

# HUMAN FERTILITY DATABASE DOCUMENTATION: RUSSIA

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## 1 General information

Russia (the Russian Federation) is a country in Northern Eurasia. It covers a territory of 17,075,400 square kilometres, and its estimated population size is 143.7 million people as of 1 January 2014<sup>1</sup>. Up to 1917, Russia was a part of the Russian Empire; then from 1922 to 1991 it was a part of the Union of Soviet Socialist Republics. Thus, as an international entity, Russia has existed from the end of 1991, when the USSR was formally dissolved.

Collection of vital statistics in Russia began at the end of the 19th century. Annual production of tables of birth numbers by age of mother started in 1933. Production of tables of birth numbers by age of mother and birth order started in 1944. From 1946 on, the quality of these data (in terms of completeness) is considered as satisfactory. Territorial coverage is described in section 2 of this report.

Tables of female population split by age and parity are available from the population censuses of 1979, 1989, 2002, and 2010.

The data-proprietor is the state statistical system and its central agency, the Federal State Statistics Service (Rosstat), online at [www.gks.ru](http://www.gks.ru).

### 1.1 Data sources

Rosstat has provided the HFD with a major part of the Russian fertility data. Specifically, these are data on the following:

- births by age of mother and birth order for the period 1959-2014;
- monthly birth numbers for the period 1956-2014;
- census data on female population by parity and age according to the censuses of 1979, 1989, 2002, and 2010.

For the period 1946-1958, data on births by age of mother and birth order were collected in the Russian State Archive of the Economy. Due to limited quality of the historical data, the HFD indicators were calculated only for the period beginning in 1959. These data, however,

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<sup>1</sup> Federal State Statistics Service of Russia (Rosstat). Russia in Figures. Population. Available at [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/en/figures/population/](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/en/figures/population/). Accessed on 18.05.2016.

are available in the input file for births (see section “Input Data” on the country page of Russia).

The estimates of the female population exposure by age for the period 1959-2014 were obtained from the Human Mortality Database (HMD).

## 2 Territorial coverage

The following territorial changes have taken place in Russia during the period covered by the data:

- The Karelo-Finnish Soviet Socialist Republic (from 1956, the Karelian Autonomous Socialist Republic and since 1992, the Republic of Karelia) was included in Russia on 16 July 1956. This territorial change caused a 0.6%<sup>2</sup> increase in the total population of Russia;
- The Crimea region was excluded from Russia and added to Ukraine on 19 February 1954. There is no estimation of the Crimean population in this period. After the termination of military operations and deportation of the Crimean Tatars and some other populations to Central Asia, Crimea became an underpopulated region. Mass migration to Crimea started in the early 1950s. Thus, on the basis of the 1959 Census, it is estimation that this change produced a 1% decrease in the total population of Russia and should be considered as an upper estimate.

Data for 1946-1955 were adjusted for the territorial changes in such a way that the modern borders of Russia were retained over the whole period.

In addition, there were some changes in the population coverage of Russia’s territory within fixed borders by birth statistics.

**Table 1.** Territorial coverage over time

<i>Period</i>	<i>Population coverage</i>	<i>Area Code*</i>
1946	Vital statistics cover the main part of Russia’s population. Birth statistics by parity do not include births in Amur oblast, Kamchatka oblast, and Khabarovsk kray**. Official population estimates were absent.	13
1947-1958	Vital statistics cover the entire population of Russia. Official population estimates were absent.	1
1959-1992	Vital statistics and official population estimates cover the entire population of Russia.	1
1993-1994	Vital statistics do not cover the Chechen-Ingush Autonomous Republic. The HMD population denominator is adjusted correspondingly by excluding the region’s population.	11
1995-2002	Vital statistics do not cover the Chechen Republic. The HMD population denominator is adjusted correspondingly by excluding the region’s population.	12
2003***-2014****	Vital statistics and official population estimates cover the entire population of Russia.	1

\*The area code is used in the Input Database to denote the geographic area covered by the data.

\*\*Three regions accounted for about 2% of births in Russia in 1946.

\*\*\*For 2003, only the total number of births is known for the Chechen Republic.

\*\*\*\*Since January 1<sup>st</sup>, 2015 the official population statistics produced by the Rosstat include the Crimea region and Sevastopol. It is possible that data on vital events in the Crimea region and Sevastopol have been included in the Russian statistics at some point in 2014 (depending on the date of data publication). For HFD purposes, in order to make it corresponding to the territorial coverage of the birth count data, for 2014 we use the population exposure estimated without these two territories.

<sup>2</sup> Estimation based on 1959 census data.

