Russian fertility: from demographic abyss to new baby boom? Could it be even more like the fertility in the U.S. or England? Evidence from period and cohort perspectives.

Extended abstract.

As far as just 9 years ago the United Nations Population Division, Rosstat (Russian statistical agency), as well as Population Reference Bureau, United States Census Bureau and independent researchers all predicted immense shrinking of the population of Russia in the foreseeable future, primary because of low fertility levels. Indeed, the popular yet rather reliable indicator – the Total Fertility Rate (TFR) – stood below 1.35 for 12 years from 1995 until 2006. At some point, there have been only few countries in the world with even lower fertility level.

Just one decade later, Russia is set to have TFR of around 1.78 in 2015, a growth of more than 60% from the lowest point observed in 1999. This level provides it a place among 10 or even fewer developed countries with higher fertility. All these years almost every measure of Russian fertility showed positive dynamics, a list, which starts from such rude and disorienting indicator as births count and ends with sophisticated measures like cohort Parity Progression Ratios (PPR) and Recuperation Index (Ri).

Author will not investigate determinants and possible causes for such drastic change, which is a possible theme for additional study. Rather than that, an analysis of many fertility indicators and comparison with different developed countries has been conducted.

Short findings could be described below in brief:

1. The latest data for age- and parity-specific births distribution for current year could be obtained from the website of Russian National Social Security Fund. Usually the data, though incomplete, for previous month is available before the end of the next one and even at the middle of it, by territories. The latest complete data for overall births count by administrative units of Russia is available for more and more number of territories progressively through websites of local registration offices. Finally, Rosstat delivers raw natural movement data before the end of the next month. A number of recalculation and redistribution procedures are needed to adjust raw data for analysis. Using projection of female population for 1-year forward results in midyear population estimation, which allows to calculate rates.

2. Adjusted fertility data appears to be fully in line with recent trends of 2006-2014. The total fertility for second birth order (0.69), which continues to growth, will likely be the one of the highest in developed world, and the TFR for first births is also (0.78-0.79) higher than average though declining. Fertility of all birth orders continue their growth alongside with Average Parity indicator (AP).

3. Russian fertility grows in general. This growth is evident not only in period measures but from cohort perspective too. The growth occurs in older ages and all orders of births except the births of first children.

4. The curve of age fertility function widens in Russia, especially for 1st births. The measure of distribution function – excess kurtosis – declines, and already reached quite low level.

5. The growth of higher birth order fertility offsets growing childlessness, which, in turn, remains lower than in most developed countries.

6. Surprisingly, the proportion of births out of official wedlock falls since 2005 non-stop; adding the same statistics from Belarus and most of Ukraine, one could notice a Hajnal

line effect. Things seem to go different to the east of the line. Higher non-marital births share is associated with lower income and education levels as well as with some ethnic or religious minorities. The concept of the Second Demographic Transition (SDT) needs to be widened therefore.

7. Once relatively uniform, fertility patterns in the former Eastern Block now undergo divergence processes, with fertility heading to different directions. Russia seems to emerge as a trendsetter for nearby countries serving as one of the 'poles'.

8. Fertility patterns are different among groups of developed countries and most differences persist. The first world countries differ by level, timing and distribution of fertility. Using these criteria, it's possible to distinguish several regions and compare them with each other and with Russia by number of parameters.

9. Trends 3, 4 and 5, listed above, push Russian fertility closer to English-speaking model with higher share of higher-order births, lower excess kurtosis (say wider distribution of the age-specific fertility function) and higher fertility overall (the so-called 'open two-children model', in contrast of 'closed two- or even one-and-half-children model', observed in Russia before. The only differences between Russia and English-speaking countries that possibly not decreases are projected level of childlessness as well as non-marital births share. All other indices serve as evidence of the process which moves Russian fertility closer to English-speaking countries (namely England and Wales as well as the USA)

10. The most distant group of developed countries, judging by number of indicators, from Russia is Eastern Asia and Southern Europe, and the local group of East Eastern Europe countries, which are closest to Russia in terms of fertility, contains Bulgaria, Romania, Ukraine and Belarus. Lithuania, Latvia and Moldova also could be partly counted.

