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A comparison of cohort analysis and other methods of demographic microanalysis used in studying the Tambov region, 1800–1917

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Introduction

Participation of Tambov historians in some international projects on micro-demography has made it necessary to compare the various methods of historical-demographic analysis using specific Russian demographic sources. This paper discusses the comparative possibilities of each of these approved methods and will also deal with the results of their application in a study of several separate parishes.

The first studies used two groups of structure-oriented databases. The first of these includes databases with information on the dynamics of the main vital statistics of selected parishioners of separate parishes and their relatives through their life span, that is birth cohorts. The second group deals with all-parish data containing annual impersonal statistics on the number of births, weddings and funerals of all the inhabitants of separate parishes. The studies showed that these two methods are both suitable for micro-demographic analysis although, nevertheless, some limitations inherent in their structure were revealed. It was, therefore, decided to create databases encompassing the full data of the registers of the separate parishes.

These source-oriented databases proved to be very useful in supplementing and specifying the results of the cohort method and the impersonal statistical demographic method. The study evoked doubts on the correctness of some data in the parish registers and stimulated taking new sources into account, in particular medical reports which were regularly used from the 1890s. Such sources are quite reliable as they were prepared by professional doctors and covered tens of thousands of people over a time span of twenty years.

It should be mentioned that it is hard to compare cohort analysis with yearly all-parish analysis due to the different scale of the information. Cohort analysis deals with 480 cohort members and with several hundreds of their

relatives (up to 2,000 people in total) while the parishes witnessed tens of thousands of people through the century. The cohort members taken together with their relatives, therefore, formed no more than 20% of the parishioners. From a sociological viewpoint, however, a sample of this size can be regarded as representative. It should also be noted that the cohort members were quite representative for the years taken and almost always comprised more than 50% of the children born in the particular year.

Twenty year intervals between cohorts are generally acceptable. This corresponds with the traditional Russian period between different generations before they started an active life. Russian peasants generally married and had their first babies around the age of 20 so that in this way the family is treated as the dominant organizational form of their economic, social and everyday life activities. A comparison of the demographic happenings of different generations of cohort members allows social change and its impact on the vital statistics of peasant individuals from 1800 to 1917 to be demonstrated. However, there were differences in the life chances of those born in different years. The 1831 cohort from Malye Pupki, for instance, was born in a year with much higher mortality (including infant mortality) and a lower birth rate. This could perhaps explain the great difference in survivals to the age of 5 compared with the members of other cohorts born in a more favourable year.

The initial parish selected was the village of Malye Pupki in the Kozlov *uezd* or sub-region, a forest steppe centre of the region, inhabited by state peasants. To make the research more representative, several settlements with a different social class status in various parts of the Tambov region were included. These were the village of Bailovka (Morshansk *uezd*, in a forested area in the north-east of the region, inhabited by serfs), the village of Kalugino (Kirsanov *uezd*, on the steppe in the south of the region, inhabited by serfs and state peasants), the village of Pokrovo-Prigorodnoe (close to the city of Tambov, inhabited by state peasants who were listed as householders of the regional centre (*odnodvortsy*) up to the 1850s and as Tambov city church parishioners up to the 1900s), the village of Rasskazovo (Tambov *uezd*, in a forest steppe area, on the border of the region and the only trade and industrial village in the region with a differentiated social structure since the first half of the nineteenth century, inhabited by imperial peasants of the Tzar family, state peasants, serfs, and significant numbers of meschane, merchants, and nobles engaged in business) and the town of Morshansk (in the north of the region, a trade and, later, an industrial centre near the river Tsna).

Table 1 Completeness of data on birth cohort members in Bailovka, Kalugino, Malye Pupki, Morshansk and Rasskazovo, 1810-1871 (%)

	Full	Medium	Low
Bailovka 1810	26	19	56
Bailovka 1830	43	35	22
Bailovka 1850	53	33	11
Bailovka 1870	29	17	54
Kalugino 1810	20	6	74
Kalugino 1830	21	7	72
Kalugino 1851	39	14	47
Kalugino 1871	28	67	5
Malye Pupki 1811	44	20	35
Malye Pupki 1831	41	42	17
Malye Pupki 1851	57	23	20
Malye Pupki 1871	44	17	39
Morshansk 1810	27	21	52
Morshansk 1830	43	13	44
Rasskazovo 1810	55	41	4
Rasskazovo 1830	59	33	8

The sources for cohort analysis (parish registers plus census registers and confession lists) appear to be sufficient for a micro-demographic study. Data on the lives of the cohort members which can be regarded as full or medium complete was collected for 11 of the 16 cohorts.[1] The main problem with the sources was not the poor quality of Russian primary statistics but the difficulties of finding a way through the complex of complementary sources for some villages. At an initial stage of the study, a great deal of attention was paid to selecting parishes with as complete a set of parish registers as possible and less to the presence of other sources necessary for cohort analysis. The recently completed study of the Rasskazovo cohorts made by Ella Morozova showed that a good availability of the three source types makes a proper checking of the cohort database possible, with the result that the complete lives of cohort members can be largely traced. This was managed for over 90% of the cohort members. Further perspectives for cohort analysis necessitate a thorough search for villages with a complete set of different sources and a very careful editing of the database used for analysing the cohorts and for quantification.

A comparative analysis of the five villages showed that the four added villages displayed the same demographic processes as took place in Malye Pupki.[2] This comparison also clarified the specific results of cohort analysis

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[1] Only the 1810 and 1830 cohorts are available for Morshansk and Rasskazovo .

[2] V. Dyatchkov, V. Kanitschev, Y. Mizis, V. Orlova, L. Protasov and S. Protasov, 'Cohort analysis of Malye Pupki's population: Some preliminary results', in P. Kooij (ed.), *Where the twain meet. Dutch and*

obtained from the various sources. For example, a problem of the loss of some 1810 and 1830 cohort members due to the absence or change of family names for serfs and for the Tzar family peasants emerged. For the 1850 cohort from Prokovo-Prigorodnoe, some girls disappeared who might have been married in Tambov or in other villages close to the town. Parish registers of 20-30 churches were checked to detect such refugees whereas a search for brides from pure rural cohorts only needs a survey of 2-3 parish registers of the neighbouring villages. All-parish databases were also formed for the same 5 villages of Malye Pupki, Bailovka, Kalugino, Prokovo-Prigorodnoe, Rasskazovo and the town of Morshansk.

Birth rates

Cohort analysis does not pretend to study such an index as the birth rate, so an all-parish statistical analysis supplements the method in this way. The possibilities for studying the Russian pre-Revolutionary birth rates are limited because censuses were comparatively rare (sometimes the interval between them was more than 20 years) and were quite incomplete (census registers dealt only with tax population and household censuses usually listed those who lived in a settlement at the moment of the census). For this reason years with the most reliable and full census data were selected.

The figures for 1816 and 1833 are approximations as the data from the parish and census registers are incomplete and inaccurate for calculating the birth rate precisely. But even such low estimates for Malye Pupki, Rasskazovo and the whole Tambov Region for 1816 reflect high birth rates in traditional villages. As rates from 20 to 40 are taken as high, birth rates of over 40 can be regarded as extremely high. Such rates are shown in almost every case for the parishes studied. The very low 1816 figure for Bailovka was due to a bad year for births and the poor registration in this remote village (even the better years of 1815 and 1817 gave birth rates as low as 20). A radical improvement in the method of registration in the 1830s immediately showed extremely high birth rates in Bailovka. In the whole Tambov region, birth rates fluctuated between 48 to 54 during the period from the 1830s to 1911.

The annual variations in the birth rate do not make it easy to see any developments, but it is clear that the birth rate was always high or extremely high. The birth rates in the Tambov Region are higher than those cited by B. Mironov for rural Russia in his major book on social history and also higher than the birth rates cited by V. Nossevitch for the Orthodox

Russian regional demographic development in a comparative perspective 1800-1917 (Groningen/Wageningen 1998) 141-153; Y. Mizis and V. Orlova, 'Sources and methodology for cohort analysis. The case of Malye Pupki, Tambov region', in: Kooij (ed.*), Where the twain meet,* 125-130.

Byelorussians of the Minsk region close to Hajnal's well-known line dividing a Western European and an Eastern European marriage pattern.[3] These higher Tambov rates were due to an extraordinarily large proportion of people (peasants) engaged in agriculture. In the northern (Yaroslavl), north-west (Olonets), and western (Minsk) region people began increasingly to turn away from agriculture. The Tambov Region was not unique, however. Micro-demographic studies of the Kursk Region, which was also a largely black-earth agricultural community and was situated 300-400 km west of Tambov, also showed that the birth rate had remained extremely high for a very long period.[4]

Table 2 Birth rates in the Tambov Region and in different settlements, 1816-1917

	M. Pupki	Bailovka	Kalugino	Rass-kazovo	P.-Prigorod★	Morshansk	Tamb. Reg.
1816	*c.* 35	*c.* 8	No data	*c.*35	No village	No data	37.0
1833	*c.* 50	*c.* 55	No data	54	No village	No data	49.9
1858	51	61	61	64	50	49	51.2-53.0
1862	59	27	57	58	45	49	50.8
1884	52★★	59	49	60	64	53★★★	50.5
1911	56	53	38	No data	60	No data	47.7
1917	25	18	15	No data	*c.*30	No data	34.4

Notes: ★ Data on Prokovo-Prigorodnoe are estimates as the exact number of parishioners of the Pokrov Cathedral in Tambov is not known.
★★ Data relates to 1889.
★★★ Data relates to 1897.
Source: GATO, Ф. 1049. Оп. 5. Тамбовский уезд; Ф. 12. Оп. 1. Ревизские сказки Тамбовского уезда. Ф. 181. Оп. 1. Д. 1396. Лл. 7-22 об; *Сборник статистических сведений по Тамбовской губернии. Т. 12, Тамбовский уезд* (Tambov 1886) 142-185; М.К. Акользина, *Изменение социальной структуры населения среднего русского уездного города в первой половине XIX в. (по материалам Моршанска Тамбовской губернии). Дисс. ... канд.ист.наук* (Tambov 2002); Р.Б. Кончаков, *Демографическое поведение крестьянства Тамбовской губернии в XIX начале XX в. Новые методы исследования. Дисс. ... канд.ист.наук* (Tambov 2001) 66; *Неопубликованным данные М.Н. Милехина по с. Покрово-Пригородное. Обзор Тамбовской губернии за 1878-1910 гг* (Tambov 1879-1912).

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[3] Б.Н. Миронов, *Социальная история России периода империи (XVIII-начало XX в.)* Т.1, СПб. (1999); В.Л. Носевич, *Демографические показатели белорусского крестьянства во второй половине XVIII - первой половине XIX в.* // Компьютер и историческая демография (Барнаул 2000).
[4] А.Н. Быканов, *Воспроизводство сельского населения Курской губернии в конце XVIII – начале XX вв. Дисс. ... канд. ист. Наук* (Kursk 2001).

It was not until the First World War that Tambov rural birth rates dropped under 40, though they still remained rather high for a modern society. As soon as peasant war recruits started to come back home in 1917 the birth rate again sprang up to a pre-war level, and although it decreased gradually it still remained extremely high until the Second World War.

The maximum possible birth rate calculated from E. Cole's coefficients for rural European Russia was 76 per 1,000 in 1896-1897, which is in accordance with Mironov's findings.[5] The average orthodox female birth rate in European Russia was as high as 51 in 1900-1904 and 46 in 1910. So, as Mironov states, the deviation from the biological maximum at the turn of the century was approximately 30%.

