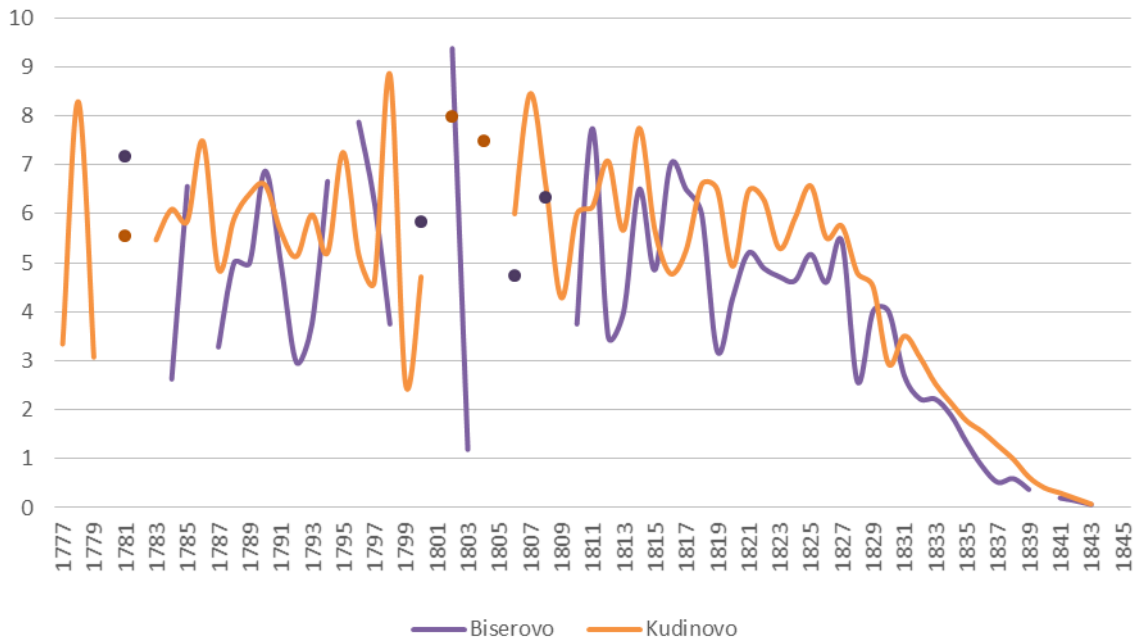
Source: Author's calculations.

The average number of children born in marriages (Figure 6) in both parishes during the reviewed period fluctuated around 6, and in Kudino it was usually higher, with the exception of the mid-1800s - mid-1830s. It is noteworthy that after the growth in the 1810s, the birth rate in Kudino was stable, while in Biserovo it began to decline already in 1830-1840, and this is not due to the limits of time series⁶. The calculation of the average number of children by year of birth of mothers (with similar adjustments) gives slightly different results (Figure 7). In Kudino, this birth rate is consistently higher than in Biserovo, and for the generations of the 1810s, the difference exceeds 1 on average. It should be noted, however, that the sizes of the samples, already different due to the twice as large parish of Kudino, are very different due to the spread of exogamy in Biserovo, hence the difficulty of determining the exact age of the brides from outsider parishes (figure 1).

Despite the fact that the brides in Biserovo were on average 2 years older, the age structure of mothers of newborns in the two parishes is almost identical - in 1830-1850 about 70% of children with a known mother's age were born to women 20-30 years old. This means a higher intensity of births at these ages in Biserovo. The parish of Kudino leads in two non-demographic indicators: the highest verified number of children for a married couple (15 versus 14) and the highest verified age of a mother at childbirth (47 versus 44).

⁶ With an average age of first-married women of 20-22 years and an active reproductive age of up to 45, the time series limit of 1862 for parish registers affects the traced number of children born in marriages of the early 1840s and later.

Figure 7. The average number of children by years of birth of mothers (if there were children), adjusted for the absence of part of the entries in the registers and of the register books themselves, pers.