11. Russian territories differ from each other in terms of fertility indicators by magnitude, unseen in the developed world; Russia reminds China or Turkey by this measure.

12. The true population of some Russian regions could be adjusted or corrected with good precision, using Average Parity ratio.

13. The influence of Maternal Capital introduction in 2007 is evident in period indicators, based on fertility levels of the second and subsequent birth order. However, latest years see stronger growth than predicted.

Tables:

1. Relative difference between 1-year age-specific cohort fertility rates (ASCFR1) of Russia and of 50 developed countries (un-weighted mean), counting from the beginning of the Second Demographic Transition (lowest point of cohort fertility in ages 30+):

2. Relative difference in ASCFR1 between Russia and the USA:

3. Relative difference in ASCFR1 between Russia and England&Wales:

4. Timeline of the Second Demographic Transition (SDT) in fertility (aging process) by countries:

| Cohort	Avg. age reaches minimum for the last time	Fertility 30+ reaches minimum	Fertility 30- reaches last maximum
1934			Canada, Australia
1935			USA, Finland, New Zealand
1936			Denmark
1937			Austria, Sweden, France, Iceland
1938			
1939	Finland		England&Wh, Scotland, Switzerland, Portugal, Norway
1940	USA	Finland	
1941	Canada		Netherlands, Belgium
1942	Australia	Canada, England&Wales	
1943	Switzerland	USA, Switzerland, Sweden, Luxembourg	Italy
1944	England&Wales, Sweden, Denmark, Netherlands	W.Germany, Netherlands, Australia	Japan
1945	Belgium, France, Norway	Scotland, Norway, Belgium, France, Japan, New Zealand, Singapore	Ireland
1946	Scotland, W.Germany, Japan, Iceland	Denmark, Iceland	Spain
1947	Austria, Italy, New Zealand, Chile	Austria	
1948	Montenegro	Italy	
1949			Romania, Czech rep.
1950		Hungary	
1951	Bosnia&Herzegovina		Greece
1952			
1953	Serbia	Czech rep., S.Korea, Taiwan, Montenegro	
1954	Croatia	Greece, Croatia	
1955	Hungary, Spain	Spain, Portugal	Croatia, Slovenia
1956	Ireland, Greece		
1957	Czech rep., Portugal, Slovenia	N.Ireland, Ireland, Slovenia	Bulgaria
1958		Macedonia	Belarus
1959			E.Germany, Ukraine, Lithuania, Poland, Serbia
1960	E.Germany	E.Germany	Russia, Estonia, Latvia
1961	Estonia	Bulgaria, Estonia	Hungary
1962		Russia, Lithuania, Romania	
1963		Slovakia, Latvia	Cyprus, Armenia
1964	Bulgaria, Romania, Latvia, Cyprus	Ukraine, Belarus	
1965	Slovakia, Russia, Poland	Cyprus, Moldova	
1966	Ukraine	Hong Kong	
1967	Belarus	Poland, Serbia	
1968	Lithuania	Bosnia&Herz, Armenia	
1969		Malta, Chile	
1970			
1971	Moldova, Armenia, Brazil		
1972	Albania	Brazil	
1973			
1974	Costa Rica		
1975			
1976		Albania	

Graphs:

1. Age- and order-specific fertility function in Russia, year 2014:
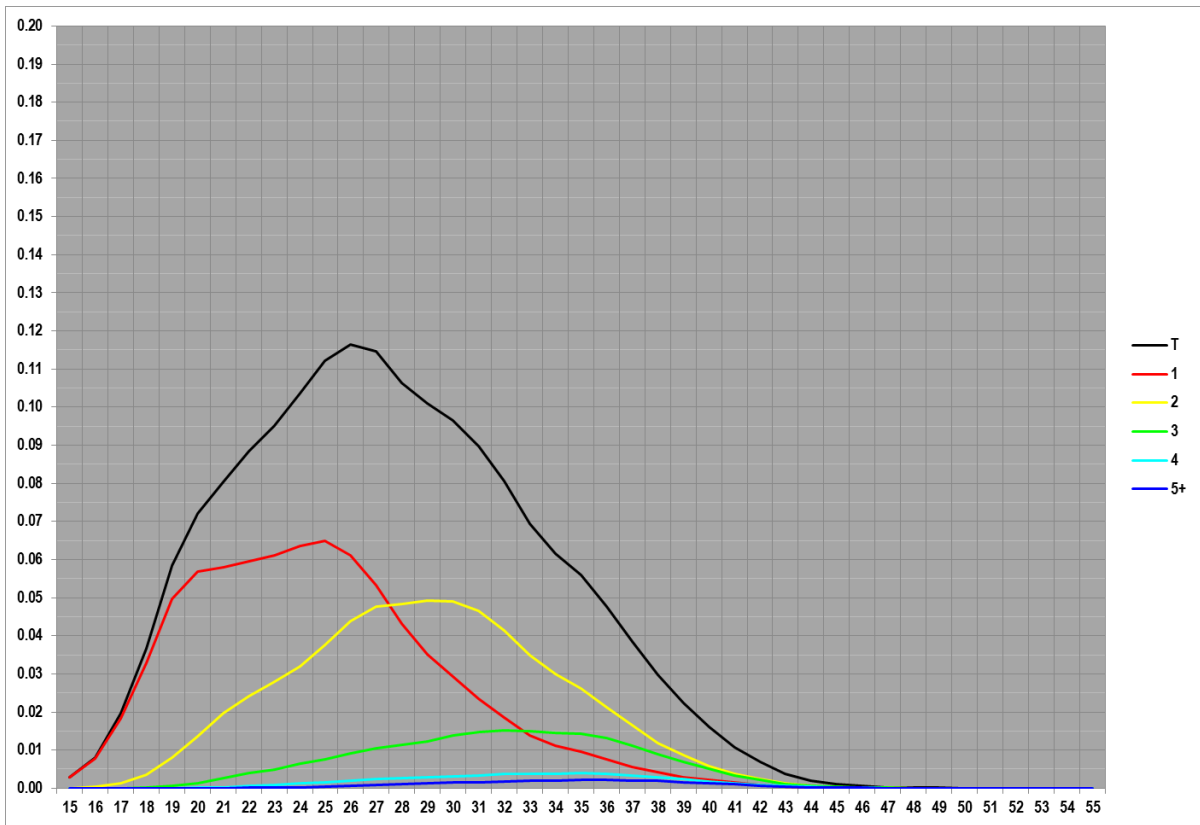