The reasons for that deviation become clearer if the medical statistics, namely the annual reports of the maternity and gynaecology departments of Tambov Region Zemstvo Hospital (TRZH) and the reports of separate delivery rooms, dispensaries and assistant doctor's posts in the region are studied. Priests registered (baptised) infants who survived to the day of registration. Miscarriages, stillborn and apparently dead babies and infants who had died before being baptised were not listed in parish registers, while such babies were registered in delivery rooms or by a doctor or midwife when he or she delivered a child at home. The TRZH delivery reports of 1895-1913 show that stillborn babies and miscarriages were as high as 20-35% of the children born alive. P. Bogdanov, who worked as a Zemstvo doctor in the village of Saltykovo, near Kalugino, in 1884-1886 interrogated 1,059 peasant women who confessed that 18.4% of their pregnancies ended with abortions and 11.3% of babies were stillborn. Bogdanov was 'fully convinced that the real numbers of miscarriages and stillborn babies to peasant women were much higher' and estimated this as high as 40% in total. Out of the 76 children born in the Kozlov sub-regional delivery room in 1904, 14 were stillborn (7 of 12 twins) and 9 did not survive the first 1-3 days, and of the 719 children delivered by doctors in the Tambov sub-region in 1899, 176 were stillborn, miscarriages and apparently dead while in 1907, 179 of 1,057 deliveries were only abortions, etc.[6]

An extra indication of a larger share of unregistered parish deliveries is that not one of the female cohort members had more than 12 childbirths while

[5] Миронов, *Социальная история России*, 186

[6] P. Bogdanov, 'On statistics and casualties of gynaecologic illnesses for Kirsanov Uezd peasant women', *Medical Review*, N7 (1889).

delivery rooms reports invariably record that *c.* 2% of all women at birth were delivering for between the 13th and 21st time. This, and other similar data, help to calculate that every 100 baptised peasant babies conceal 33-40 unregistered pregnancies which had lasted for at least 7 months, not to speak of a substantial number of miscarriages in the first half of the pregnancy. Taking these corrections into account it can be stated that birth rates in Tambov parishes were close to the bio-maximum in many of the years studied.

Birth rates for Morshansk form a separate case. That sub-regional centre turned into a trade and industrial centre in the first half of the nineteenth century. It is impossible to calculate precise birth rates for the first decades as the peasants of neighbouring villages with unknown population figures also used to baptise their children in the town churches. Table 2 shows high birth rates in Morshansk up to the 1860s. This was possibly a relic of traditional demographic behaviour of the first and second generation of peasant immigrants, combined with the impact of the peasants living in the agrarian suburbs of Morshansk.

In the 1850s–1860s Morshansk suffered a sharp decline in the grain trade which affected the majority of its citizens who were traders, officials and river port workers. The economic crisis had immediate demographic consequences with the birth rate for 1864 dropping to 21 and then as low as 10 in 1866 and it was still only 15 in 1868. The probable reasons for such extremely low birth rates were male outmigration in search of a livelihood, a decline of marital fertility and possibly also the use of contraception.

Table 3 Monthly birth distribution, Bailovka and Malye Pupki, all-parish data (%)

	Bailovka	Malye Pupki
January	10.2	9.0
February	7.2	8.2
March	8.1	7.9
April	6.1	6.0
May	6.2	6.5
June	8.1	8.9
July	10.1	9.5
August	10.4	9.2
September	10.3	9.0
October	10.2	11.4
November	8.4	8.4
December	4.7	6.0

The monthly distribution of *c.*20,000 births registered in two traditional villages which are presented in Table 3 show an obvious dependence on the usual factors of a traditional society (physiology, economics and partly the

church). Births peaked from mid-summer till winter since this was the best period for nursing mothers (a new harvest with food stores for several months). In Malye Pupki, the religious (church) factor was more important because its parish was of the Epiphany so that marriages were mostly arranged on this local feast on 6-7 January (Julian calendar) and this had a noticeable effect on the number of births in October. Bailovka did not have such a concentration of marriages resulting in a peak of births. There were also periods with a drop in the numbers of births with notably low figures for December. Many contemporary historians have viewed the drop in December as the result of a simple but false premise which can be quoted as: 'sexual intercourse = conception = natural time and safe pregnancy = birth = adequate registration'. They explained the low figures for births in December as being the result of the rigid observance by the peasants of religious bans on sexual life during the seven weeks of Lent and drew principal conclusions on the advanced piety of a remarkable proportion of the Russians. However, a more thorough and precise study of the Bailovka and Malye Pupki parish databases revealed that between Lent and the number of births 9 months later there was a more complex relationship rather than a direct causal one.

For the period 1812-1912, Bailovka's parish registers contain almost 500 birth (or better baptismal) registrations made on the first day of each month while other days of the month had on average some 200 entries each. Malye Pupki had 945 and 380 entries respectively. A sharp fall in the number of cases is clear for the last days of each month. The first day of January was an obvious winner as far as the registration of births was concerned with the last days of December as the major losers. No doubt some peasants who conceived during Lent (March was almost always wholly within the 49 days of Lent) understood that registering a birth in December was revealing a 'sin', so they consciously and with the agreement of the priest delayed registration of the birth until January. Peasant superstitions in general concerning fears of christening a newborn at the very end of a year are also a convincing explanation of such a postponement. Even now, a baby actually born in the last days of December is often given his 'official', registered birthday in the first days of January. This gaining of a calendar year means a delay of army recruitment for males and a younger age for females.

Computer micro-analysis helped to clarify the impact of Lent on December and also on November (in those years where an early Lent covered part of February) and on January births (late Easter with Lent covering a large part of April). *Paschalias* (Easter) for the nineteenth and the early twentieth centuries were taken into account to make 9-month (280 days of pregnancy) reverse projections for those conceived in Lent. The formula was $(P - 49) + 280$ up to $P + 280$ [P: date of Easter, 49: duration of

Lent, 280: period of pregnancy]. The same calculations were made for two 49-day segments before Lent and after Easter to compare conception dynamics as reflected in the church registrations. The result was that the number of births registered in the projection Lent + 280 was 33-37% less than in adjacent 49-day segments.

It was also investigated how this combination changed in particular years. This showed that in Bailovka in 40% of the years and in Malye Pupki in 27% of the years scattered throughout the period more children were conceived during Lent than in at least one of the adjacent segments and in 15-30% of the years there was a minimum of births in the period (Easter and 49 days after) + 280 days. Thus, there was no obligatory interdiction on Lent conceptions and as it is not possible to imagine peasants being true believers in one year and not in another it is difficult to see a direct impact of the religious factor.

It should also be mentioned that seasonal birth rates were dependent upon the seasonal marriage pattern. Peasant marital activities were part of the natural economic cycles that governed their lives. Annual rural marriage dynamics formed an almost ideal curve with a steep rise in the late autumn (October peak) and in winter, afterwards sliding down to a minimum in August. There were no weddings in March and December because of church bans on marriages during Lent and the Christmas fast so that the curve has two zero points. The impossibility of marrying in the period of the 40-day Christmas fast (15 November till 24 December) was an obvious hindrance for peasants which resulted in a fall in births in September. As soon as the church registration was abolished by Soviet rule in rural Russia the December gap was filled up with marriages resulting in a peak of births 9 months later. From 1917 until the 1960s September displayed birth peaks in the different villages in our study (Pakhotny Ugol, Podlesnoe – formerly Malye Pupki – Sosnovka, Orzhevka, and the 2nd Left Lamki). March was quite another matter, with most of the peasants by then having consumed their food stores and struggling for new supplies. That situation left almost no place for marriages and sexual activities so that Lent's bans suited the peasant year life cycle almost painlessly.

During the century there were 169 weddings in Bailovka within the 49 days before Lent, none were arranged during Lent and 118 marriages occurred in the 7 weeks afterwards. Malye Pupki's registers showed 2,251 weddings in January, 414 in February, 15 in March, 204 in April and 131 in May. A lot of pre-Lent weddings is a well-known fact, but that peak did not result in the same rise in births 9 months afterwards. There were less marriages after Easter but the subsequent number of births was almost the same as the results of pre-Lent conceptions. So the productivity of after-

Easter marriages was relatively high due to better peasant health and potency after breaking their fast. A small number of December births can also be predicted by another physiological factor interwoven with religious rules. Medical sources point to young couples who gave birth to the greatest share of newborns – up to 40% by the turn of the century. A church ban on marrying in March inevitably led to a drop in the number of first-born babies in December. But if the number of couples who married 9 months before is subtracted from the number of births a precise and impressive year curve of birth registrations for those who were conceived and born but not as first-borns is obtained. Data on the monthly distribution of births and marriages for the Tambov sub-region in 1871-1881 shows that Lent, as well as the other long fasts, never acted as delays in conceiving a future labourer and an extra mouth to be fed for peasant families, except for young couples. Lent conceptions for already married couples completed a not very steep downward curve showing a drop in fertility from December to March with a new start to a natural rise in April (Julian calendar).

Table 4 Conceptions and child-births in all and already married couples, Tambov sub-region, 1871-1881

Month of birth registration	Month of marriage (conception)	Registered births (N)	Marriages (N)	Difference births-marriages
January	April	14,169	1,124	13,045
February	May	12,433	847	11,586
March	June	11,677	373	11,304
April	July	11,086	423	10,663
May	August	12,691	159	12,532
June	September	14,082	1,131	12,951
July	October	15,270	11,517	3,753
August	November	13,757	6,011	7,746
September	December	12,278	0	12,278
October	January	14,700	4,444	10,256
November	February	11,502	1,720	9,782
December	March	8,210	0	8,210
Total		151,855	27,749	124,106
		(100%)	(18.3%)	

Natural and labour conditions acted as the basic regulators of peasant sexual activities and fertility. There are different ways of demonstrating this. As mentioned above the long term pattern of peasant marriages corresponded to the cyclical crop pattern in its rises and falls. It even seems that the number of peasant marriages and births depended partly on a coming (future) harvest while a completed summer harvest of any year – good or poor – seemed to

have noticeably less affect on autumn and winter marriages and the success of conceptions.

To make our observations more precise we compared data on the crops in the year of birth and in the previous year with data on conceptions and births according to the three 49-day segments of Lent, and before and after this. Good years for the crops were also years with higher birth rates and population increases. Productive years had fewer conceptions in the period January-May since most conceptions then occurred in a higher band of marriages and conceptions in the period September-December of the previous year (even though this could have been a bad time for the crops). It seems as if there was some peasant presentiment of a productive year which determined when to conceive, so that the baby would be born at the best time to rear an infant. This pattern closely followed the curve for the crop of winter rye, the Russian dominant cereal forming 75-85% of the crops.

A village or a region experiencing maximal fertility each month does not necessarily have equal cohorts of fertile females. It is not possible to become pregnant again in the course of one's pregnancy. Forty percent of the peasant pregnancies studied ended in miscarriages and abortions, which were especially frequent for pregnancies of 2-4 months during the hard working period in harvest time, when young peasant women had to toil like workhorses thus influencing later conceptions around December. Some 5 to 15% of the babies were stillborn or weak and died unchristened. According to V. Dyatchkov's calculations, the number of conceptions was 1.8 times higher than the number of babies christened. If all the fertile peasant women and their offspring were absolutely healthy the birth curve would have formed an ideal smooth curve corresponding to an equally smooth curve of marriages unaffected by official church bans on marriages at the longest fasts. The pattern of marriage – conception – birth in 9 months – new conception in 2-3 month after delivery – new birth was demonstrated by only a few healthy females whose number of births, according to delivery room reports, ran from 18 to 22.