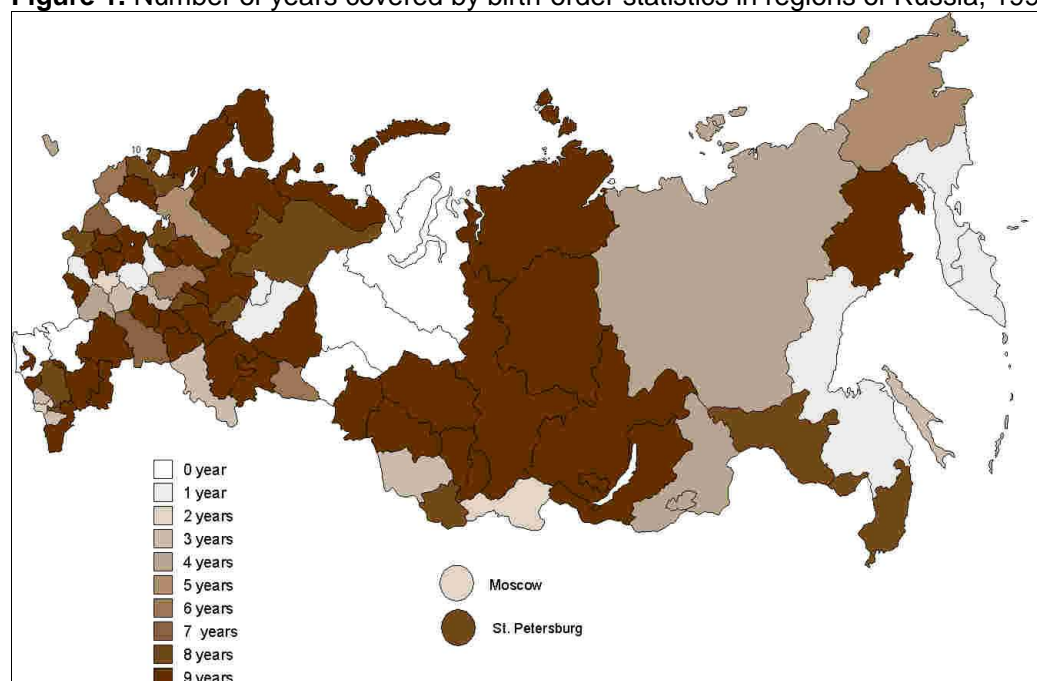
According to the law on civil registration of 1997, the birth-order field was excluded from Russian civil registration birth records beginning from 1999. Correspondingly, tabulations of births by birth order were excluded from the set of obligatory statistical tables. However, information on biological birth order continued to be present in the medical birth certificate. On this basis, the majority of Russian regions have continued to produce tables of births by birth order since 1999 (Table 2). However, the list of regions producing these statistics varied with time. A total of 29 regions produced these statistics over the whole period of 1999-2012, while one region (Tver oblast) completely terminated this practice, and 50 regions produced from 2 to 13 annual tables of births by birth order (Figure 1). Starting in 2013, all regions except for Chechen Republic have been producing birth counts by birth order.

**Table 2.** Coverage of Russia's regions by data on births by birth order in 1999-2012

Year	Total number of regions with birth order statistics	Percentage of regions	Percentage of population	Percentage of birth
1999	64	81.0	74.9	76.0
2000	50	63.3	64.7	66.2
2001	62	78.5	71.6	72.8
2002	55	69.6	65.0	66.3
2003	53	66.3	65.4	66.0
2004	55	68.8	66.0	66.3
2005	59	73.8	68.7	68.8
2006	56	70.0	66.5	66.6
2007	58	72.5	72.9	71.1
2008	56	70.0	73.3	72.6
2009	58	72.5	70.8	69.9
2010	61	76.3	76.9	76.4
2011	72	90.0	86.3	86.0
2012	75	93.8	88.7	89.1

Total number of *oblast*-level regions in the Russian Federation was 79 in 1999-2002 and 80 in 2003-2012.

**Figure 1.** Number of years covered by birth-order statistics in regions of Russia, 1999-2007



Analyses done using data for 1999-2007 showed that regions with and without birth-order specific data did not differ significantly according to principal birth indicators such as TFR and mean mother's age at birth (see Appendix 2 for more details). The difference between the groups of regions with and without birth-order data was 0.045 in terms of TFR, and 0.117 year in terms of mean mother's age at birth. In addition, we observed that in 1998 (the last year of 100% territorial coverage by birth-order registration), there were only small differences in order-specific TFRs and mean mother's ages at birth among all 79 regions of Russia and the regional sub-sets that continued the birth-order registration beyond 1999 (see Appendix 2). On this basis, we decided to distribute age-specific births for the whole of Russia in 1999 and the later years 2000-2012 by birth order according to the birth-order distributions in regions covered by birth-order registration.

In 2007, the Social Insurance Fund (SIF) of the Russian Federation started publishing data on live births by age of mother and birth order based on pre-natal-and-delivery care certificates<sup>3</sup> (Zakharov, 2011). Our analysis showed, however, that these data cannot be used for HFD purposes. For more details regarding these data, see Appendix 2.

### 3 Data included in the HFD

#### 3.1 Birth count data

The Soviet-Russian system of civil registration of births was established after the socialist revolution of 1917 as a result of transfer of the registration of vital events from church to specially established civil registration units, which later were named ZAGS (Registration of the Acts of Civil Status) offices. In Russia, the civil registration of vital events is governed by the Act of Civil Status, issued by the Ministry of Justice. During the post-war period, the content of these acts has been revised several times.

Although from 1933, Russia tabulated numbers of births by age of mother, before 1946 and especially in the 1941-1944 period these data were incomplete and did not cover significant parts of Russia's territory. Some under-reporting existed then and after 1945. But by estimation of Andreev, Darskii, Kharkova (1998), the completeness of these data rapidly grew over the 1946-1958 period.

**Table 3.** Percentage of unregistered births in Russia

Year	%	Year	%
1946	6.7	1953	3.7
1947	4.8	1954	3.3
1948	4.3	1955	2.6
1949	4.2	1956	2.0
1950	4.0	1957	1.7
1951	3.9	1958	1.5
1952	3.7		

These estimates did not take into account problems of the definition of *live birth*. Up to now this definition in Russia has differed from conventional Western practices and WHO recommendations. According to the Soviet definition of live birth (promulgated before the Second World War), a live birth was to be officially registered by the statistical system if the gestation period was 28 weeks or longer, the body mass at birth was 1000 g or higher, the body length was 35 cm or longer, and the new-born was able to breathe. Such a restrictive rule leads to under-estimation of births and population at age 0; it also causes under-

<sup>3</sup> In Russian this certificate is called "родовой сертификат" (more details can be found in Appendix 2).

estimation of neonatal mortality by about 50% and infant mortality by about 25% (Anderson and Silver, 1986, Blum and Monnier, 1989, Velkoff and Miller, 1995). This definition was somewhat modified in 1992, which could have resulted in a marginal reduction of the under-estimation (Andreev, 1995). From the fertility analysis perspective, the birth under-statement is relatively unimportant.