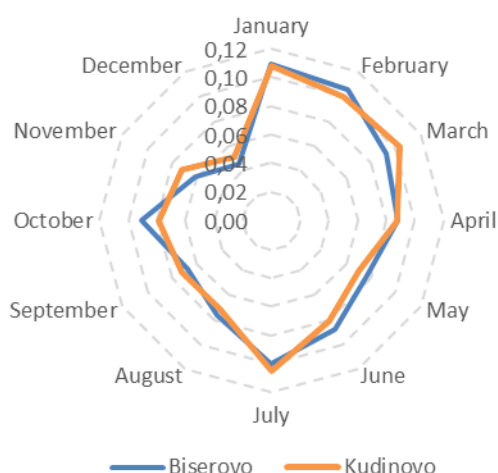
Source: Author's calculations.

The seasonality of fertility in both parishes is similar (Figure 8) and is typical for an agricultural population.

The birth of children in January-February had obvious advantages (the final months of pregnancy and the first months of infancy did not fall on the summer peak of agricultural work, which was also the peak of enteric infections). The seasonality of births which would be determined by the strict observance of Orthodox fasts (Avdeev, Blum, Troitskaya 2002; Mironov 2005; Vinnik 2012) is poorly represented in both parishes. From as early as the 1790s, December, May and September births (meaning probable conceptions during the fast of Great Lent with two adjacent weeks, and the Dormition and Nativity fasts) represented approximately 20% of all births. Abstinence was observed a little more strictly in the 1800s and 1840s.

Indicators of out-of-wedlock births differed significantly in the two parishes. In Kudino, this phenomenon became a stable part of social reality as early as the 1790s, while in Biserovo it did so only in the 1840s. On average, in the 1820s almost 5% of children were born out of wedlock in Kudino; in Biserovo, it was half that at its peak. In the following decades, the proportion of out-of-wedlock births dropped to 1-2% in both parishes. It is noteworthy that in Kudino, the percentage of out-of-wedlock births aggregated over decades (see Appendix) noticeably correlates with the share of probable conceptions of children during Orthodox fasts (coefficient 0.62).

Figure 8. Birth seasonality index, 1830-1850



Source: Author's calculations.

Deaths

The very first surviving registers of Kudinovo already contain records of infant and child mortality (in Biserovo they appear only in 1783). However, with a decline in the quality of recordkeeping in this parish, such information becomes rare in the 1790s-1810s. If we evaluate child mortality by the ratio of deaths under 10 years of age⁷ to the number of births, then in both parishes it becomes plausible (about 40%) in the 1830s and grows steadily starting in the mid-1840s.

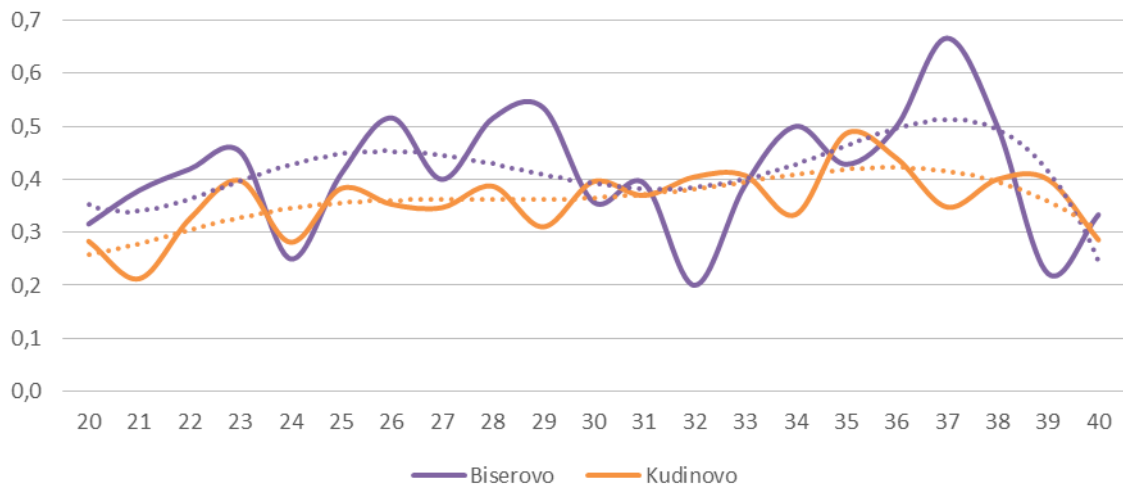
A comparison of the two parishes in terms of the proportion of those who died before the age of 10 depending on the age of the mother (Figure 9) shows a lower infant mortality rate in Kudinovo in most maternal age groups. However, with the increase of age of the mother from 20-25 to 35-40, mortality increases by an average of 10 p.p. in both parishes.