There is one more argument against the premise of the Russian true believers adhering to continence in Lent and which does support the idea of the dominance of natural, economic and bio-medical factors. This is the existence of a pre-Revolutionary birth pattern in towns (cities) and trade and industrial villages. It is difficult to gather all-parish statistics for such big settlements so it is only possible to make some observations on cohort, medical and biographical data.

As Table 5 shows, as early as the first half of the nineteenth century Morshansk and Rasskazovo no longer had a fall in births in December. Tambov city obstetric polyclinic data on births in 1900-1913 formed a typical urban profile with birth decline in summer (autumn conceptions) and winter rise

(spring–summer conceptions) unaffected by church registration problems. The key factors in that curve were quite different from the rural ones. Occupations, rhythms, seasonal prevalence, life conditions made it possible to conceive in February and March without problems.

Table 5 Monthly birth distribution, 1810 and 1830 cohort members, Rasskazovo and Morshansk

	Rasskazovo		Morshansk	
	absolute	%	absolute	%
January	79	9.2	18	7.5
February	72	8.3	21	8.8
March	68	7.9	29	12.1
April	48	5.6	12	5.0
May	53	6.1	25	10.4
June	79	9.2	11	4.6
July	90	10.4	15	6.2
August	56	6.5	27	11.2
September	75	8.7	18	7.5
October	86	9.9	25	10.4
November	79	9.2	18	7.5
December	78	9.0	21	8.8
Total	863	100.0	240	100.0

Note: Rasskazovo data includes cohort members and their relatives; Morshansk is for cohort members only.

Rasskazovo and Morshansk cohort data reveal an apparently intermediate phase of seasonal birth rates between a rural pattern and an urban one. Here, as in traditional villages, the annual birth cycle had summer-autumn peaks (July or August, October or November) and an April minimum. However, some deviations from the traditional pattern had already taken place, as is shown by non-traditional minima in July (Morshansk) and August (Rasskazovo). An unusual March peak in Morshansk requires further study. This may have been due to conceptions occurring during the period preceding the fast of St. Peter when town dwellers, unlike rural people, were not busy with agriculture, especially as 20% of the marriages in the parish were arranged in May.

Methods of microanalysis, such as cohort analysis, also allow the female fertility index, the number of children, and the birth intervals within - particular families to be calculated. The first results were represented in a paper on the cohorts from Malye Pupki at a Groningen conference in 1994.[7]

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[7] Dyatchkov et. al., 'Cohort analysis of Malye Pupky's population', Tables 14–17.

Table 6a Number of children born in families of cohort members, Malye Pupki

	1811		1831		1851		1871	
	N	%	N	%	N	%	N	%
0 children or unknown	0	0	1	2	0	0	7	16
1–3 children	29	55	15	29	17	35	12	27
4–6 children	10	19	22	42	24	50	8	18
7–9 children	9	17	14	27	3	6	14	30
10 and more children	5	9	0	0	4	8	4	9
Number of families	53		52		48		45	
Average number of children	5.0		4.7		4.6		5.3	

Table 6b Number of children born in families of cohort members, Bailovka

	1810		1830		1850		1870	
	N	%	N	%	N	%	N	%
0 children or unknown	0	0	0	0	0	0	0	0
1–3 children	2	50	7	58	3	50	3	50
4–6 children	1	25	4	33	2	33	3	50
7–9 children	1	25	1	8	0	0	0	0
10 and more children	0	0	0	0	1	17	0	0
Number of families	4		12		6		6	
Average number of children	4.7		4.7		4.6		5.3	

Table 6c Number of children born in families of cohort members, Rasskazovo

	1810		1830	
	N	%	N	%
0 children or unknown	2	3	5	11
1 child	8	13	9	19
2-5 children	23	38	12	26
6-9 children	21	34	16	34
10 and more children	7	12	5	11
Number of families	61		47	
Average number of children	5.2		4.9	

Table 6d Number of children born in families of cohort members, Morshansk

	1810		1830	
	N	%	N	%
0 children	0	0	0	0
1 child	10	33	12	52
2-5 children	12	40	8	38
6-9 children	8	27	3	10
10 and more children	0	0	0	0
Number of families	30		23	
Average number of children	3.4		2.1	

As Mironov states for the period 1800-1917, healthy Russian peasant women who were married through their complete fertile period had 8-10 births on average, and there were a total of 6-8 births for each woman including unmarried women, widows and wives of soldiers.[8] The data for the 1831, 1851 and 1871 cohorts from Malye Pupki correspond to that norm. Bailovka clearly had families with fewer children, seemingly supporting Mironov's idea of serfs as 'pioneers of birth control'. However, difficulties in finding data for particular people in the cohorts from Bailovka and especially for data on female fertility suggest that information on some children is lacking and also suggests poor female health. The average number of children in Rasskazovo families was less than the all-Russian figures. Classification shows that in 1830 there were fewer cohort families with 6-9 children than with 2-5 children, but the situation in 1810, however, was reversed. In Morshansk, the cohort from 1810 already had small families, and the number of children even dropped to very modern figures. The share of families with two children or more dropped in the two cohorts from 67% to 48%, with no more than 8 births as maximum. Here one can assume some form of birth control practised by people living in the town who were not engaged in extensive agriculture.

Table 7 Number of children in families of cohort members, Rasskazovo (peasant categories)

	1810			1830		
	Serfs	State peasants	Factory worker	Serfs	State peasants	Factory worker
0 or unknown	2	–	–	5	–	–
1	7	1	–	6	2	1
2 – 5	19	2	2	8	2	2
6 – 9	15	6	–	12	1	3
10 and more	4	3	–	3	1	1
Average per family	4.9	6.6	3.5	4.4	5.2	6.6

The wives of state peasants were more fertile as they had better living conditions in comparison with the serfs who toiled not only on their own ground but also had to do work for the landlord (in Rasskazovo that implied work at patrimonial factories). A rise in the number of children born to the 1830 cohort of factory workers in Rasskazovo might have been due to their emancipation in 1852, when some of them became meschane and improved their welfare standards. The drop in the number of state peasants in the 1830 cohort occurred because two husbands were recruited to the army in the first

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[8] Миронов, *Социальная история России.*

three years after their marriages, while in the 1810 cohort two husbands left their wives for the army only after 8–12 years of family life. Nevertheless, striving for more children was common to peasants in all categories so that families of 6 to 9 children dominated each group.

Rasskazovo data on female cohort members has been found to be sufficient to compare the intervals between births with the data on Malye Pupki which was presented in the last book of articles.[9]

Table 8 Interval between marriage and first birth, 1810 and 1830 cohorts, Rasskazovo

Interval in years	1810		1830	
	N	%	N	%
Up to 1	3	6	13	32
1–2	14	26	12	29
2–3	21	39	8	20
More than 3	16	30	8	20
Total	54		41	

As was the case in Malye Pupki, peasant couples in Rasskazovo usually had their first christened baby during the first or second year of marriage, taking into account that the results for the cohort of 1810 are not completely reliable. The (birth)registers for 1828, which was the first year after marriage for several of the cohort members of 1810 and also a year with a lot of marriages where the brides were 18 years old, are missing. This means that the reported 39% of first children born in the third year of marriage for the 1810 cohort were actually often second children.

Table 9 Interval between marriage and first birth in Bailovka (cohorts 1810-1870)

Interval in years	%
Up to 1	15
1–2	17
More than 2	68

The all-parish data for Bailovka which is presented in Table 9 is more representative, covering some 20% of the first marriages (190 cases). However, it shows a period between marriage and the birth of the first child that is generally even longer, with the first child being born after more than two years of marriage in more than two-thirds of the cases.

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[9] Dyatchkov et al., 'Cohort analysis of Malye Pupky's population', 149.

The average interval between two children in the 1810 and 1830 cohorts was 2.1 and 3.3 years respectively in Bailovka, 3 and 3.3 years in Malye Pupki and around 3 years and a little more than 2 years in Rasskazovo, so that the picture in the three villages was similar. There were no noticeable changes in the cohorts of Bailovka and Malye Pupki during the second half of the nineteenth century but the 1830 cohort in Rasskazovo showed a reduction in all intervals compared to 1810. The average inter-birth interval also decreased in Morshansk from 2.6 years for 1810 to 1.8 years for 1830. Bearing in mind that the average number of children was 2 for the 1830 cohort, it can be suggested that some form of birth control was started with couples aiming to have two children as soon as possible and then no more. This cannot be said for the Rasskazovo cohort of 1830 as the number of children here remained high.

Table 10a Average birth intervals in months, female cohort members, Bailovka

Interval	1810	1830	1850	1870
1st–2nd child	24.0	48.4	49.8	39.3
2nd–3rd child	48.3	37.1	41.3	38.5
3rd–4th child	20.0	43.0	36.5	32.5
4th–5th child	10.0	32.0	23.0	20.0

Table 10b Average birth intervals in months, female cohort members, Malye Pupki

Interval	1811	1831	1851	1871
1st–2nd child	38.4	40.0	25.2	35.0
2nd–3rd child	38.4	34.5	34.0	29.5
3rd–4th child	29.8	36.9	38.6	31.4
4th–5th child	35.6	45.7	40.7	30.4

Table 10c Average birth intervals in months, female cohort members, Rasskazovo

Interval	1810	1830
1st–2nd child	34.1	25.7
2nd–3rd child	33.4	29.8
3rd–4th child	34.9	32.9
4th–5th child	35.5	32.1

When considering the question of whether or not birth control was practised it is important to investigate the female fertility period. The female cohort members from Malye Pupki delivered their last babies in their twenties (17%), their thirties (27%) but mainly in their forties (56%). Although only 10% of the women recorded in the registers exploited the whole of their natural fertility period, a majority of them were fertile for a long time. Bailovka showed a different pattern with 29% of the female cohort members having exhausted their reproductive period before the age of 30, 65% before

the age 39 and 6% (only 1 woman) was healthy enough to give birth to a baby after the age of 40 and used her complete fertile period. Bailovka differed considerably from Malye Pupki in this because of the much larger proportion of females whose fertility came to an end in their thirties. Long fertile periods with large (up to 4-6 years) birth intervals does not suggest rational birth control, but numerous unhappy pregnancies for peasant women willing (or passively submitting) to have as many children as they could. It is possible that serfs in Bailovka had to work longer and harder, which undermined the health of the females to a greater extent thus making them less able to have children at a later age.

Table 11a Age at the birth of the last child, 1810 and 1830 Rasskazovo female cohort members

	1810		1830	
Age	Absolute	%	Absolute	%
20–25	8	14	10	24
26–30	11	19	7	17
31–35	12	21	6	15
36–40	18	32	10	24
Over 40	8	14	8	20
Total	57	100	41	100

Table 11b Age at the birth of the last child, 1810 and 1830 Morshansk female cohort members

	1810		1830	
Age	Absolute	%	Absolute	%
20–29	5	21	5	45
30–39	10	42	5	45
40–49	9	38	1	9
Total	24	100	11	100

The Rasskazovo 1810 female cohort members who had not been widowed within the first ten years of their married life gave birth to their last babies at the average age of 36.3 years while for the 1830 cohort this was 38.6 years. For both cohorts the last children were born when the mothers were aged 44-46. Forty-six percent of the females of the 1810 cohort and 44% of that from the 1830 cohort delivered their last babies between the ages of 36 and 46. Although the women in Rasskazovo had shorter fertile lives than those in Malye Pupki, there is no reason to talk of birth control because quite a lot of the mothers still gave birth to children when older than 40. It is better to assume that the females in Rasskazovo, who as serfs were exploited as textile workers, had their health undermined sooner than Malye Pupki's state peasants.