In the Russian statistical system, processing of individual birth records starts in local ZAGS offices. From these records, the regional statistical offices construct annual tables of births by age of mother (“forma 2” before 1988 and “file P211” since 1988) or births by age of mother and birth order (“forma 2a” before 1988 and “file P241” since 1988). For the total (non-order-specific) birth numbers, data by single-year age group are available for all years since 1946 except 1955-1958 (see Appendix 1 for more details). For the order-specific birth numbers, only abridged (five-year age group) data are available for 1955-1958 and for the long period 1959-1977.

Birth data currently used for HFD calculations cover the period since 1959, for which the population denominator is known with a higher precision (creditable to the first post-war Soviet census of 1959).

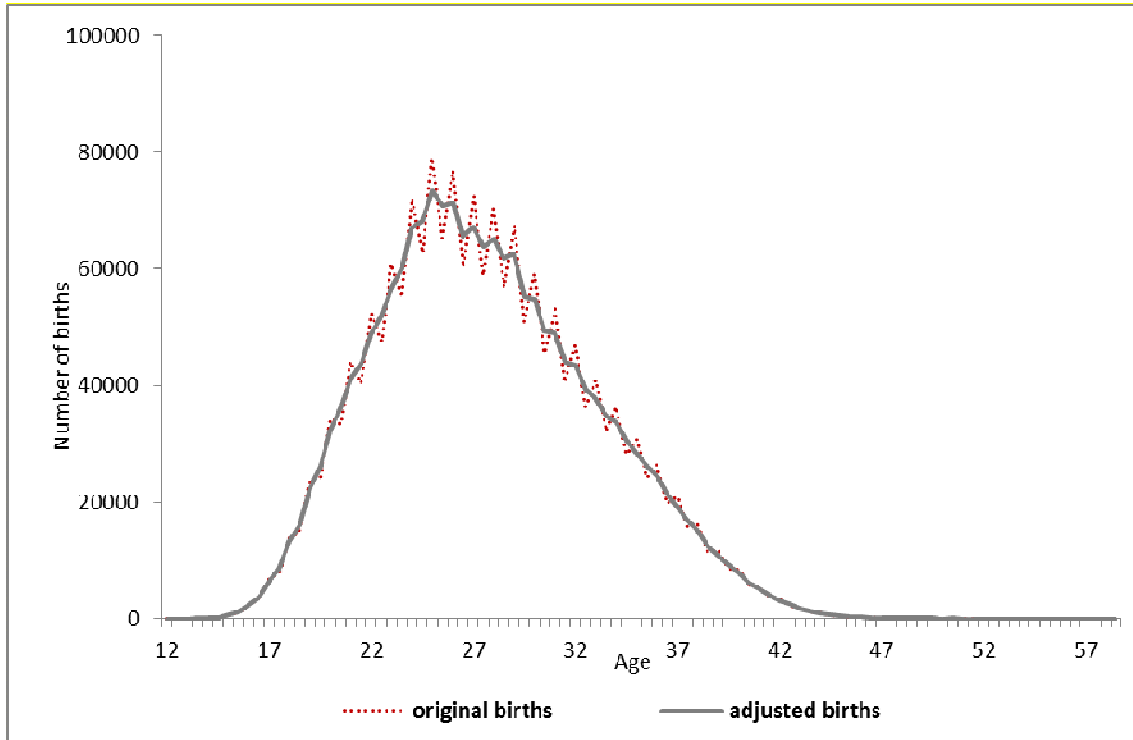
We were not able to find a rational explanation for the relatively large number of births observed in the last open aged interval in the years preceding 1960. In 1959, for example, there were 521 births registered to women belonging to the age category 55 years and older (55 births in urban areas and 466 births in rural areas). 17 births out of this total were registered as first births, which looks very unlikely. During the 1960s, numbers of such births dropped from about 500 to about 50. Fortunately, these problems do not have any significant effect on the outcome fertility indicators and fertility tables.

Another problem that is worth mentioning came out while calculating the cohort fertility tables: the level of childlessness in the 1949 birth cohort of women was found to be unrealistically low (about 3%). Cumulated numbers of first births in this cohort are about 30% higher on average than in the neighbouring cohorts of 1947, 1948, 1950, and 1951. Detailed analysis showed that underestimation of the size of the mother’s cohort of 1949 in the census of 1959 constitutes the most likely reason for implausibly high fertility rates in this cohort. The total number of births in 1949 was 2,960 thousand vs. 2,407 thousand in 1948 and 2,746 thousand in 1950. The 1949 cohort’s size was underestimated in 1959 (due to significant age heaping at the age 10 in the 1948 cohort), and this underestimation influences corresponding population exposures over sequence of later years.

Finally, it is notable that we did not find signs of age heaping in mother’s age at births and there is no evidence of systematic age misreporting.

Beginning in the year 2011, the Rosstat has been producing data on births by mother’s age and year of birth (Lexis triangles). Some irregularities were detected in the distribution of original birth data by Lexis triangles for the years 2012-2014, which appear to be related to the way the mothers’ age at birth had been processed (Figure 2). Most probably, the mother’s age was calculated using only the month and the year of birth. This way of calculation without using of the day of birth increases the age by one for about 1/24 of all births. To adjust for these irregularities, the original birth counts by Lexis triangles were converted into Lexis vertical parallelograms. For the years 2012 and 2013, the Lexis vertical parallelograms were subsequently split back into Lexis triangles using the proportions of corresponding Lexis triangles estimated from a supplementary data source – “Anonymous micro data on all births registered in Russia from 01.01.2012 to 31.12.2013”. The distribution of births before and after the adjustments is illustrated in the figure below.