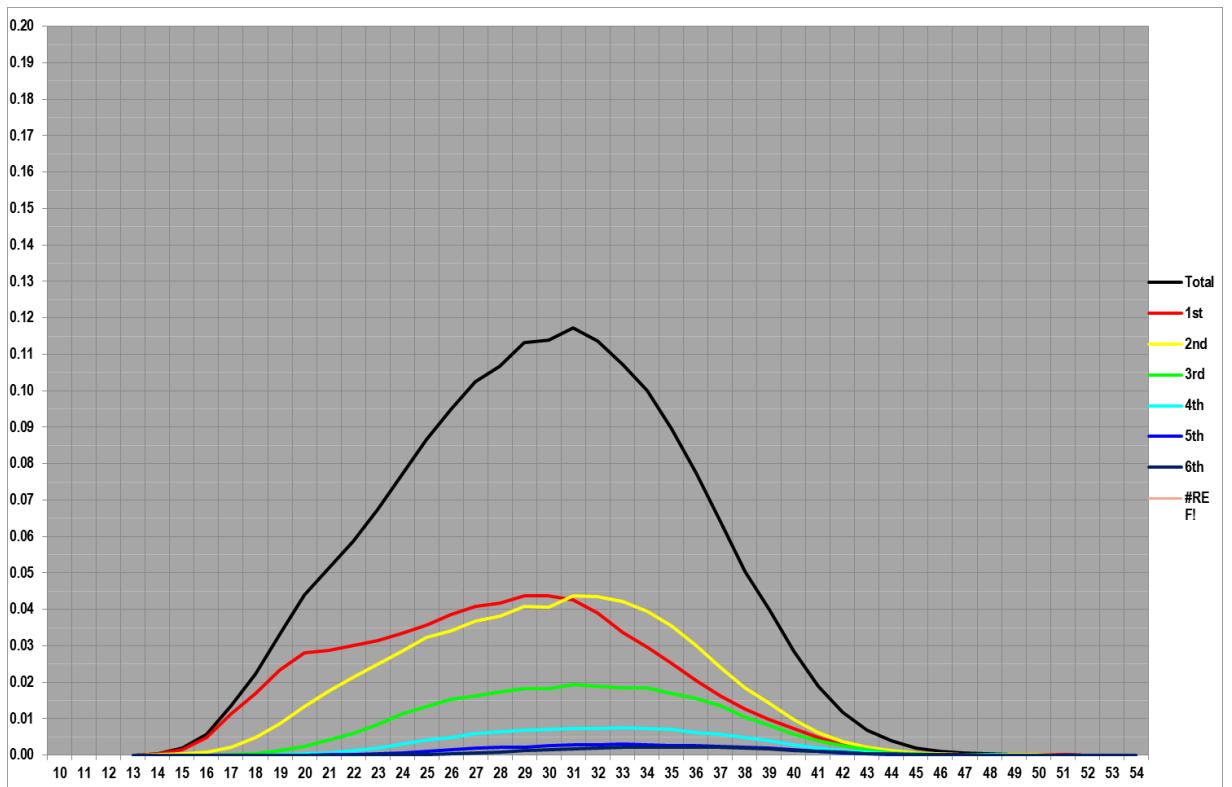
2. Age- and order-specific fertility function in Russia, year 