The age at which the last child was born was traditionally high for the cohort of 1810 in Morshansk and closer to Malye Pupki's figures than to those of Rasskazovo. But the females born in 1830 behaved quite differently. Keeping in mind that the numbers are rather small, 90% of them ceased to have children ten years and more before the biological limit. In four cases we can suppose that there was some form of modern birth control as the two children were born when their mothers were under 30, but only one case displayed ideal planning with the two babies being born when the mother was aged 21 and 23. In other cases, the interval between the first and second child was as high as 4 to 6 years which would suggest poor health of the mother. Poor or weakened health and not rational birth control often determined the number of children. This shows up in the large intervals between babies where the couple clearly wished to have as many babies and for as long as they could. Thus, the Morshansk 1810 cohort included cases where the mother was 28 and 37 and 27 and 45 when giving birth to the first and second child respectively. The 1830 cohort included a mother with the first baby at age 23 and the second at 37, and also two women who gave birth to four children each, with the last child being born at the age of 36 and 44 respectively after intervals of 9 and 14 years.

Fertility rates were tied to the characteristics of labour, the food intake and the health of the potential mothers. It is possible to correct some conventional demographic indices through comparative study of parish and medical sources. As became apparent from the medical data mentioned above, parish registers missed a significant number of the births. The number of pregnancies and also the birth intervals were affected by miscarriages in the first 2 to 5 months of a pregnancy. The annual percentage of such patients in the TRZH gynaecology department was between 10% and 30%. Taking this into consideration, real marriage-birth and inter-birth intervals could be a factor of two lower. However, even when such a correction factor is taken into account many women clearly had large birth intervals. Most probably this was due to the state of health of those females and the hard living conditions which caused a lot of stillborn babies. Regular malnutrition and starvation as the result of poverty, causing hunger amenorrhea, combined with hard labour and syphilis (since the 1880s) are important explanations for these failing pregnancies. The observations of Dr V. Nikolsky for the Tambov sub-region in 1871-1881 helped to suggest that the average menopause age was as low as 41.2.

The age distribution of the reproductive period of the cohort members can be compared with the gynaecological statistics. The records of 418 TRZH patients who became pregnant and delivered babies between 1895 and 1904, but who afterwards became sterile because of disease, show that

29% of these women delivered their last baby before the age of 27, 35% between the ages of 27 and 36 and 36% after the age of 36. There were fewer cohort members in the first and second age groups because women who had only had miscarriages and babies who died unregistered are not included and for the reason that young sick (sterile) peasant females were more inclined to visit a hospital than older ones who had already fulfilled their reproductive plans. Only severe, often fatal, illness could induce this last group to see a doctor.

Marriage

Both types of analysis complement each other when studying peasant marriage customs. The all-parish statistical method gives a full picture of all marriages registered in a parish, making it possible to calculate marriage rates.

Mironov's calculations of the marriage rate of the Russian peasant population in the period 1800-1917 show substantial fluctuations in different years, but in the long term there seems to have been a tendency for a decline from 9.7 marriages per thousand inhabitants in the eighteenth century and 10.1 in the 1860s to only 8.4 in the 1910s.[10] Table 12 also shows fluctuations with relatively low rates for the first half of the nineteenth century and high marriage rates by the 1860s which declined in the following half century in the traditional villages. As Mironov states, marriage rates in agrarian settlements were related to the amount of arable land per head so that overpopulation and decrease of land allocations made marriage rates in agrarian regions decline. It is interesting to see how in 1917, when there was mass desertion and disintegration of the army, there was an enormous wave of marriages as a kind of compensation for marriages postponed during the First World War. In suburban Prokovo-Prigorodnoe, marriage rates were initially low and close to those of the city, but even here 1917 witnessed a surge of marriages to show that peasant traditions were still alive in a substantial part of the population.

The marriage rate in Rasskazovo tended to stabilize by the 1850s with a value somewhere between that of urban and rural rates. According to Mironov's observations, the marriage rates in the industrial regions, where income was much less dependent on the size of the land allocations, never dropped below 9.0‰ even in the 1900s. The 9.4‰ shown by Rasskazovo in 1884 supports the view that marriage rates there were dependent on agricul-

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[10] Миронов, *Социальная история России.*

Table 12 Marriage rates in Tambov Region parishes (‰)

	Parishes						Tambov Region
	Bailovka	Kalugino	M.Pupki	P.-Prigorod.*	Rasskazovo	Morshansk	
1816	No data	No data	*c.* 7	No village	7.4	No data	No data
1834	*c.*8	No data	*c.* 8.5	No village	6.1	*c.* 13**	9.5-10.8
1859	14.5	9.4	13.7	*c.* 7.5	11.9	5.1	9-10
1862	No data	13.7	14.7	*c.* 9	12.1	9.6	10.1
1886	13.6	11.3	13.5***	*c.* 8	9.4	10.2****	9.2
1911	8.0	No data	8.8	No data	No data	No data	7.1
1917	8.3	9.2	13.9	*c.* 12	No data	No data	3.4

Notes: ⋆ Data on Prokovo–Prigorodnoe are estimates as the exact number of Prokovo–Prigorodnoe's inhabitants who were parishioners of the Pokrov (Holy Shroud) church in Tambov is not known.

⋆⋆ Data relates to 1828.

⋆⋆⋆ Data relates to 1889.

⋆⋆⋆⋆ Data relates to 1897.

Sources**:** GATO, Ф. 1049. Оп. 5. Тамбовский уезд; Ф. 12. Оп. 1. Ревизские сказки Тамбовского уезда. Ф. 181. Оп. 1. Д. 1396. Лл. 7-22 об; *Сборник статистических сведений по Тамбовской губернии. Т.12, Тамбовский уезд* (Tambov 1886) 142-185; Акользина, *Изменение социальной структуры*; Кончаков, *Демографическое поведение крестьянства.* Unpublished data on Pokrovo-Prigorodnoe in M. Milekhin's collection: *Обзор Тамбовской губернии за 1878-1910 гг* (Tambov 1879–1912); А.Е. Андриевский, *Статистическое описание Тамбовской епархии* (Tambov 1911).

tural income. It is clear that the process involved many marriages of newcomers showing that the village gradually opened up and became economically more attractive to foreigners, mostly traditional peasants. Marriage rates in Morshansk in the 1860s were still 9.6‰. Mironov gives 10.6‰ for Russian towns in the period 1801-1860. However, such average indices hide the individual and complex processes going on in separate towns. Up to the 1830s Morshansk had relatively high marriage rates, close to the rural ones of the 1850s, such as 14‰ in 1825. By 1840 these had fallen to 8‰ and in 1854 and 1855 they were only 5 and 6‰ respectively. In the early 1860s the rates rose again to 9.7‰ in 1861 and 9.6‰ in 1863, though in 1864-1868 marriage rates in Morshansk dwindled to 2-4‰ reflecting the town crisis when large numbers of males migrated away in search of a living. However, at the end of the nineteenth century, marriage rates rose again due to a sharp rise in immigration of young peasants who brought with them traditional rural marriage behaviour.

The all-parish statistical method is, however, not completely reliable for studying such a basic index as the age at marriage. Marriages were only recorded in parish registers from the 1840s and the age noted for the bride and groom relied on their own statements. A cohort database with dates of births and marriages of cohort members allows the age at marriage to be calculated precisely and also makes it possible to calculate the ages at marriages for periods long before the 1840s. The census registers of 1816 and 1834 allow the ages at marriage of cohort member couples from a given village to be found. Personified data on female cohort members help to search for such brides in other, mostly neighbouring, parishes. A complete source-oriented database with full information on dates of births and marriages of all parishioners offers much greater possibilities of calculating the age at marriage precisely. Using cohort analysis there is a precise age at marriage for the cohort member but not necessarily for his or her spouse.

Table 13 Differences between age at marriage as stated in marriage registers and the real age, Bailovka 1810-1918

Difference in years	Males	Females
More than 4 years older	4	2
3–4 years older	2	0
1–3 years older	6	5
The same	24	17
1–3 years younger	2	2
More than 3 years younger	1	0
Total	39	26

Considerable differences between the ages at marriage as reported in the marriage registers and the actual age were found in more than one third of the cases. The results of the first calculations given in Table 13 show that this mainly involved overstating the age at marriage, both of the brides and the grooms.

Table 14 Average age at marriage, all-parish data for Malye Pupki (N=4,242) and Bailovka (N=1,086)

	Males	Females
Malye Pupki	19	20
Bailovka	20	18.5

Table 15 Average age at marriage of cohort members

	1810-1811		1830-1831		1850-1851		1870-1871	
	Male	Fem.	Male	Fem.	Male	Fem.	Male	Fem.
Malye Pupki	18.5	20.8	18.6	19.8	18.3	18.7	19.7	20.0
Kalugino	19.8	20.3	20.0	19.0	19.3	17.7	20.5	19.1
Rasskazovo	19.6	17.6	20.7	20.0	No data			
Morshansk	19.6	18.7	20.5	19.5	No data			

N.B.: The number of cases for Rasskazovo are 29, 27, 24 and 18 respectively and for Morshansk 10, 15, 12 and 12 respectively.

Both an all-parish analysis as well as a cohort analysis shows the predominance of low ages at marriage for peasants with grooms most of the time being older than their brides. However, in the town of Morshansk and in the trade and industrial village of Rasskazovo, a rise of age at marriage is noticeable and this requires more information to be studied properly. The village data shows a lowering of the age at marriage, especially for girls. This can possibly be explained by the peasants' urge to have more children for the sake of socio-economic aims combined with the presence of a relatively large number of potential brides. A deficit of men, combined with local over-population, might have stimulated the young women to hunt for husbands.

Naturally, deviations in the average age at marriage should be taken into account, showing that there were some differences in the individual age at marriage, but in general these deviations were small supporting the view that violations of the early marriage tradition were rare. These deviations had little in common with the standard deviations for non-agricultural peasants in the Olonets and Yaroslavl region and were not in any way of the same magnitude as standard deviations in the age at marriage for Western Europe. This method, therefore, also points to a traditionally low age at first marriage in the pure agrarian villages being studied.

Table 16 Average age at marriage and the standard deviation, Malye Pupki and Bailovka, 1840-1917

	Malye Pupki				Bailovka			
	Fem.	St.dev.	Male	St.dev.	Fem.	St.dev.	Male	St.dev.
1840–1849	20.4	2.3	19.3	1.8	19.4	2.0	20.5	3.4
1850–1859	20.2	2.4	19.9	2.9	18.8	2.0	20.6	4.1
1860–1869	19.3	2.3	19.7	3.9	17.7	2.8	21.3	6.2
1870–1879	19.1	3.0	19.3	2.8	17.4	1.5	20.2	3.7
1880–1889	18.8	1.7	19.4	2.5	17.8	2.6	19.0	2.7
1890–1899	19.4	1.9	19.5	2.5	19.1	3.2	19.3	2.3
1900–1909	18.8	1.9	19.7	2.9	18.7	2.2	19.4	3.0
1910–1917	18.8	1.9	19.6	3.0	18.7	2.1	19.4	1.8

Table 17 Average age at first marriage for 1810 and 1830 Rasskazovo cohort members

	1810			1830		
	Serfs	State peasants	Factory workers	Serfs	State peasants	Factory workers
Male	19.5	18.8	–	21.5	19.0	21.0
Female	17.9	18.0	19.0	19.9	18.2	23.0

The age at marriage of serfs and factory workers rose in the two decades between 1810 and 1830 (Table 17). A possible explanation may be that they were prepared to work longer in factories before marrying in order to earn sufficient money for a future family life or for a dowry. That rise also points to the weaker ties of serfs and factory workers with the land allocations in contrast to state peasants who were pushed into early marriages by socio-economic rules and the socio-economic situation. Some indirect data on the villages in the parish of Rasskazovo which was inhabited by state peasants points to a deficit of potential grooms and brides due to the close family relationships in these small settlements. Therefore, state peasants tried to marry earlier, when there was still some marital choice.