**Figure 2.** Distribution of official and adjusted birth counts by Lexis triangles in Russia in 2012



For the year 2014, the micro data on births were insufficient to produce Lexis triangles as it was done for the data for 2012-2013; therefore, the birth counts by Lexis vertical parallelograms were used as the input data in the further HFD computations for this year.

### **3.2 Population count data**

We have relied on HMD population estimates since 1959. However, for the computation of parity-specific fertility tables, which form the second HFD output data block “Fertility Tables” (for a detailed description of the HFD output data, see the HFD Methods Protocol), we use population estimates and birth data, respectively, since 1970 only. The reason is that the Russian population estimates before the 1970s are less reliable (Shkolnikov and Jdanov 2006) and thus their quality is not good enough for the computation of parity-specific fertility tables.

The questionnaires of the three Russian censuses of 1979, 1989, 2002, and 2010 contain a question concerning the number of children ever born. In the first three censuses, this question was used only in the 25% population sample that was generalized by the census organisers for the whole population.

## **4 Specific details**

### **4.1 Data quality issues**

**Due to quality problems of population estimates, the data prior to 1970 should be used with extra caution.**

For the calculations of period and cohort fertility tables in the HFD, data on births by birth order from 1970 are used only.

## **4.2 Revision history**

The current release includes new data for 2011-2014. There are also some changes in the birth estimates as well as in the fertility rates for the period 2003-2010 as compared to the data release of 13 April 2012. These changes are due to the use of the revised population estimates for the last intercensal period (2003-2010). In addition, there are some differences in the female population exposure estimates for the period 2000-2008, which are caused by more detailed death count data used to generate them.

## **Acknowledgements**

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For language editing, we are grateful to David Harrison.

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## Data sources

1. Central Statistical Office of the USSR (TCSU). Annual officially registered births by single-year age of mother and by single-year age of mother and birth order, compiled from birth certificates. Annual reporting table Forma 2a.
2. Central Statistical Office of the USSR (TCSU). Annual officially registered births by five-year age of mother and by five-year age of mother and birth order, compiled from birth certificates. Annual reporting table Forma 2a.
3. Central Statistical Office of the USSR (TCSU). Annual officially registered births by single-year age of mother (Annual reporting table Forma 2) and by five-year age of mother and birth order (Annual reporting table Forma 2a), compiled from birth certificates.
4. State Statistical Committee of the USSR (Goscomstat/TCSU). [formerly the Central Statistical Office of the USSR] Annual officially registered births by single-year age of mother and birth order, compiled from the birth certificates. Annual reporting table Forma 2a.
5. State Statistical Committee of Russia [formerly of the USSR] (Goscomstat). Annual officially registered births by single-year age of mother and birth order, compiled from birth certificates. Annual reporting Table P241.
6. Federal State Statistics Service of Russia (Rosstat). Annual officially registered births by single-year age of mother and birth order, compiled from birth certificates for selected groups of regions (see Appendix 3). Annual reporting Table P241a. Annual officially registered births by single-year age of mother, compiled from birth certificates. Annual reporting Table P241.
7. Federal State Statistics Service of Russia (Rosstat) [formerly Goscomstat and TCSU]. Annual officially registered births by month of birth, compiled from birth certificates. Annual reporting Table A11 [formerly Forma 1].
8. State Statistical Committee of the USSR [formerly Central Statistical Office of the USSR] (Goscomstat/ TCSU). Official 1979, 1989 Census Counts. Unpublished tables.
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11. Federal State Statistics Service of Russia (Rosstat). Annual officially registered births by single-year age of mother and birth order, compiled from birth certificates, for selected groups of regions. Annual reporting Table P241a. Annual officially registered births by single-year age of mother, compiled from birth certificates. Annual reporting Table P241.



12. Federal State Statistics Service of Russia (Rosstat) [formerly Goscomstat and TCSU]. Annual officially registered births by month of birth, compiled from birth certificates. Annual reporting Table A11, early Forma 1.
13. Federal State Statistics Service of Russia (Rosstat) [formerly Goscomstat and TCSU]. Distribution of women by age and number of live-born children from the population censuses of 2002 and 2010.
14. Federal State Statistics Service of Russia (Rosstat) [formerly Goscomstat and TCSU]. Annual officially registered births by month of birth, compiled from birth certificates. Annual reporting Table A11 [formerly Forma 1].
15. Federal State Statistics Service of Russia (Rosstat). Annual officially registered births by single-year age of mother and birth order, compiled from birth certificates. Annual reporting Table P241a. Annual officially registered births by single-year age of mother , compiled from birth certificates. Annual reporting Table P241.
16. Federal State Statistics Service of Russia (Rosstat) [formerly Goscomstat and TCSU]. Annual officially registered births by month of birth, compiled from birth certificates. Annual reporting Table A11 [formerly Forma 1].