2015, projection:
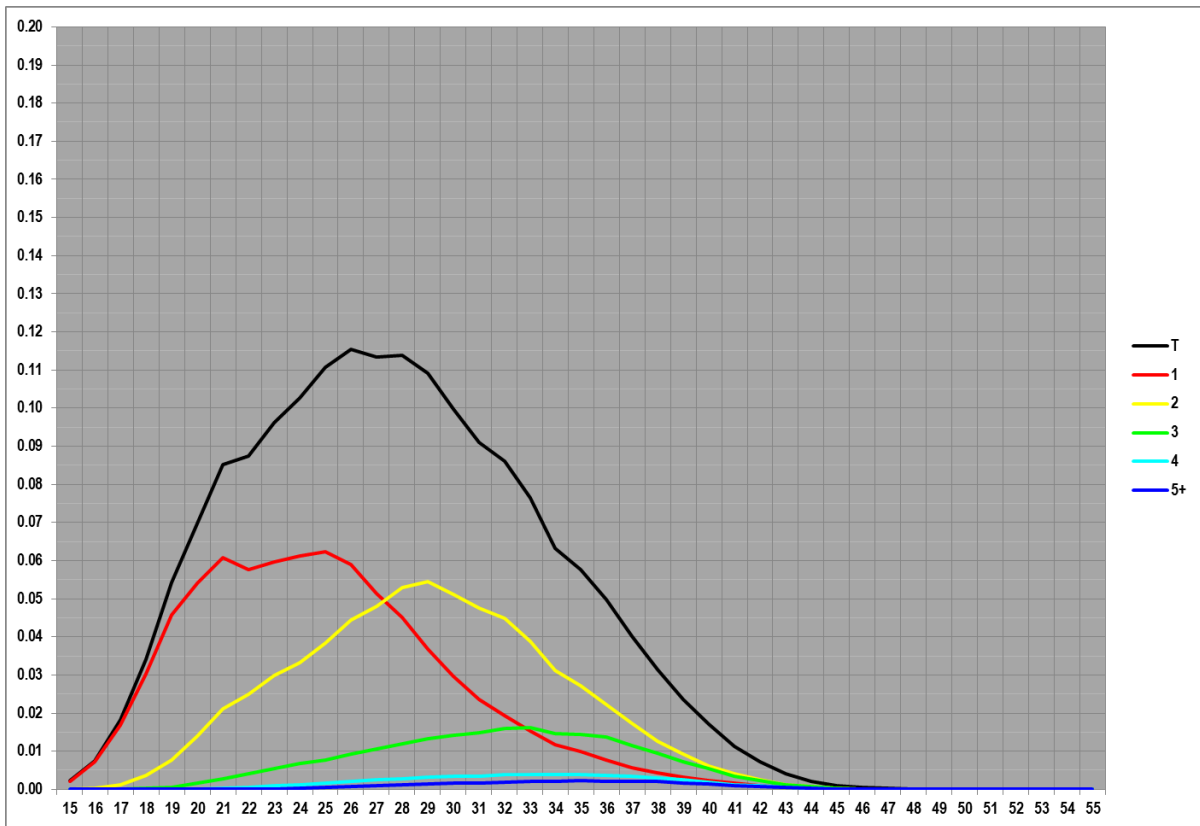
3. Age- and order-specific fertility function