Table 18 Average age at first marriage for 1810 and 1830 Morshansk cohort members

	1810			1830		
	Merchant	Meschane	Peasants	Merchant	Meschane	Peasants
Male	19.7	19.5	19.4	20.8	24.7	20.4
Female	17.7	17.5	18.8	16.0	20.8	20.6

Early marriages predominated in each Morshansk social-juridical group for the cohort of 1810. The 1830 cohort shows a substantial rise in the age at marriage. Only the daughters of Morshansk merchants lowered their average marriage age. This general rise was probably a result of the economic crisis in

the 1830s–1860s. The marriage habits of the people in the towns was therefore noticeably different from those of the inhabitants of the villages. Later on, the age at which merchants and meschanes married was determined by the desire to be successful first and then to choose a rich bride. The Morshansk peasants consisted of various status classes including local inhabitants, the Tzar peasants who were a majority up to 1779, the year in which Morshansk acquired the status of a town, the manor servants of landlords, the officials and the serfs who were employed on seasonal work. All of these groups experienced a break with agriculture which led to the end of early marriages.

Table 19 Age groups at first marriage, all-parish data, the 1840s-1910s

Age	Bailovka %		Malye Pupki %	
	Female	Male	Female	Male
Under 20	75.2	63.3	56.7	69.5
20–25	23.5	30.3	42.1	26.4
25–30	0.7	4.1	0.9	2.9
Over 30	0.6	2.3	0.3	1.3

In general, Table 19 shows a traditional marriage pattern for Bailovka and Malye Pupki in the nineteenth century. However, it is clear that the percentage of females entering into early marriages in the two villages differed substantially. The usual explanation given for later female marriages, with the bride being older than 20, are deformities and other handicaps or a low economic status of the family. But such explanations cannot have applied to the whole parish of Malye Pupki for the whole of the century. Bearing in mind that brides in Malye Pupki were often older than their grooms, that periodic fluctuations of the age at marriage occurred and that the percentage of older brides rose as a whole, it may be supposed that this old village, situated in a region with a high density of settlements and population and with an exhausted and narrow marriage market, experienced a surplus of women who had had to start hunting for husbands in the 1850s–1870s. Population growth and the general overpopulation of the nineteenth century confirmed such peasant marriage tactics as a stable tradition. First marriages of people over 25 were rare, for males such old grooms were usually retired soldiers.

Cohort analysis was used to trace the dynamics of age at marriage for different generations of parishioners. In Malye Pupki, males preferred to marry under the age of 20 and young brides also predominated in the 1830, 1850 and 1870 cohorts but their percentage was always less than that of the grooms. In Malye Pupki and Kalugino, as in other villages presumably, the percentages of young brides and grooms rose steadily from the first to the

third cohort and then remained steady which corresponds with the all-parish data. In the 1880s-1890s, the period in which the 1870-71 cohort would have married, some of the peasant youth married later than the traditional marriage age limit of 25. The marriage patterns in Rasskazovo and Morshansk differed greatly with an early transition in the first half of the nineteenth century to relatively late marriages for almost half of the males and some of the females.

Table 20 Age at first marriage divided in age groups for cohort members (%)

	Sex	1810		1830		1850		1870	
		< 20	> 20	< 20	> 20	< 20	> 20	< 20	> 20
Malye Pupki	M	57	43	83	17	96	4	75	25
	F	30	70	56	44	74	26	71	29
Kalugino	M	50	50	50	50	67	33	56	44
	F	43	57	50	50	100	0	63	37
Rasskazovo	M	79	21	58	42	No data			
	F	85	15	72	28				
Morshansk	M	70	30	42	58	No data			
	F	100	0	82	18				

Table 21a First marriage of social-juridical and age groups, the cohort of Rasskazovo 1810

	Serfs				State peasants				Factory workers			
	Male		Female		Male		Female		Male		Female	
Age	Abs.	%	Abs.	%	Abs.	%	Abs.	%	Abs.	%	Abs.	%
Under 20	17	77	20	87	6	86	1	50	–	–	2	100
21-25	4	18	3	13	1	14	1	50	–	–	–	0
Over 25	1	5	–	0	–	0	–	0	–	–	–	0
Total	22	100	23	100	7	100	2	100	–	–	2	100

Table 21b First marriage of social-juridical and age groups, the cohort of Rasskazovo 1830

	Serfs				State peasants				Factory workers			
	Male		Female		Male		Female		Male		Female	
Age	Abs.	%	Abs.	%	Abs.	%	Abs.	%	Abs.	%	Abs.	%
Under 20	10	59	7	64	2	100	5	100	2	40	1	50
21-25	6	35	4	36	–	0	–	0	3	60	1	50
Over 25	1	6	–	0	–	0	–	0	–	0	–	0
Total	17	100	11	100	2	100	5	100	5	100	2	100

The low absolute numbers in Table 21 only allows the tendency to later marriages of the 1830 cohort from Rasskazovo to be pointed out. Later marriages were especially common among serfs and factory workers, while the state peasant couples became younger. In the 1830 cohort there was not

even one marriage with a bride or a groom older than 20 coming from the Rasskazovo outskirts to support the idea that early peasant marriages were due to a narrow marriage market. The majority of marriages in both cohorts were between people under the age of 20, in particular the girls, though the age difference among the serfs was not large and even decreased. Grooms over 25 years old remained a rare phenomenon.

Table 22a First marriage of social-juridical and age groups, the cohort of Morshansk 1810

	Merchants				Meschane				Peasants			
	Male		Female		Male		Female		Male		Female	
Age	Abs.	%	Abs.	%	Abs.	%	Abs.	%.	Abs.	%	Abs.	%
Under 20	2	67	6	100	1	50	6	100	4	80	3	100
21–25	1	33	0	0	1	50	0	0	1	20	0	0
Total	3	100	6	100	2	100	6	100	5	100	3	100

Table 22b First marriage of social-juridical and age groups, the cohort of Morshansk 1830

	Merchants				Meschane				Peasants			
	Male		Female		Male		Female		Male		Female	
Age	Abs.	%	Abs.	%	Abs.	%	Abs.	%	Abs.	%	Abs.	%
Under 20	2	50	1	100	1	33	5	83	2	40	3	60
21–25	2	50	0	0	1	33	0	0	3	60	1	20
26–30	0	0	0	0	1	33	0	0	0	0	1	20
Over 30	0	0	0	0	0	0	1	17	0	0	0	0
Total	4	100	1	100	3	100	6	100	5	100	5	100

The 1810 cohort members of the town of Morshansk practised early marriages irrespective of their status with 70% of the males and all the females married before the age of 20. The 1830 cohort clearly shows the impact of social status, in particular in the marriage behaviour of the females. Two out of three of the meschane and peasant men, half of the sons of merchants, 40% of peasant women and 17% of the meschane daughters married after they became 20 years old and marriages of people older than 25 began to appear. The merchants seem to have been the most conservative, while the meschane and the peasants were equally rapid in changing to a new pattern of marriage.

Table 23 shows that throughout all the periods studied men of both parishes preferred to find their brides from their own village or from those villages nearby with the same traditions. The second half of the period under investigation revealed a few marriages with women from towns, most of whom, however, had left Bailovka and Malye Pupki as outmigrants some years before.

Table 23 The origin of brides (marital migration), all-parish data, 1810-1918

Settlement	Bailovka %	Malye Pupki %
Native parish	86	65
Other villages	13	34
Towns	1	1

Table 24 The pre-marriage location of cohort members brides, Malye Pupki (M.P.), Bailovka (B.), Kalugino (K.)

Loca-tion	Cohorts											
	1811 %			1831 %			1851 %			1871 %		
	M.P	B.	K.	M.P.	B.	K.	M.P.	B.	K.	M.P.	B.	K.
Native parish	58	100	100	62	100	100	70	75	100	94	40	100
Other villages	42	0	0	36	0	0	30	25	0	6	60	0
Towns	0	0	0	2	0	0	0	0	0	0	0	0

Table 25 Places of origin of mothers and brides of cohort members, Rasskazovo cohorts 1810 and 1830

Location	1810				1830			
	Brides		Mothers		Brides		Mothers	
	N	%	N	%	N	%	N	%
Rasskazovo	28	42	93	78	30	59	76	63
Rasskazovo parish	34	52	21	18	14	27	35	29
Neighbouring villages	3	5	4	3	2	4	4	3
Rest of Tambow region	–	0	2	2	5	10	3	3
Other regions	1	2	–	0	–	0	2	2
Total	66	100	120	100	51	100	120	100

In general, peasant marital behaviour was traditional with partners from local places being preferred. The enormous Rasskazovo parish was large enough to allow a bride to be chosen locally who was not even distantly related to the man. In contrast with behaviour in the traditional villages, some of the young men in Rasskazovo found brides in other Tambov sub-regions and also in the towns of the neighbouring Ryazan region, a choice presumably related to traditional trade ties.

It is interesting to outline the social space that marriages had. Cohort and all-parish analyses of Malye Pupki both show complete correspondence of a spouse's social status with the norms of the traditional society. In all cohorts and throughout the parish almost 100% of the marriage partners were of the same social status. State peasants married state peasants, soldiers or their daughters, including brides from the soldier class, who were originally state peasants. Only one case was found in the cohorts where a state peasant man

married a girl from the Kozlov meschane.

Table 26a The social status of marriage partners in Bailovka, 1810-1861

Brides \ Grooms	State peasants	Manor serfs	Serfs	Soldier class	Clergy	Econ. Peasants	Meschane	Unknown	Total
State peasants	3						1	1	5
Manor serfs		4	1				2		7
Serfs			301	5				2	308
Soldiers	2	1	1						4
Clergy					2				2
Econ. peasants						1		2	3
Student					1				1
Meschane			1						1
Total	5	5	304	5	3	1	3	5	331

Table 26b The social status of marriage partners in Bailovka, 1862-1918

Brides \ Grooms	Former serfs	Former manor serfs	State peasants	Soldiers	Clergy	Meschane	Inmates of an orphanage	Officer's daughter	Unknown	Total
Former serfs	318	3	4	9	6	2	2		11	355
Former manor serfs	1	2								3
State peasants	2	4		1	2					9
Soldiers	19	1		3	1					24
Meschane	6									6
Merchants					2					2
Nobleman								1		1
Total	346	10	4	13	11	2	2	1	11	400

The all-parish data included only 9 brides who were not peasants or from the soldier class. These were 6 daughters of meschane, 1 daughter of a merchant, 1 daughter of a priest and 1 daughter of the gentry. It is also important to point out the absence of brides belonging to the serfs. Only 10 of the 2,665 men in the all-parish data violated the rule of not marrying serf girls. The rarity of such misalliances reflected the traditionally more privileged position of the state peasants and their arrogant attitude to the serfs, who in fact toiled on the land under very similar conditions to the state peasants. It must, however, also be taken into account that the neighbouring villages were mostly inhabited by state peasants, so that there was only a very narrow social circle from which to choose partners which made stepping out of the usual marriage pattern quite rare in Malye Pupki. A similar but even more rigid

pattern is seen in Bailovka, as shown by the source-oriented database with all-parish data for this village.