**APPENDIX 1:  
DESCRIPTION OF DATA USED FOR LEXIS DATABASE**

**BIRTHS**

Period	Type of data	Age range	Birth order	RefCode(s)
1959-1977	Annual number of live births by age of mother (Lexis squares)	≤15, 16, 17,..., 50-54, 55+, unknown	–	3
1959-1977	Annual number of live births by age of mother and birth order (Lexis squares)	≤15, 16-19, 20-24, ..., 50-54, 55+, unknown	1-11+, unknown	3
1978-1988	Annual number of live births by age of mother and birth order (Lexis squares)	≤15, 16,..., 54, 55+, unknown	1-11+, unknown	4
1989-1995	Annual number of live births by age of mother and birth order (Lexis squares)	≤15, 16,..., 54, 55+, unknown	1-7+, unknown	5
1996-1998	Annual number of live births by age of mother and birth order (Lexis squares)	≤15, 16,..., 54, 55+, unknown	1-5+, unknown	5
1999-2008	Annual number of live births by age of mother and birth order (Lexis squares)	≤15, 16,..., 54, 55+, unknown	1-5+, unknown	6
2004-2008	Annual number of live births by age of mother (Lexis squares)	≤12, 13,..., 54, 55+, unknown	–	6
2009-2010	Annual number of live births by age of mother (Lexis squares)	≤12, 13,..., 54, 55+, unknown	–	11
2009-2010	Annual number of live births by age of mother and birth order (Lexis squares)	≤15, 16,..., 54, 55+, unknown	1-5+, unknown	11
2011-2013	Annual number of live births by age of mother and birth order (Lexis triangles)	12, 13, ..., 57/58/59+, unknown	1-5+, unknown	15
2014	Annual number of live births by age of mother and birth order (vertical parallelograms)	11, 12, ..., 58, 59+, unknown	1-5+, unknown	15
1956-2014	Annual number of live births by month	–	–	7, 12, 14, 16

**Notes:**

1. For the calculations of period and cohort fertility tables, only data on births by birth order from 1970 onwards are used.
2. Age-specific births for the whole of Russia in 1999-2012 have been distributed across the birth orders according to the birth order distributions in regions with birth order registration (see Section 2 and Appendix 2).
3. For 2003, only the total number of births is known for the Chechen Republic.

**FEMALE POPULATION: Distribution by age and parity**

Period	Type of Data	Age range	Year of birth, range	Parity	RefCode(s)	Notes
17.01.1979 <sup>1</sup>	Number of women by age and parity	15,...,54, 55+, unknown	–	0, 1, ...9, 10+, unknown	8	Unknown parity to be redistributed proportionally
12.01.1989 <sup>1</sup>	Number of women by age and parity	15,...,54, 55+, unknown	–	0, 1, ...5, 6+, unknown	8	'Golden' census. Unknown parity to be redistributed proportionally
9.10.2002 <sup>1</sup>	Number of women by age and parity	15,...99, 100+	–	0, 1,...,6, 7+, unknown	13	Unknown parity to be redistributed proportionally
14.10.2010	Number of women by age and parity	15,...69, 70+, unknown	–	0,1,...,9, 10+, unknown	13	Unknown parity to be redistributed proportionally

<sup>1</sup> The question about the number of children ever born was asked of a 25% sample of households in the census. The weights were applied to the whole population of women.

**FEMALE POPULATION: Exposure by age and year of birth**

The female exposure population by calendar year, age, and year of birth (Lexis triangles) is estimated using data on population size and deaths from the Human Mortality Database, which is available at <http://www.mortality.org> or <http://www.humanmortality.de>.

**APPENDIX 2:  
CALCULATION OF AGE-ORDER-SPECIFIC BIRTH NUMBERS  
FOR RUSSIA AFTER 1998**

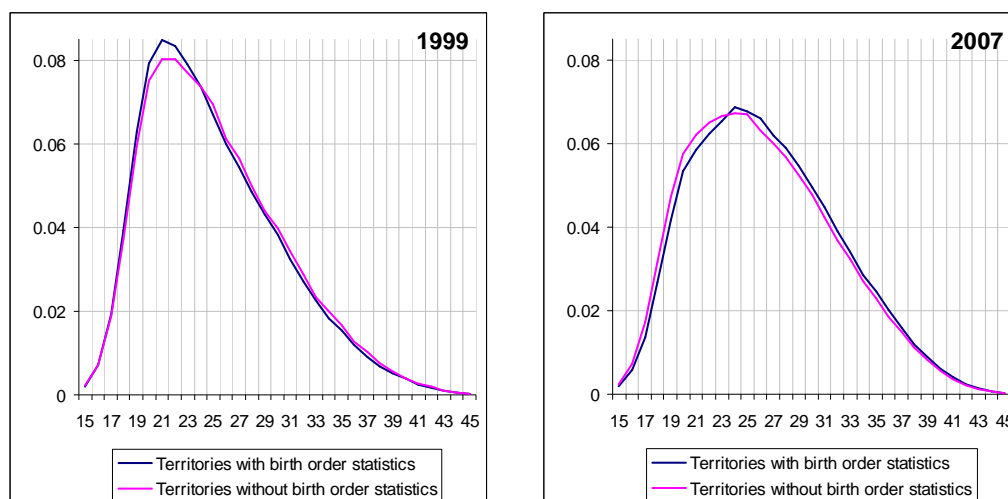
Starting in 1999, statistical offices in some regions of Russia opted not to produce tables of births by birth order. The number of regions generating such tables accounted for around 50-60 in the period 1999-2010, increasing to 75 in 2012. Beginning in 2013, all regions apart from Chechen Republic have come back to the practice of producing birth counts by birth order. The analysis presented below focuses on the years when the coverage of the regions producing the order-specific data constituted less than 90% of the total number of regions (1999-2010).

Over the period 1999-2007, the regions with and without birth order statistics did not differ significantly by main birth indicators (Table 2.1). However, for some years, the age patterns of fertility in the two groups slightly differ from each other (Figure 2.1).