A relatively accurate assessment of demographic well-being in the case of obviously incomplete records of child mortality, is the opposite indicator, survival to a marriage (which means at least reaching adulthood). This can be calculated by automatically processing and linking the data of three parts of parish registers. Due to Biserovo's trend towards exogamy and a significant proportion of outsider brides in the parish of Kudinovo, it is possible to estimate in this way only the survival of boys.

The results of the calculation (Figure 10), above all, clearly demonstrate the limitations of the method for Biserovo, where part of the parish registers is not available. However, for generations whose probable marriages occurred during a period with a continuous array of register books, a comparison of the two parishes seems appropriate, and it is almost always in favor of Kudinovo.

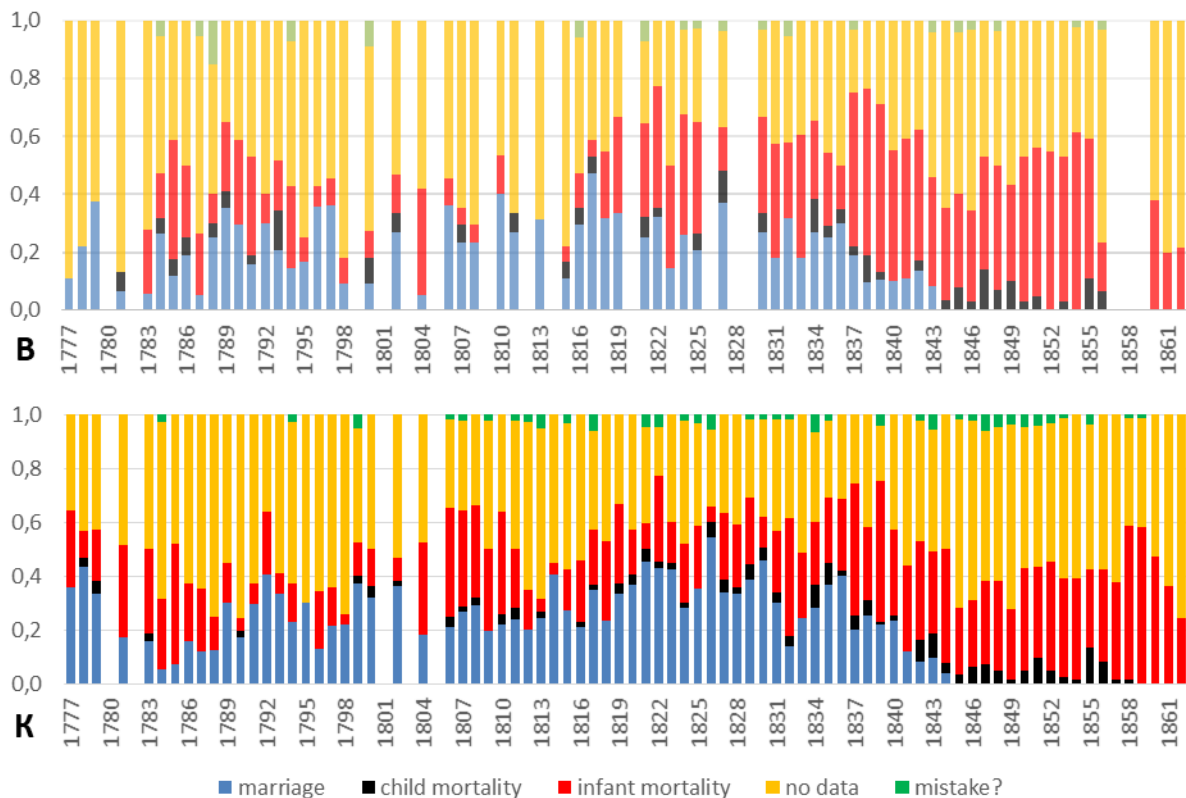
⁷ For that era, the periods of childhood with an increased risk of death were significantly longer than after the "epidemiological revolution". Currently, child mortality is usually calculated up to 5 years, and infant mortality up to 1 year. This study used the ages of 10 and 3, respectively.