The peasants in Bailovka showed a traditional choice of marriage partners, with the serfs before 1861 and emancipated serfs afterwards choosing a spouse from the same social class. After the Reform of 1861 they only risked a slight widening of their marriage circle.

The cohort members from Rasskazovo belonged mostly to various subdivisions of serfs and their marriage circle was determined by the master to whom they belonged. State peasants had more freedom of choice. The 1810 cohort showed seven inter-class marriages (8%) and there were ten such marriages (15%) in the 1830 cohort. Morshansk showed 20% for both years while in the four cohorts from Malye Pupki only one contained one case of an inter-class marriage. In this respect, therefore, Rasskazovo's position can be regarded as an intermediate, or perhaps more accurately, a transitional one.

Table 27 The social status of the partners of 1810 and 1830 cohort members in Morshansk

Grooms	1810								1830							
Brides	Merchants		Meschane		Peasants		Total		Merchants		Meschane		Peasants		Total	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Merchants	10	91	0	0	1	9	11	100	3	60	2	40	0	0	5	100
Meshane	0	0	13	87	2	13	15	100	0	0	5	100	0	0	5	100
Peasants	0	0	5	38	8	62	13	100	0	0	1	20	4	80	5	100

During the first decades of the nineteenth century Morshansk witnessed some social isolationism in marriage behaviour, although parish registers also reflected the aspirations of some peasants from suburban settlements to marry brides from meschane families. Marriages of merchants were also not entirely within their own class with some marriages with people from the meschane or the peasants of the Tzar family (*udelnyie*).

Death rates

The benchmark years initially taken for forming the cohorts reveal an important shortcoming of cohort analysis for the study of Russian peasant mortality, since those years could have been, and indeed were found to be, unusual years for the cohort members and for their infants with large differences between what can be regarded as normal death rates and those in critical years. For this reason the death rates for the cohort members had to be compared with those for the population of the whole parish.

The very low rate for 1816 is due to the incomplete registration of infant deaths. State peasant villages, such as Malye Pupki and Prokovo-Prigorodnoe and the trade and industrial village of Rasskazovo had far fewer fluctuations in

the death rate than the fully serf village of Bailovka and the partly serf village of Kalugino. The figures differ a little from the average all-Russian death rates for the peasantry (calculated by Mironov as 39‰ for the mid-1850s). This difference can be explained by better living conditions and organized medical services in the state and trade and industrial villages by the 1850s. All the parishes tended to show lower death rates by the turn of the century. Mironov's opinion that such a decrease combined with extremely high birth rates would have had a negative impact on the peasantry by creating overpopulation is probably correct.[11]

Death rates for Morshansk in the middle of the nineteenth century were very high and comparable to other Russian towns. Mironov regards the critical state of the environment in the pre-industrial towns (overpopulation of dwellings, poor sanitation, epidemics, etc.) as the reason for these high urban death rates. Morshansk, in common with the villages, also experienced sharp fluctuations in the death rate − 22‰ in 1861, 44‰ in 1863, 25‰ in 1864 and 15‰ in both 1866 and 1868. Local circumstances, probably a sharp decline in the birth rates and thus of the number of infant deaths which formed the majority of deaths at that time, reduced death rates to very low values in the 1860s. It is clear that death rates based on specific and not necessarily typical years have to be checked against parish data for the same years.

Villagers of the same age as the cohort members have been chosen on purpose. Broadly speaking, the data relates to the generations born in 1811-1830, 1831-1850, 1851-1870 and 1871-1890, in each case extended by 5 years to 1835, 1855, 1875 and 1895 to avoid the problems produced by taking fixed cohort years (e.g. three of the four cohort years show very high death rates, especially 1830-1831 and 1871 which were years of devastating cholera epidemics).

The tables show once again how incomplete church registration was up to the mid-1830s. Indirect data was used to find more information about dead infants and children. Parish registers are helpful for tracing the history of the parents, showing the births of other children, second marriages, when they acted as godfathers or witnesses at marriages and providing data on deaths.

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[11] Миронов,, *Социальная история России*, 191-192.

Table 28 Death rates in separate settlements of the Tambov Region, 1800-1917 (‰)

	Bailovka	Kalugino	M. Pupki	P. Prigorod*	Rasskazovo	Morshansk	Tambov Region
1816	*c.*15	No data	*c.* 20	No village	11	No data	15 (1817: 16.1)
1834	*c.*25	No data	*c.*35	No data	34	No data	*c.*30 (1837: 29.8; 1838: 32.2)
1858	39	45	26	39	38	44	34.2(1859: 33.2)
1862	60	59	20	29	38	44	39 (1863: 34.8)
1886	46	24	30***	35	33	42***	32
1911	25	No data	34	No data	No data	No data	29
1917	18	10	No data	*c.* 20	No data	No data	26.5

Notes: ⋆ Figures for Prokovo-Prigorodnoe are estimates as the exact number of parishioners of the Pokrov Cathedral in Tambov is not known.
⋆⋆ Data relates to 1889.
⋆⋆⋆ Data relates to 1897.
Source: see Table 12.

Table 29 Infant and child mortality (%) in Malye Pupki (MP) and Bailovka (B)

	Cohort members								All parishioners by year of birth							
	1810-11		1830-31		1850-51		1870-71		1811-35		1831-55		1851-75		1871-95	
	MP	B	MP	B	MP	B	MP	B	MP	B	MP	B	MP	B	MP	B
0-1	4	0	4	10	22	0	14	21	4	23	16	33	21	31	19	48
1-5	12	0	12	60	15	68	10	57	28	24	29	22	19	22	23	12

Naturally, these facts are not direct evidence for the death of a particular child in the same village. Parents could have been away from the parish for some time and a baby, whose details are being searched for, could have died or survived somewhere outside the parish. Youths could have been recruited for the army and not returned back home so that they were not recorded in the parish again and girls could have married in other parishes. In such cases, the fact that the parents of the cohort members are recorded as present does not prove that their children's deaths were not noted in the registers. A search for the parents of cohort members concentrating on girls under 17 (marital age) and on youths under 21 (age of recruitment) is more reliable.

The missing information on cohort members can be minimised by using census data. A comparison of the two types of Russian registrations has been done before by I. Troitskaya. However, there were two faults in her investigation, the first being that she only studied death rates and began first with the censuses and then moved to the registers, which is not the correct approach because of the obvious incompleteness of the censuses with respect to deaths, and secondly, she used only very limited material for just a few years. It has been assumed that the missing young cohort members (cohorts of 1810-11, 1830-31, 1850-51) were most probably already dead when their parents were listed in the censuses closest to a cohort year as living in the parishes under investigation, e.g. the censuses of 1816, 1834, 1850-51 and 1858. Naturally, children of 4 to 8 years old could not migrate out of a parish independently. In the first two cohorts from Malye Pupki there were as many as 14 missing and probably dead in each cohort, which represents a loss of 12% of the information due to incomplete registration. The first three cohorts from Bailovka gave similar results but this value is regarded as being too low due to the obvious incompleteness of the data on the cohorts from Bailovka caused by the absence or the changing of family names of serfs up to the 1850s. This makes it clear that in order to reconstruct the history of a family, a thorough study of the parish and census registers is needed.

The cohort analysis of Rasskazovo supports these ideas concerning the possibilities of obtaining more information on mortality. A thorough and detailed study of the parish registers, census registers and confession lists revealed 29 possibly dead in the 1810 cohort (24%) and 18 in the 1830 cohort (15%).

If the possibly dead infants are also taken into account, it is possible to state that all the cohorts from Malye Pupki experienced more or less the same infant death rates of between 14 and 22% and, most importantly, this corresponds with the death rates of their generation according to the all-parish data which gave figures of between 16 and 21%. A maximum difference of 5% occurred between the 1871 cohort and its all-parish contemporaries.

The data on child mortality (those dying between the ages of 1 and 5) for three of the four cohorts from Malye Pupki differ substantially by percentages as high as 13 to 18%. This must be due to incomplete registration of the children in the generation of 1811-1835 who actually died, thus distorting the figures for the 1811 cohort. In the period 1812-1817, the parish only noted an average of 17 children dying each year while in the period 1818-1835 there were 33 deaths in that same age group each year. A difference in death rates between the 1831 cohort data and the all-parish data is hard to explain by under-registration. It is possible that the first five years in the lives of the cohort members produced atypical death rates for the children. In the period 1832-1836 the child mortality in the parish was only 26 children a year, 7 less than in the previous decade and 19 children less than in the period 1837-1855. The difference for the 1871 cohort must be regarded as a coincidence as the parish contemporaries of the cohort showed steady death rates of 36 children a year in 1872-1876, and 40 in the whole period 1872-1895.

Astounding differences between cohort data and all-parish data are shown by Bailovka, even when the 12% of possibly dead is added to the first three cohorts. The under-registration of infant deaths caused an abnormally high percentage of child deaths. At the same time the all-parish death statistics are comparable with those of Malye Pupki. Such a difference has probably been caused by the small cohort numbers and the choice of the cohort year for Bailovka. It is difficult to choose cohort years beforehand and the singularity of a cohort may only display itself at the start of the cohort analysis. Sometimes the people selected for a cohort appear to have an atypical lifestyle for their generation. Nevertheless, a comparison of the data for Malye Pupki with that for other parishes, except for the non-typical Bailovka, showed quite similar results, suggesting that the cohort analysis was reliable.

The 1810 and 1830 cohort data for Kalugino, Rasskazovo and Morshansk also revealed a serious under-registration of infant deaths, showing only a maximum infant death rate of 7% (with the exception of Morshansk in 1830 when the improved registration in towns and the availability of family names for all town dwellers made the search for people who had died easier). The child death rates of 10 to 14% for Kalugino and Rasskazovo are close to those of Malye Pupki. The exception is the 1830 cohort from Rasskazovo which was severely hit by the scarlet fever epidemic of 1831. The infant and child death rates for the 1850-51 cohort from Pokrovo-Prigorodnoe are very similar to those of Kalugino and Malye Pupki.

Table 30 Infant and child death rates of cohort members from other Tambov parishes (%)

Cohort years	1810		1830		1850		1870	
	Age at death		Age at death		Age at death		Age at death	
	0-1	1-5	0-1	1-5	0-1	1-5	0-1	1-5
Kalugino	4	10	6	13	28	8	14	10
Rasskazovo	0	14	5	24	No data★			
Prok.-Prigorodnoe	No village				32	7	No data	
Morshansk	7	5	19	2	No data			

Note: ★ No data means the absence of a completed cohort analysis for a given settlement

Table 31 Distribution of the age at death in Malye Pupki (% of the number of deaths)

	Cohorts				All parishioners
Age	1811	1831	1851	1871	1811–1916
0-1	9	10	38	32	25
1-5	29	37	26	15	30
6-10	4	6	2	0	5
11-20	9	6	2	0	4
21-30	4	8	3	4	5
31-40	2	19	0	0	5
41-50	11	2	6	6	5
51-60	11	0	10	*c.* 15★	6
Over 60	21	12	13	*c.* 30★	15

Note: ★ The precise percentages of those in the 1871 cohort who died at age over 50 are not given as cohort members were only traced up to 1917. Therefore the percentages shown in the previous cohorts have been taken as a guide, assuming 15% as a maximum for the 1871 cohort and the remaining 30% for the age group over 60.