**Table 2.1.** Total fertility rate and mean age of mother in regions with and without birth order statistics

Year	TFR			Mean age at childbearing		
	All territories	Territories with birth order statistics	Territories without birth order statistics	All territories	Territories with birth order statistics	Territories without birth order statistics
1999	1.157	1.171	1.112	25.57	25.52	25.73
2000	1.195	1.213	1.162	25.76	25.84	25.62
2001	1.223	1.240	1.179	25.93	25.93	25.94
2002	1.286	1.310	1.243	26.12	26.14	26.09
2003	1.307	1.323	1.279	26.27	26.26	26.28
2004	1.340	1.344	1.332	26.41	26.43	26.39
2005	1.287	1.286	1.289	26.56	26.54	26.60
2006	1.296	1.297	1.293	26.64	26.59	26.73
2007	1.406	1.377	1.482	26.99	27.09	26.76

**Figure 2.1.** Age-specific fertility pattern<sup>4</sup> in 1999 and 2007 in regions with and without birth order statistics



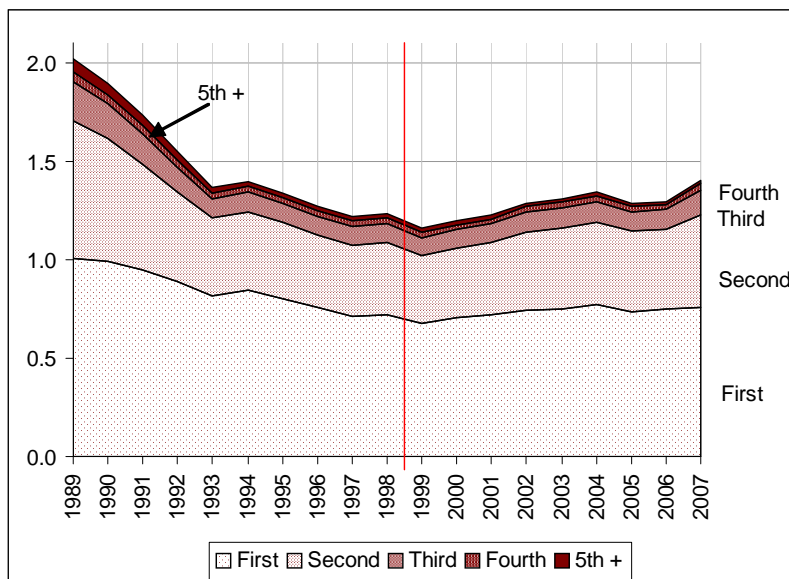
<sup>4</sup> Age-specific fertility rate divided by TFR.

Is it possible to use the distribution of births by birth order from regions to draw conclusions about birth order distributions across the whole country? If we assume that territories with birth order statistics are a random sample from all regions, then the answer is clearly yes. The data provided in Table 2.1 also suggest that differences between these two groups in fertility are not significant.

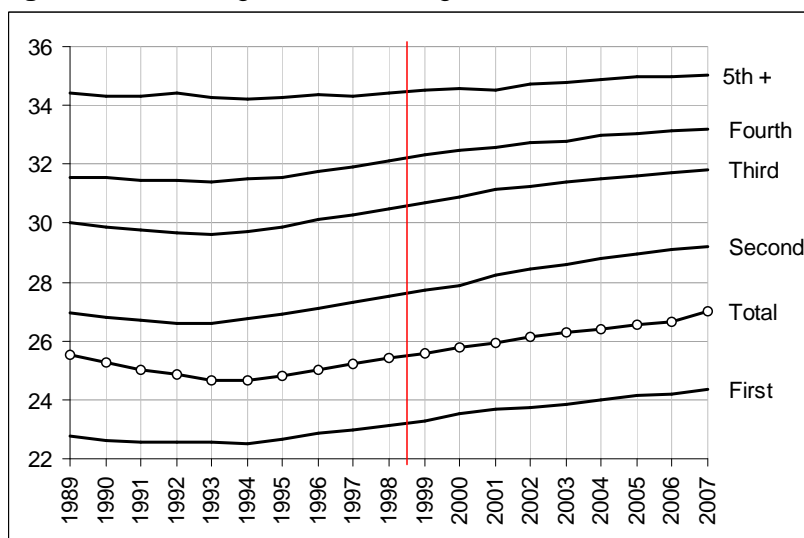
For the estimation of age-order-specific numbers of births, we assumed that the distributions of births by birth order at each age in the two groups of regions are the same. This means that we applied the same algorithm that is usually applied to redistribute births of unknown birth order into order-specific categories. It should be noted that we first distributed births of unknown age of mother into age-specific categories for all birth orders combined, and for births by birth order in regions with birth order statistics.

The results of our calculations and derived measures look rather plausible (Figure 2.2-2.3). No unexplainable fluctuations are observed.

**Figure 2.2.** Total fertility rate for birth orders 1 - 5+



**Figure 2.3.** Mean age at childbearing for birth orders 1 - 5+



We attempted to estimate the quality of distributing births into order-specific categories using 1998 data. For this purpose, we calculated a hypothetical distribution of births by birth order and age based on the assumption that we had complete information for only some parts of regions, and compared the results with real data. We carried out this calculation with the lists of territories, 1999-2003. The results of this experiment had an acceptable level of errors (Table 2.2).

**Table 2.2.** Results of the experiment: Differences in birth-order specific TFRs and mean ages at birth in 1998 between all 79 regions and estimation based on various sub-groups of regions

Lists of regions with birth order data in	TFR			Mean ages at birth		
	First	Second	Third and more	First	Second	Third and more
The actual data						
1998	0.7176	0.3707	0.1432	23.121	27.534	31.368
Difference between results of the experiment and the actual data						
1999	-0.0074	0.0007	0.0067	-0.054	-0.052	-0.005
2000	-0.0075	0.0008	0.0066	-0.023	-0.085	-0.071
2001	-0.0093	0.0004	0.0088	-0.053	-0.085	-0.035
2002	-0.0081	0.0004	0.0077	-0.050	-0.073	-0.016
2003	-0.0018	-0.0016	0.0034	-0.030	-0.009	0.027

It is useful to remember that the lists of regions with birth order statistics for 1999-2003 are very close: a total of 40 regions presented these data for the entire period, while nine regions did not. Thus, the similarity of results for 1999-2002 is predictable, but the big difference between the calculations for 2002 and 2003 is very unexpected: the difference between the 2002 and 2003 lists is 10 regions, with six regions exiting and four new regions entering.