Figure 9. Proportion of children dying before age 10, by age of mothers, 1830-1850, shares of 1



Source: Author's calculations.

Figure 10. Demographic events of the boys of Biserovo (B) and Kudino (K) according to parish registers by year of birth, shares of 1



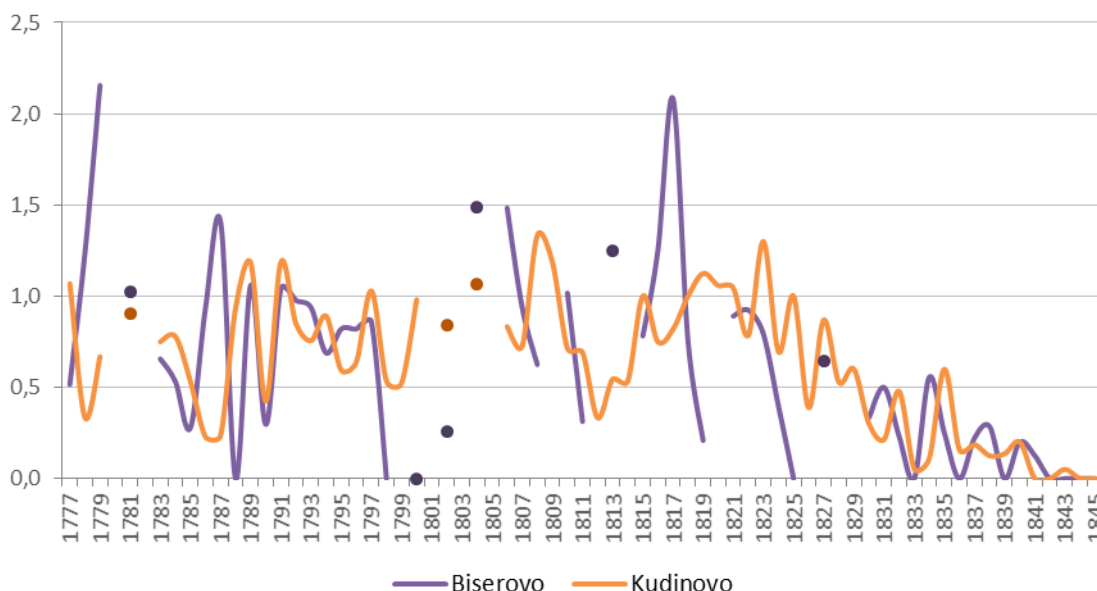
Source: Author's calculations.

Note: The algorithm searches for records by calendar years and does not allow for absolutely accurate age calculation; "mistake?" – age of death mismatch while other search criteria match

Calculation of the average number of sons who survived to their marriage based on data from parish registers (a substitute indicator for the net reproduction rate of the male population) can be relatively correct only for Kudino, while in Biserovo, due to the lack of part

of the registers, the sample size is greatly narrowed⁸. Moreover, it is obvious that infant mortality is much more variable over the years than fertility. In the 19th century, in Kudino this indicator was temporary halved in the 1810s, as a result of a drop in fertility and a surge in mortality due to the war of 1812 (Figure 11)⁹.