Both research methods (cohort analysis and all-parish data) show that the pattern for Tambov is a typically Russian one. Once again infant death under-registration was present in the first decades of the nineteenth century and can be calculated at 15%. The age at death for both sexes has been studied in greater depth for Rasskazovo (Table 32) and for the two Morshansk cohorts (Table 33).

Rasskazovo also showed serious under-registration of infant deaths of between 15 and 20% of the total number of deaths of all ages up to the 1830s. Only one out of every seven to fifteen dead infants was actually registered whereas the deaths of children from 1 to 5 years were already properly registered as early as the 1790s. Throughout the whole period, infant and child deaths (0-5 years) made up c. 55% of the total number of deaths, which corresponds with the rates found for Malye Pupki. Death rates in other age

groups in Rasskazovo also correspond in general to the data for Malye Pupki but in this trade and industrial village there were some differences between the sexes. The list of causes of death in Rasskazovo for the age group from 6 to 10 includes the usual infections and accidents but also such causes as 'killed by a machine'. Death rates for the working age groups rose for males by the 1840s and for females by the 1860s. Preliminary research (the precise calculations are in progress) shows that in years when there were no epidemics of tuberculosis, working males usually died from 'scalding in a dye bath' or from 'being killed by the pulley while wool washing'. Tuberculosis was quite common for wool industry labourers and demonstrates one of the impacts of industrialization. The commonest causes of death for female labourers were also tuberculosis and 'asphyxia'. By the 1860s new causes of death, uncommon for the Russian villages, appeared such as 'frozen in a street after the consumption of too much alcohol' or simply 'delirium tremens'. The modern village did not have as much social control so that it was possible to drink oneself to death without the neighbours being blamed, or to strip a drunkard on the road in summer or winter. Such cases also reflected the emergence of sufficient leisure time to allow drinking for people not employed in agriculture.

Even the data for the first cohort from Morshansk differs from that for the villages. Infant and child mortality in Morshansk was more than 20% lower, but the death rates in the 6-10 age group were noticeably higher. Perhaps there was a longer period of natural selection in the town. The 1810 cohort also showed a higher death rate in the age groups 31 and 50 with the causes of death being listed as natural. The small absolute figures do not allow the conclusion to be drawn that these were cases of relatively early urban ageing. The 1830 cohort figures suggest high infant mortality rates, although in absolute terms 23 cases is very high in comparison with rural cohorts where as many as 30 infants died when the correct registrations are considered. Because Morshansk had stable family names for the fathers by the 1830s the registration of its dead was made more accurately. A very high share of infant deaths for the cohort members who lived all their lives in the town was influenced by outmigration and out of town deaths in crisis times. Such a situation yields a great deal of evidence on child mortality, but only a few adult deaths have been found. This has allowed evidence for the deaths of 20 children and 24 adults for the 1810 cohort from Morshansk and 30 and 9 respectively for the 1830 cohort to be found.

Seasonal mortality showed the same pattern as could be expected in a traditional society (food shortages by late spring, a lack of parental attention to the feeding of babies at labour peaks etc.). Monthly death rates fluctuated substantially from 6% to 15%. The seasonal death peaks are obvious in July-

Table 32 Age at death of males and females in the parish of Rasskazovo, 1791-1872 (%)

Age		0-1	1-5	6-10	11-20	21-30	31-40	41-50	51-60	61-70	Over 70
1793-1799	m	1.4	30.2	6.1	7.6	7.6	3.3	8.5	14.6	9.0	11.8
	f	6.0	30.2	1.5	7.6	5.5	6.5	9.6	12.6	15.1	5.5
1800-1806	m	1.2	29.8	8.8	3.5	7.9	6.0	5.5	9.2	11.8	16.5
	f	0.8	33.6	5.7	5.2	6.2	5.7	7.2	13.7	9.5	11.5
1807-1813	m	4.8	23.3	4.4	7.8	7.2	6.1	8.1	9.4	10.0	17.9
	f	2.9	23.6	4.9	5.7	5.6	9.8	9.6	9.3	12.7	16.0
1814-1820	m	6.3	37.3	6.3	7.6	4.8	3.5	7.0	7.0	7.6	12.7
	f	3.0	33.0	5.6	7.1	8.2	6.7	7.9	10.1	9.0	9.5
1821-1827	m	11.5	30.2	3.0	7.8	8.0	5.6	5.6	8.0	8.0	12.1
	f	8.3	27.0	5.0	3.0	5.0	8.0	8.3	11.8	12.3	11.6
1828-1834	m	26.8	29.1	4.0	3.9	4.0	3.4	5.0	6.0	7.6	10.6
	f	21.9	28.7	3.6	3.5	3.7	5.3	4.6	8.9	10.1	9.7
1835-1841	m	29.7	32.1	4.6	4.2	4.0	3.6	3.3	3.9	5.9	8.8
	f	29.5	31.4	3.6	3.5	3.2	4.5	4.1	5.1	7.1	8.2
1842-1848	m	30.3	24.3	4.1	4.9	5.6	5.4	5.6	4.4	7.6	7.8
	f	25.8	23.7	3.9	5.5	7.0	6.9	5.9	7.5	7.6	6.3
1849-1855	m	41.3	24.7	2.9	2.4	4.1	3.0	4.1	6.1	5.5	6.0
	f	36.6	26.7	3.0	3.7	4.5	4.2	3.2	5.2	7.2	5.8
1856-1861	m	36.1	30.8	6.2	2.9	3.4	3.9	3.2	4.1	4.7	4.8
	f	30.1	30.3	4.5	3.8	5.6	4.4	3.7	5.0	6.6	6.0
1862-1869	m	36.4	25.9	2.7	3.9	3.7	3.8	5.1	5.0	7.1	6.6
	f	36.0	24.8	2.3	3.3	5.4	6.0	4.0	4.7	6.9	6.9
1791-1872		27.3	27.9	4.2	4.1	4.9	5.0	5.1	6.2	7.4	7.8

Table 33 Age at death of the 1810 and 1830 cohort from Morshansk

	1810		1830	
Age	Abs.	%	Abs.	%
0–1	8	18	23	59
1–5	6	14	2	5
6–10	6	14	1	3
11–20	0	0	4	10
21–30	2	5	1	3
31–40	5	11	1	3
41–50	5	11	0	0
51–60	3	7	2	5
61–70	4	9	4	10
71–80	3	7	1	3
81–90	1	2	0	0
91–100	1	2	0	0
Total	44	100	39	100

August and also in January. The general trend is a decline in mortality in autumn when people had good food stores at their disposal. Death rates also dropped in December to increase again in January but this may have been due to the method of registration and the priests' annual accounts. A parish register had to be handed over to the eparchy at the very beginning of a year so priests wrote their last notes a few days before 31 December and listed the unregistered acts of those last days in a new book as belonging in January.

Table 34a Seasonal mortality in Bailovka and Malye Pupki, all-parish data, 1810-1918 (%)

	Malye Pupki			Bailovka		
	Female	Male	Total	Female	Male	Total
January	9.2	9.8	9.5	10.8	8.7	9.7
February	7.7	8.3	8.0	6.9	6.4	6.6
March	9.2	9.6	9.4	6.4	8.9	7.7
April	8.1	7.9	8.0	6.5	6.6	6.5
May	7.0	6.6	6.8	5.3	6.2	5.8
June	8.2	8.4	8.3	5.9	5.4	5.6
July	10.5	10.5	10.5	12.4	13.3	12.9
August	10.9	10.8	10.8	14.9	15.4	15.1
September	7.4	7.6	7.5	8.8	7.1	7.9
October	7.6	7.5	7.6	8.3	7.7	8.0
November	7.0	6.6	6.8	7.5	8.0	7.8
December	7.3	6.7	7.0	6.4	6.3	6.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 34b Seasonal mortality in Rasskazovo and Morshansk (aggregated data for the 1810 and 1830 cohort members and their close relatives)(%)

	Rasskazovo	Morshansk
January	12.4	11.3
February	6.7	11.3
March	9.1	9.5
April	7.1	7.7
May	6.9	5.0
June	6.3	12.7
July	10.7	10.4
August	10.2	7.7
September	8.0	1.8
October	6.7	8.6
November	7.4	7.7
December	8.5	6.3
Total	100.0	100.0

Causes of death were noted after statements of relatives of the deceased, often illiterate peasants, so the diagnosis was not very precise. Notes on causes of death only start to become more reliable after 1870 when future priests were taught medical principles at the theological seminaries. The pattern of the causes of death is clear with intestinal diseases being the most important followed by 'weakness' and smallpox (especially in Bailovka) as important causes in the first 5 years. Infections and fever were much less frequently stated for the group aged 5 to 15. The causes of death for adults were more diverse with only a very small percentage of intestinal diseases. A great many infections were often listed as fever, tuberculosis (or consumption) or malaria (also a fever). The column headed 'other' includes notes such as 'of old age' (*c.* 33% of the deaths of adults) and 'disease of the head', 'sudden' etc. The pattern of causes of death in Bailovka and Malye Pupki (Table 36) was therefore traditional and the result of very low standards of sanitation, the absence of the necessary health care for children, overcrowded dwellings and the absence of nursing of infants during summer labour peaks. Older children suffered from infections which gave them little chance of survival in the absence of a medical service. More and more adults died of tuberculosis and asthma. Epidemics appear to have only made large impacts in some specific years. There were two critical years in Malye Pupki and Srednie Pupki, 1843 (malaria for adults and scarlet fever for children) and 1857 (measles and diarrhoea).

Table 35 Causes of death of the 1810 and 1830 cohort members, their parents and children in Morshansk

Cause	1810						1830					
	Cohort memb.		Parents		Children		Cohort memb.		Parents		Children	
	N	%	N	%	N	%	N	%	N	%	N	%
Intestinal	7	16	1	3	16	67	21	54	1	2	8	47
Infections	10	23	–	0	4	17	4	10	3	5	6	35
Tuberculosis	4	9	–	0	1	4	3	8	7	12	1	6
Cholera	2	5	–	0	–	0	–	0	1	2	–	0
Stroke	5	12	6	17	–	0	–	0	10	18	–	0
Deliveries	3	7	3	9	–	0	1	3	5	9	–	0
Chill	5	12	3	9	1	4	3	8	2	4	2	12
Asphyxia	–	0	11	31	–	0	3	8	9	16	–	0
Dropsy	–	0	3	9	–	0	–	0	5	9	–	0
Fever	1	2	1	3	–	0	–	0	2	4	–	0
Paralysis	–	0	–	0	1	4	1	3	–	0	–	0
Cordial	–	0	–	0	–	0	–	0	1	2	–	0
Old age	6	14	7	20	1	4%	3	8	11	19	–	0%
Total	43	100	35	100	24	100	39	100	57	100	17	100

In the first half of the nineteenth century the principle causes of death in the town of Morshansk differed little from those in the rural area (Table 35). Intestinal diseases and infections, chills, tuberculosis, asthma and 'old age' were listed as the most important causes. Because the priests had greater medical knowledge the 1830 cohort had fewer notes on 'old age'. A special 'urban' cause of death for the females was complications during deliveries. However, it is unlikely that the pregnant women in Morshansk were weaker than their rural contemporaries, nor that the use of traditional midwives instead of doctors could be the reason for this. Most likely deaths at deliveries were too common and natural in the villages for them to be given special attention in the registers and in any case the small number of cases in the cohort analysis leaves room for some incidental deviations. The Morshansk cohorts listed only two non-traditional death causes: 'delirium tremens' and 'weighing down with earth'.