It is clear that the errors are greater in the age-order-specific groups. But if we consider only age-order specific groups with 1,000 births or more, then relative errors will be in the interval of  $\pm 7$  percent. Unfortunately, this result cannot be considered definitive proof of the accuracy of our calculations because the situations in some regions, and the list of regions itself, are very unstable.

Starting in 2007, the Social Insurance Fund (SIF) of the Russian Federation has been publishing data on numbers of live births by age of mother and birth order based on coupons No 2 of individual pre-natal-and-delivery care certificates (Zakharov, 2011). SIF data are available online<sup>5</sup>. We have analysed these data in order to find out whether it possible and practical to use them in the HFD. The SIF data cover more than 90% of births (Table 2.3), which is significantly higher than the Rosstat coverage (see Table 2).

**Table 2.3.** Number of births according to Rosstat and SIF data

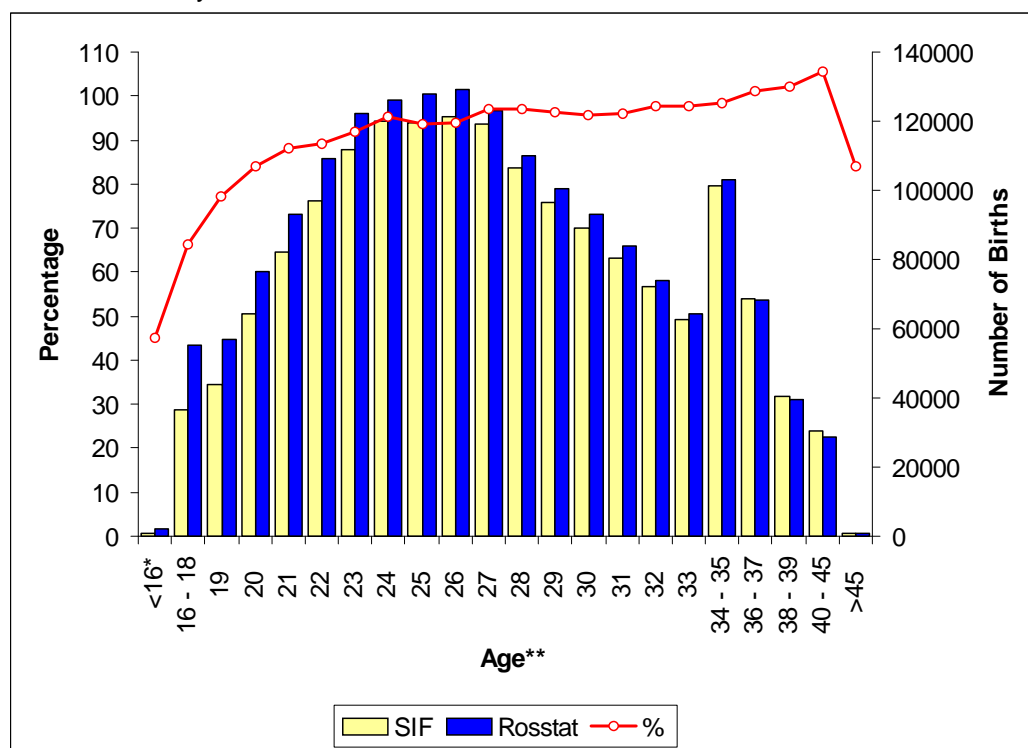
Year	Rosstat	SIF	Percentage of births included in SIF reports
2007	1610122	1458700	90.6
2008	1713947	1591439	92.9
2009	1761687	1640195	93.1
2010	1789016	1669036	93.3

<sup>5</sup>

<http://fz122.fss.ru/index.php?PHPSESSID=d8b14q4g0b40letpbssmq3lis2&service=52&ion=f.fh&nl=1&unit=1&split=0&dtFrom=01.01.2010&dtTo=19.12.2010&sp=15&B1.x=42&B1.y=11>

However, the pattern of coverage by age (Figure 2.4) looks odd. The share of births to women under age 20 is about 70%, the share of births to the age group 20-24 is more than 90%, and the share systematically increases with age.

**Figure 2.4.** Number of births according to SIF and Rosstat birth data, and the percentage of births covered by SIF statistics in 2010



\* The SIF data also include the category "age unknown."  
 \*\* Age structure is adjusted according to the SIF documentation.

The coverage varies considerably by region, from 72% in St. Petersburg to 102% in Stavropol kray. Obtaining a pre-natal-and-delivery care certificate is complicated for foreigners, but the share of foreigners would by no means explain the degree of variation.

It is possible to compare the SIF and Rosstat data in 2010 by taking from the SIF data collection only the regions covered by state order-specific birth statistics. Comparisons show that the percentage of first births in the SIF data is higher than in the Rosstat data (53% vs. 51%), the percentage of second and third births is lower (34% vs. 36% and 9% vs. 10%, respectively), and the percentage of fourth and higher order births is about the same (4%).

There are some clear limitations in the SIF data that could explain why they are not representative. The pre-natal-and-delivery care certificate is issued only to women who have been under the continuous supervision of a prenatal medical facility for no less than 12 weeks. Women are required to have the state compulsory medical insurance and the state mandatory pension medical insurance (all Russian citizens are supposed to have these). A foreign citizen can obtain this certificate only if she has a permanent residence permit. We did not find information on whether a foreigner needs to have the Russian state medical insurance in order to get the certificate.