Figure 11. The average number of sons who survived to their marriage born in marriages where there were children, by the years of their parents' wedding, adjusted for the absence of part of the parish registers, pers.



Source: Author's calculations.

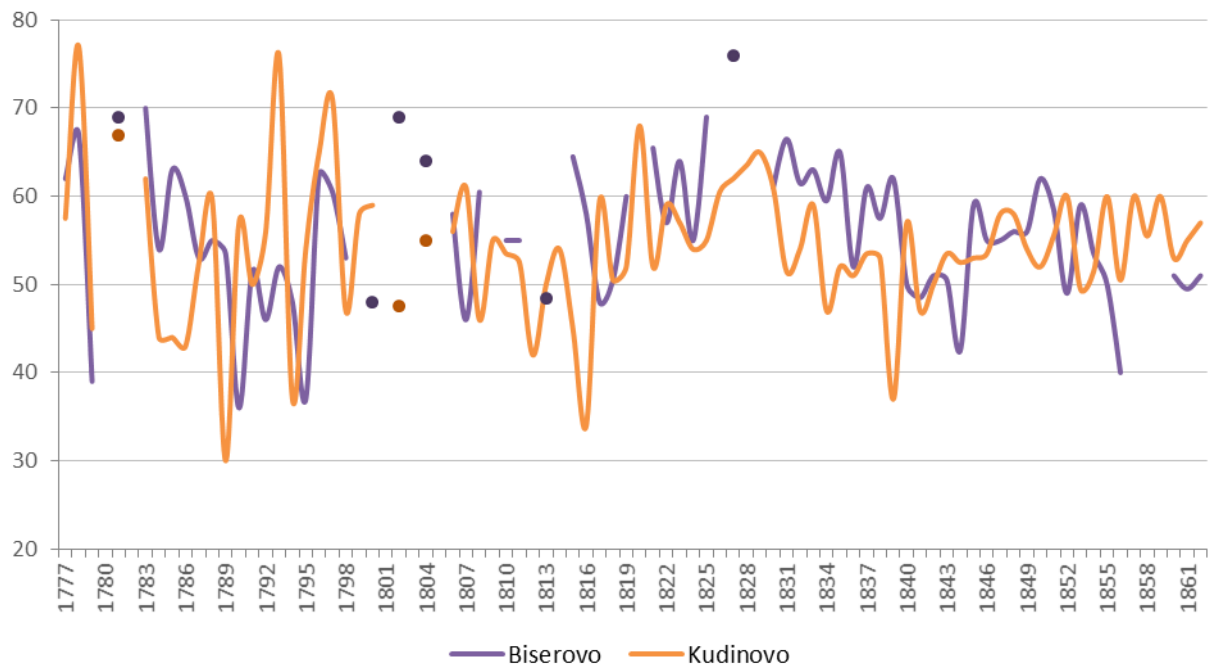
The adult mortality rate in Kudino was higher than in Biserovo for most of the reviewed period (see Figure 12 and Appendix).

With the onset of cholera epidemics in the 1830s, Kudino's indicators deteriorated faster and more dramatically. However, unlike Biserovo's, the decline in life expectancy here was not a progressive one. One of the components of Biserovo's demographic troubles was high mortality from external causes (in the Bogorodsk registers, causes of death were indicated starting in 1823, with external causes being indicated as an exceptional phenomenon even earlier), which is responsible for 2-3% of all entries in part three (deaths) of the parish registers of the middle of the century. In Kudino, this figure did not exceed 1%.

⁸ It is necessary to have three correct entries in the registers: the marriage of parents, the birth of their son and his own marriage.

⁹ The registers reflect the influx of refugees (and, obviously, infectious diseases) into the Bogorodsk district, which was then also an area of fighting. Local militia took part in the war and among them, according to revisions, casualties were heavy. So, out of 32 militants of the Kudino villages of Safonovo and Isakovo of P.I. Yushkov, 12 people "did not return", and for M.G. Okulov's Kamenka, 14 out of 25.