The Morshansk registers show frequent male deaths caused by accidents during loading at the river port (hit by tubs, drowning etc.) but Morshansk did not record any deaths of industrial origin unlike Rasskazovo.

One specific and valuable aspect of cohort analysis is the opportunity for tracing the development of the individual life of the cohort members. Relatively reliable results are now available for Malye Pupki, Morshansk and Rasskazov (Table 37 and 38).

Table 36 Causes of death in Malye Pupki and Bailovka, all-parish data, 1810-1918 (%)

Age group		Gastro-intestinal	Infections	Scarlet fever	Tubercu-losis	Fever	Smallpox	Cholera	Weakness	Dropsy	Asphyxia	Chill	Other
Under 1	Malye Pupki	64	4	2			3		7				21
	Bailovka	80					8						12
1–5	Malye Pupki	30	11	11		5							43
	Bailovka	67	4	2		9	15						3
5–15	Malye Pupki	9	9	6	4	9	4						59
	Bailovka	12	16	4		30	13					6	20
Over 15	Malye Pupki	2	9		17	4		2		5		5	55
	Bailovka	4	17		4	10		3		5	5	3	48

Table 37 The location of cohort members at the ages of 20, 30 and 40, Malye Pupki (totals: N=120)

	1811			1831			1851			1871		
	Age 20	Age 30	Age 40	Age 20	Age 30	Age 40	Age 20	Age 30	Age40	Age 20	Age 30	Age 40
Living in the village	31	28	19	30	31	18	48	30	22	34	21	16
Migrated	5	5	5	18	12	10	8	8	8	11	3	6
Died*	43	44	50	48	51	54	39	48	52	26	23	24
Unknown	41	43	46	24	26	38	25	34	38	49	53	54

Note: * For the 1810 and 1830 cohorts 'possibly dead infants' were also taken into account.

Table 38a The location of cohort members at the ages of 20, 30 and 40, Morshansk (totals: N=120)

	1810			1830		
	Age 20	Age 30	Age 40	Age 20	Age 30	Age 40
Living in town	23	21	16	9	8	7
Migrated	3	3	3	11	11	11
Died	20	22	27	30	31	32
Unknown	74	74	74	70	70	70

Table 38b The location of cohort members at the ages of 20, 40 and 60, Rasskazovo (totals: N=120)

	1810			1830		
	Age 20	Age 40	Age 60	Age 20	Age 40	Age 60
Living in the village	57	45	21	41	31	17
Migrated	0	2	2	0	3	3
Died★	53	62	78	63	70	84
Unknown	10	11	19	16	16	16

Note: ★ For 1810 and 1830 cohorts 'possibly dead infants' were taken into account.

It is of importance that the population of all three settlements underwent considerable change even though the village cohort members generally preferred to live and die in their birthplace, with those from Rasskazovo appearing to be the most devoted to their home village. This was apparent from the more complete data and may have been a result of the wider potential marital area of the non-agrarian parish. Outmigration was minimal with army recruitment being the reason in four or five cases. In contrast to this, an obvious and latent impact of social-economic migration processes can be seen in Morshansk and to a lesser extent in Malye Pupki. This is especially clear for the 1830 cohort from Morshansk which lost eleven of its members by the age of 20, with only one being recruited by the army. The reason was almost certainly the economic crisis which forced people to leave in search of a better livelihood elsewhere. Both town cohorts contained a lot of unknowns by the age of 20 which might be due to the departure of the parents of cohort members who were not listed officially. It is certain that the parents of three 1810 cohort members and of ten 1830 cohort members were not local people. They probably had their babies baptised while they were temporarily in Morshansk for business reasons. The migrations of the cohort members from Malye Pupki were also not just caused by recruitment since retired soldiers actually came back home but were instead mainly outmigration to the East for purely agrarian reasons. In Tables 37 and 38 the column headed unknown is not very specific and includes non-registered migrants with their dead infants and possibly some girls who married in other parishes. Some of these brides

have been detected in the parish registers of the nearest villages but their marriage area was wider than this and not all of the registers have survived. Such cases were even more common in Morshansk where people were often baptised in one of the town parishes while getting married in another. Because Rasskazovo was just one parish with more than 10 thousand people by the 1850s it formed a single very large marriage market, with everything being noted in only one register, which makes the tracing of cohort members easier.

The patterns shown in the town and villages were quite traditional with almost all people being married by the age of 30. All cohorts showed a large number of early marriages, mostly under the age of 20. Widowers and widows were quite rare even after the age of 40. Morshansk again showed the outmigration of married 1830 cohort members during the times of crisis in the 1850s.

Table 39a The family status of cohort members at the ages of 20, 30 and 40, Morshansk (totals)

Status/cohorts	1810			1830		
	Age 20	Age 30	Age 40	Age 20	Age 30	Age 40
Single	11	1	–	13	2	1
Married	22	20	16	14	6	6
Widow(widower)	–	2	7	3	–	–

NB: Departed and unknown are not included.

Table 39b The family status of cohort members at the ages of 20, 30 and 60, Rasskazovo (totals)

Status/cohorts	1810			1830		
	Age 20	Age 40	Age 60	Age 20	Age 40	Age 60
Single	11	1	–	13	2	–
Married	46	44	14	27	28	13
Widow(widower)	–	2	7	1	4	4

NB: Departed and unknown are not included.

Comparative data on social mobility in a trade and industrial village and a town help to underline the absolutely traditional estate structure of Malye Pupki, which was inhabited only by state peasants and retired soldiers who had returned to agriculture. Although Rasskazovo was a village by the 1850s it witnessed such unusual class groups as serf factory workers and peasants (serfs) released to work in a factory and their numbers in the second cohort increased. By 1850, factory workers constituted as much as 18% of the cohort members living in the village while their share of the first two cohorts was 10%. By 1870, ten years after the emancipation, the cohort of 1830 had a noticeable percentage of meschane forming almost 25% of the cohort members who lived

in Rasskazovo. These meschane were registered in Tambov even though they lived in Rasskazovo, so most likely they were former peasants who had previously been engaged in trade.

Table 40a The social status of cohort members at the ages of 20, 30 and 40, Malye Pupki (totals)

Status/cohorts	1811			1831		
	Age 20	Age 30	Age 40	Age 20	Age 30	Age 40
Single	11	1	–	13	2	–
Married	46	44	14	27	28	13
Widow(widower)	–	2	7	1	4	4
	1851			1871		
Status/cohorts	Age 20	Age 30	Age 40	Age 20	Age 30	Age 40
Single	65	53	43	47	27	32
Married	0	0	0	2	10	0
Widow(widower)	0	0	0	0	1★	0

NB: Departed and unknown are not included

Note: ★ One female cohort member married a former serf.

Table 40b The social status of cohort members at the ages of 20, 30 and 40, Morshansk (totals)

Status/cohorts	1810			1830		
	Age 20	Age 30	Age 40	Age 20	Age 30	Age 40
Meschane	15	18	21	18	18	24
Merchants	10	10	9	7	5	5
Peasants	14	10	3	14	9	6
Soldiers	0	0	0	1	1	1
Officials	0	0	0	1	2	1

NB: Departed and unknown are not included.

Table 40c The social status of cohort members at the ages of 20, 40 and 60, Rasskazovo (totals)

Status/cohorts	1810			1830		
	Age 20	Age 40	Age 60	Age 20	Age 40	Age 60
State peasants	9	7	2	5	3	2
Serfs	46	34	17	28	20	12
Soldiers	0	4	2	0	3	0
Factory workers	1	2	0	7	0	0
Liberated peasants	1	0	0	0	0	0
Meschane	0	0	0	0	8	4

NB: Departed and unknown are not included.

The town classes of merchants and meschane dominated Morshansk from the first cohort onwards, while a few officials appeared in the second cohort of 1830, but even so, the town of Morshansk which had formerly been a village was to a large extent still populated by peasants. On the whole, the social status of the Morshansk cohort members was stable during the first half of the nineteenth century with only the share of the meschane growing at the expense of some downgraded merchants and upgraded peasants.

Conclusions

Different methods of micro-analysis at a personal level make it possible to study real demographic processes. They reveal the traditional demographic behaviour of a purely agrarian peasantry which dominated a typical agrarian region, depending mostly on natural and physiological factors with minor roles for socioeconomic conditions and with the church rules and rites modified to suit the natural demographic processes. Nevertheless, the Rasskazovo and Morshansk non-agrarian cases show the first steps towards a modern demographic pattern during the first half of the nineteenth century. The various study methods all have value when used separately but give the best results when used in combination. The statistical, all-parish anonymous analysis gives us a comparatively complete, but less detailed and less lively picture, of Russian rural demographic behaviour. Cohort analysis is, in general, suitable as a first approach in non-specialist studies in demography when demographic aspects act as parts of a wide integral micro-historical study, usually concerning the history of separate settlements, parishes or of small social groups. In combination with all-parish analysis, cohort analysis is suitable for tracing particular and unique demographic events.

The source-oriented and personified all-parish database for Bailovka provides sufficient particular and unique facts to make it possible to enter into another important field of integral history, moving from the study of individuals to that of family history. An opportunity is provided to make selections as required, to trace demographic dynamics at personal or all-parish levels and to trace inner-parish personal relations. The most complicated problem here is to connect up the different personal information which is scattered over various primary sources. A special problem is the spelling of names, aggravated by an absence of stable family names and the use of nicknames in the first decades of the nineteenth century. In order to solve this problem, a computer search system able to discern different spellings of the same names, to trace patronyms which turned into family names and correct mistakes was developed. The expert systems methods used by British demographers (e.g. Soundex codes) were adopted with a precise identification by Soundex regarded as acceptable when it was higher than 50%. There is,

however, still the problem of code making which is dependent on the participation of the expert. Another method is to discern the position of letters in the spelling of a name. Identification alone, however, is not sufficient. Some natural limitations, such as the fact that the date of a death cannot precede a date of birth and that a death must appear within 100 years after a birth, must also be taken into account. An effective system of links was obtained by using all the methods but it is impossible to make this process fully automatic. Therefore, a combination of computer and manual recognition techniques was used, in the same way as was done by K. Schurer, for interpreting the difficult cases.

A study of medical sources showed that the parish registers were not fully reliable, making it difficult to draw true conclusions on the birth rates and the infant death rates, on the number of conceptions and on the birth intervals and thus on the family strategies and tactics of the peasants. It is unwise to use the registers without taking into account some coefficients. The registered number of births and prenatal deaths, for instance, should be increased by a factor of at least 1.3 to 1.4. Because the church never registered prenatal deaths, abortions and miscarriages, these figures should be increased further by a third to obtain real figures for conceptions and pregnancies, resulting in a factor 1.8 times higher than the number of registered births. Birth intervals should be reduced by a factor of 1.4 and actual infant death rates can be estimated to have been some 10% higher than those recorded.

The final conclusion is that modern methods of microanalysis are suitable for tracking fundamental Russian demographic processes from the late eighteenth century till the early twentieth centuries and make it possible to overcome some of the defects and shortages of the primary sources.