After taking all of these peculiarities into account, we do not consider the SIF data suitable to be used for HFD purposes at the present time.

**APPENDIX 3: REGIONS OF RUSSIA COVERED WITH BIRTH ORDER STATISTICS,  
1999-2012  
(1 = "Yes", 0 = "No")**

	Total number of years	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Altai kray	4	1	1	1	0	0	0	0	0	0	0	0	0	0	1
Amur oblast	13	1	1	1	0	1	1	1	1	1	1	1	1	1	1
Arkhangelsk oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Astrakhan oblast	13	1	1	1	1	1	1	1	1	1	0	1	1	1	1
Belgorod oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Bryansk oblast	13	1	1	1	1	1	1	1	0	1	1	1	1	1	1
Chechen Republic	6					0	1	1	1	0	1	1	1	0	0
Chelyabinsk oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Chukotka autonomous district	10	1	1	1	0	0	0	1	0	1	1	1	1	1	1
Chuvashi Republic	13	1	0	1	1	1	1	1	1	1	1	1	1	1	1
Irkutsk oblast	12	1	1	1	1	1	1	1	1	1	1	0	0	1	1
Ivanovo oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Jewish autonomous oblast	13	1	1	1	1	0	1	1	1	1	1	1	1	1	1
Kabardino-Balkarian Republic	8	0	1	1	0	0	1	0	0	0	1	1	1	1	1
Kaliningrad oblast	8	1	0	1	0	0	0	1	0	1	0	1	1	1	1
Kaluga oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Kamchatka kray	4	1	0	0	0	0	0	0	0	0	0	0	1	1	1
Karachaev-Cherchessian Republic	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Kemerovo oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Khabarovsk kray	6	0	0	0	0	0	0	0	0	1	1	1	1	1	1
Kirov oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Kostroma oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Krasnodar kray	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Krasnoyarsk kray	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Kurgan oblast	10	1	0	1	1	0	1	0	1	1	1	0	1	1	1
Kursk oblast	6	0	0	0	0	0	0	0	0	1	1	1	1	1	1
Leningrad oblast	13	1	0	1	1	1	1	1	1	1	1	1	1	1	1
Lipetzk oblast	4	1	0	0	0	0	0	0	1	0	0	1	1	0	0
Magadan oblast	13	1	1	1	1	1	1	1	1	1	1	1	0	1	1
Moscow oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Murmansk oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Nizhni Novgorod oblast	11	0	0	1	0	1	1	1	1	1	1	1	1	1	1
Novgorod oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Novosibirsk oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Omsk oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Orenburg oblast	6	1	1	0	1	0	0	0	0	0	0	0	1	1	1
Oryol oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Penza oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Perm kray	3	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Primorsky kray	13	1	0	1	1	1	1	1	1	1	1	1	1	1	1
Pskov oblast	11	0	0	0	1	1	1	1	1	1	1	1	1	1	1
Republic of Adygeya	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Republic of Altai	9	1	1	1	1	1	1	1	1	0	0	0	0	0	1
Republic of Bashkortostan	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Republic of Buryatia	11	1	1	1	1	1	1	1	1	1	0	0	0	1	1
Republic of Dagestan	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Republic of Ingushetia	10	1	1	1	1	1	1	1	0	1	0	1	1	0	0
Republic of Kalmykia	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1



**APPENDIX 3 continued:  
REGIONS OF RUSSIA COVERED WITH BIRTH ORDER STATISTICS, 1999-2012  
(1 = "Yes", 0 = "No")**

Republic of Karelia	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Republic of Khakasia	13	1	1	1	1	1	1	1	1	1	0	1	1	1	1
Republic of Komi	13	1	0	1	1	1	1	1	1	1	1	1	1	1	1
Republic of Marij El	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Republic of Mordovia	8	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Republic of North Ossetia – Alania	4	0	0	1	1	0	0	0	0	0	0	0	0	1	1
Republic of Sakha (Yakutia)	9	1	1	1	0	0	0	0	0	1	1	1	1	1	1
Republic of Tatarstan	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Republic of Tuva	5	0	0	1	1	0	0	0	0	0	1	0	0	1	1
Rostov oblast	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Ryazan oblast	3	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Sakhalin oblast	6	0	0	0	0	0	0	1	1	1	0	1	0	1	1
Samara oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saratov oblast	9	1	1	1	1	1	1	1	0	0	0	0	0	1	1
Smolensk oblast	9	1	0	1	1	1	1	1	1	0	0	0	0	1	1
Stavropol kray	13	1	1	1	1	1	1	1	1	0	1	1	1	1	1
Sverdlovsk oblast	13	1	1	1	1	1	1	1	1	1	1	0	1	1	1
Tambov oblast	5	1	0	1	0	1	0	0	0	0	0	0	0	1	1
The City of Moscow	5	0	1	0	0	0	0	0	0	1	1	1	1	0	0
The City of Sankt-Petersburg	13	1	0	1	1	1	1	1	1	1	1	1	1	1	1
Tomsk oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tula oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tver oblast	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tyumen oblast	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Udmurtian Republic	13	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Ulyanovsk oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Vladimir oblast	3	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Volgograd oblast	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Vologda oblast	6	1	0	1	0	1	0	1	1	0	0	0	0	0	1
Voronezh oblast	9	1	0	0	0	0	0	1	1	1	1	1	1	1	1
Yaroslavl oblast	13	1	0	1	1	1	1	1	1	1	1	1	1	1	1
Zabaikalsk kray	7	1	1	1	1	0	0	0	0	0	0	0	1	1	1