Figure 12. Median age at death of those aged 15 and over, years



Source: Author's calculations.

Results

The metrics of demographic processes described above allow us to conclude that the indicators of the industrial peasants of the Kudino parish differed significantly from the neighboring parish. Thus, in Kudino, marriages were frequent in autumn and even in summer, while in Biserovo they began to lean towards the winter months. The postponement of marriage with a stable increase of age at first marriage in Kudino occurred only in the 1820-1830s, while in Biserovo this process began half a century earlier. At the same time, both grooms and brides in Kudino were 2-3 years younger. Over time, the industrial parish of Kudino became more and more endogamous, while in the neighboring parish there was an increasing trend towards outsider brides.

The number of children born in families in Kudino was usually higher, with the exception of the mid-1800s to the mid-1830s. Kudino did not experience the decline in fertility which occurred in Biserovo in 1830-1840. Kudino, with earlier marriage, is characterized by a lower intensity of births among women at the beginning of their family life, while Biserovo's older brides after weddings gave birth more often, although as a result they had fewer children. Extramarital births in Kudino became common as early as the end of the 18th century, and their peak of 5% in the 1820s was twice as high as in the parish of Biserovo, where this phenomenon was extremely rare until the middle of the 19th century.

In industrial Kudino, the mortality of the child population was lower in most maternal age groups. Also, in Kudino the survival of the male population to marriage (so, at least to adulthood) was almost always greater. For those born in the early 1830s, the advantage of Kudino over Biserovo in this indicator was 10 p.p., as was its advantage in registered infant mortality in the 1850s (for Biserovo it was 10 percentage points higher). However, not childhood but adult mortality in industrial Kudino was almost always higher. Starting in the early 1830s,

the median age of adult deaths here fell faster and more dramatically than in Biserovo, but unlike the neighboring parish, this decline did not become stable.

Some demographic characteristics of Kudinovo's industrial serfs have inherited features of the agricultural population. Above all, this concerns the tendency towards multigenerational families and the seasonality of births.

Integration of the indicators listed above leads to an unambiguous conclusion: the demographic situation in the industrial serf Kudinovo was better than in the state *votchina* of Biserovo. The men of Kudinovo delayed marriages less, took brides after the harvest with full granaries and not before sowing, and had younger wives, who could rely on the help of relatives from the parish and had more children at a more relaxed pace who more often survived to adulthood. Kudinovo, like Biserovo, experienced demographic crises, but got out of them faster and more surely.

The explanation for this is that the well-being of industrial serfs was obviously greater than that of their state-owned neighbors. Starting in the 1830s, many Kudinovites were given freedom and entered the ranks of the Moscow and Bogorodsk merchants and petty bourgeois, while continuing to live in their native area¹⁰. In the 1850s and 1860s, these classes already accounted for 7.5% of all birth records in the parish. Industry also passed into the hands of the former serfs from the heirs of noble entrepreneurs: merchants from Belaya, the Treshchalins, owned a brick production, and the Sorokins, merchants originally from Isakovo, bought out the Kamenka manufactory in 1835.

It is obvious that under "landowner exploitation" such a situation would not have been possible. The Kudinovo noble landowners were personally interested in the demographic well-being and income of their own serfs, from whom they collected rent. Peasants, meanwhile, received from the landowner tax immunity (no income tax was imposed on noble estates, except for 1812-1819), a community that collectively paid all obligations to the state (Avdeev, Troitskaya, Ulyanova 2015), and industrial assets with which they could develop their own business. The mechanisms of the formation of Russian industry through the entrepreneurship of serfs are well studied in the archives of the Sheremetevs' estates (Stolbov 2013)¹¹. Free state peasants themselves bore the risks of non-agricultural trades, which, despite a nominally higher social status, led to worse economic and demographic characteristics. In our case, this is especially noticeable in the 19th century.

Conclusion

The integration of the Russian agrarian economy into the world market starting in the middle of the 18th century and the associated "price revolution", observed earlier in other countries, hit the "grain-consuming" territories near Moscow hard. The industrial activity of enterprising nobles allowed their serfs to exist in the new conditions much better than state peasants, which is demonstrated by almost all demographic indicators.

¹⁰ Therefore, it is impossible to correctly estimate the number of urban residents according to the data of revision lists; they did not reflect the real place of residence of many merchants and petty bourgeois, all of whose demographic events took place in their native villages.

¹¹ It is noteworthy that Dmitry Spiridonovich (1778-1855), the founder of the Sorokin merchant dynasty, married one of his sons, Dmitry, to a native of the Sheremetev village of Vyazovka in the Vykhino *votchina*, and it was he who was made the main heir.

Of course, the features of the Kudinovo parish cannot be extrapolated to all the industrial villages of that era, not to mention to all the Russian serfs, many of whom lived in a completely different reality. For example, the indicators of the enclosed agricultural estate of Podol in the Kalyazinsky district from the author's above-mentioned article are strikingly better: the net reproduction rate of men there in the 1810s was 1.5, and the population between 1816 and 1834 grew by 1.7% per year. In many other agrarian estates, we can assume that landlords saw most of the serfs as merely surplus mouths reducing their marketable output.

The growing demographic problems of state peasants in the pre-reform period became a prototype of the massive changes that occurred after the abolition of serfdom and led to the marginalization of a significant part of the entire population of the country. The long-term experience of other states shows that it is possible to overcome the negative consequences of the formation of a market economy through a system of basic social and economic guarantees (Bengtsson, Dribe 2021: 87). In Russia in the 18th and 19th centuries, these were provided only by the guided community.

The demographic dimension of Russia's early industrialization, about which birth registers have much to tell, has been very little studied. The author hopes that this work will be another step towards understanding the relevant processes and serve as motivation for other researchers.

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Appendix

Demographic indicators of parishes and reference votchinas, aggregated by decade

	Village	1770s	1780s	1790s	1800s	1810s	1820s	1830s	1840s	1850s	1860s
Average age of groom (first marriage), years	Biserovo			19.0	20.9	22.9	22.2	24.6	25.5	25.2	25.4
	Kudinovo			18.6	18.3	18.5	19.9	21.0	22.2	22.6	23.1
Average age of bride (first marriage), years	Biserovo			14.7	20.0	20.5	22.0	20.9	22.4	22.3	20.9
	Kudinovo			17.7	17.5	18.7	18.0	19.7	20.1	20.2	20.8
Conceptions during fasts, %	Biserovo	14.3	19.5	21.1	17.9	17.5	19.3	20.6	19.0	19.6	21.9
	Kudinovo	16.1	15.1	22.2	18.9	19.2	18.4	21.5	18.0	19.4	18.9
Births of children conceived out of wedlock, %	Biserovo	0.0	0.0	0.0	0.9	0.0	1.0	0.7	2.4	1.8	1.2
	Kudinovo	0.0	0.8	3.9	3.0	2.9	4.6	2.9	3.1	1.2	0.2
Children per marriage (if any, without adjustment, by wedding year), pers	Biserovo	4.91	4.72	4.13	4.42	5.27	5.35	5.73	4.66	2.68	1.04
	Kudinovo	5.67	5.29	4.54	5.30	5.27	6.08	5.96	5.56	3.21	1.16
The ratio of the number of newborn girls and boys	Biserovo	1.25	1.18	0.92	0.91	1.12	0.87	1.02	0.99	0.91	0.86
	Kudinovo	0.89	1.01	0.62	0.76	0.78	0.97	0.93	1.06	0.98	1.04
Median age of deaths over 15 years, years	Biserovo	58.5	60	52	61	57.5	62.5	60	54	54	51
	Kudinovo	65.5	55	57	52	47	61.5	52	54	55.5	55
Survived to adulthood and married (boys), by year of birth, %	Biserovo	23.1	17.0	22.5	20.0	31.2	25.7	20.7	3.9		
	Kudinovo	38.5	13.5	27.3	25.4	27.1	38.7	28.4	4.9		