in the USA, year 2014:
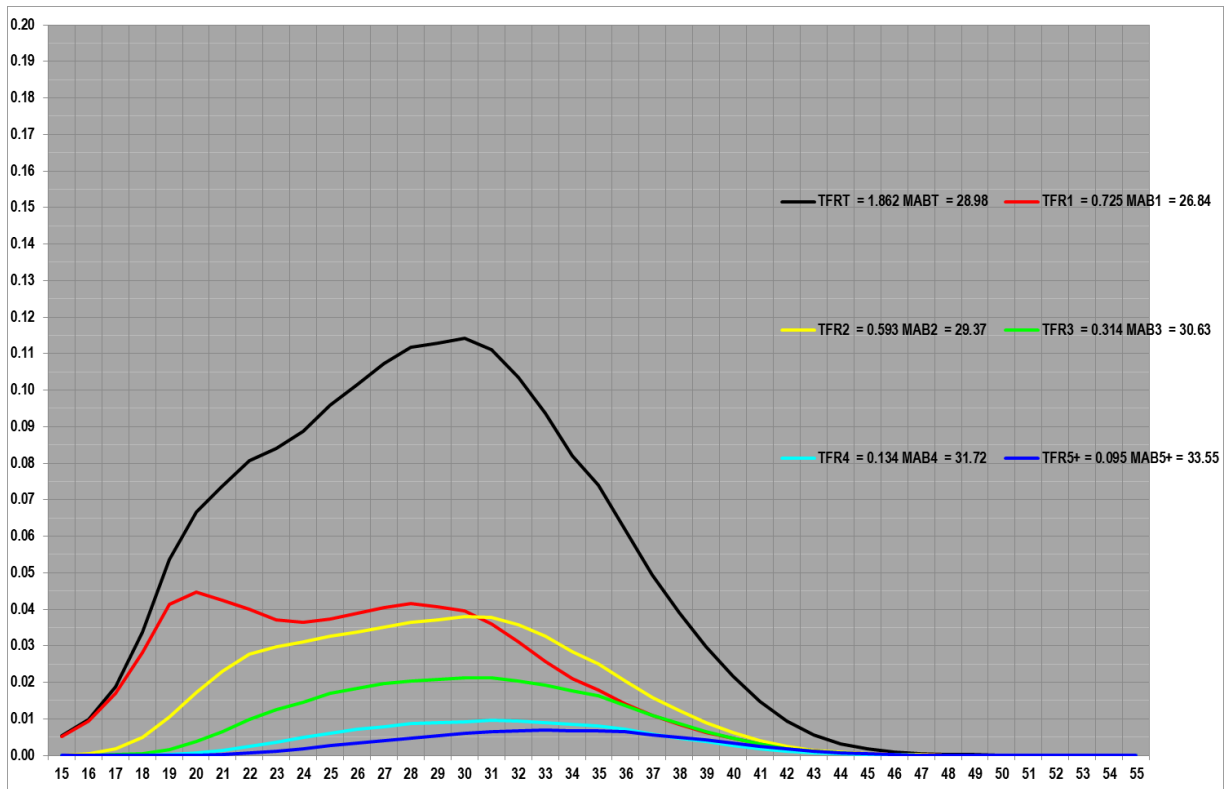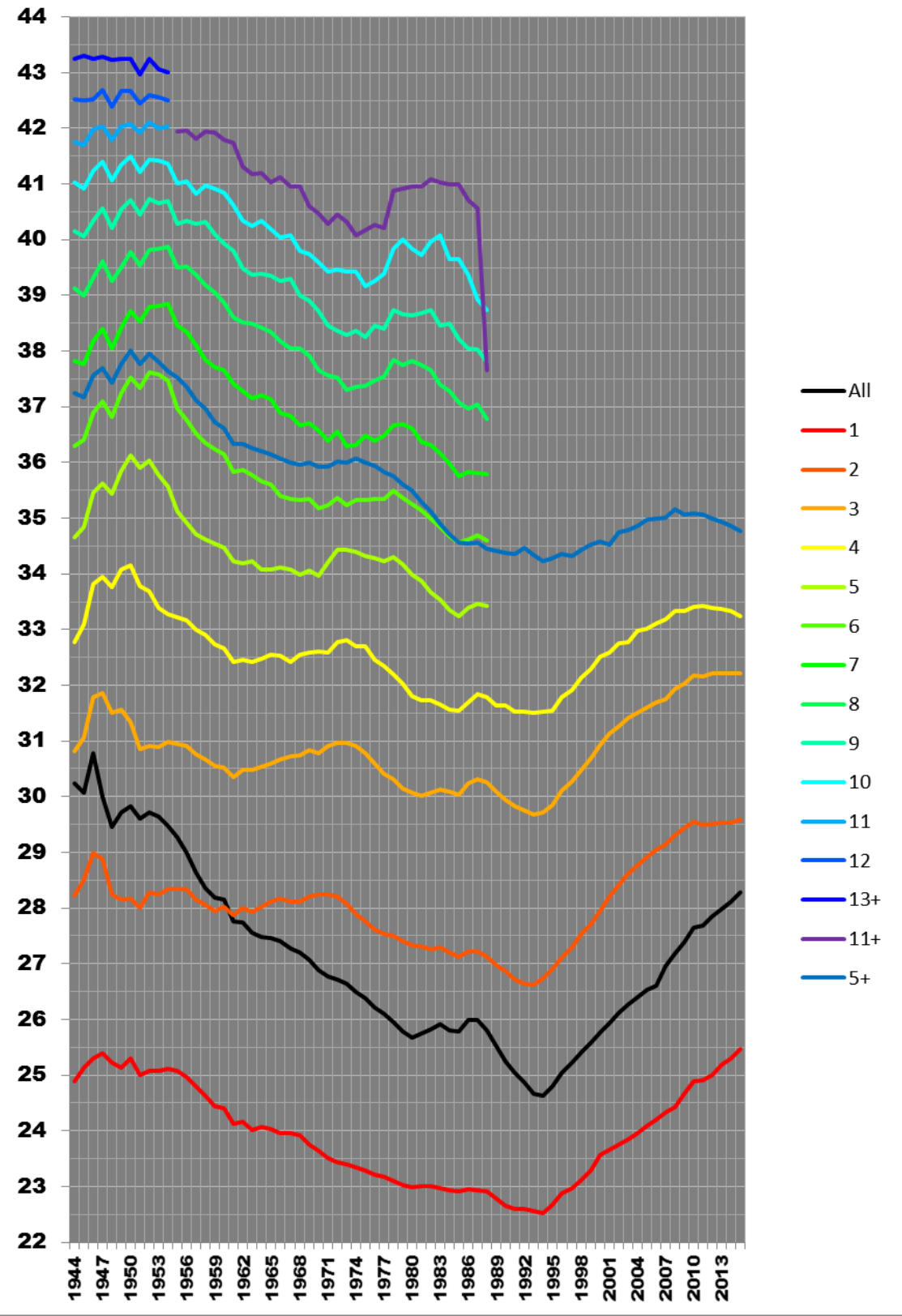
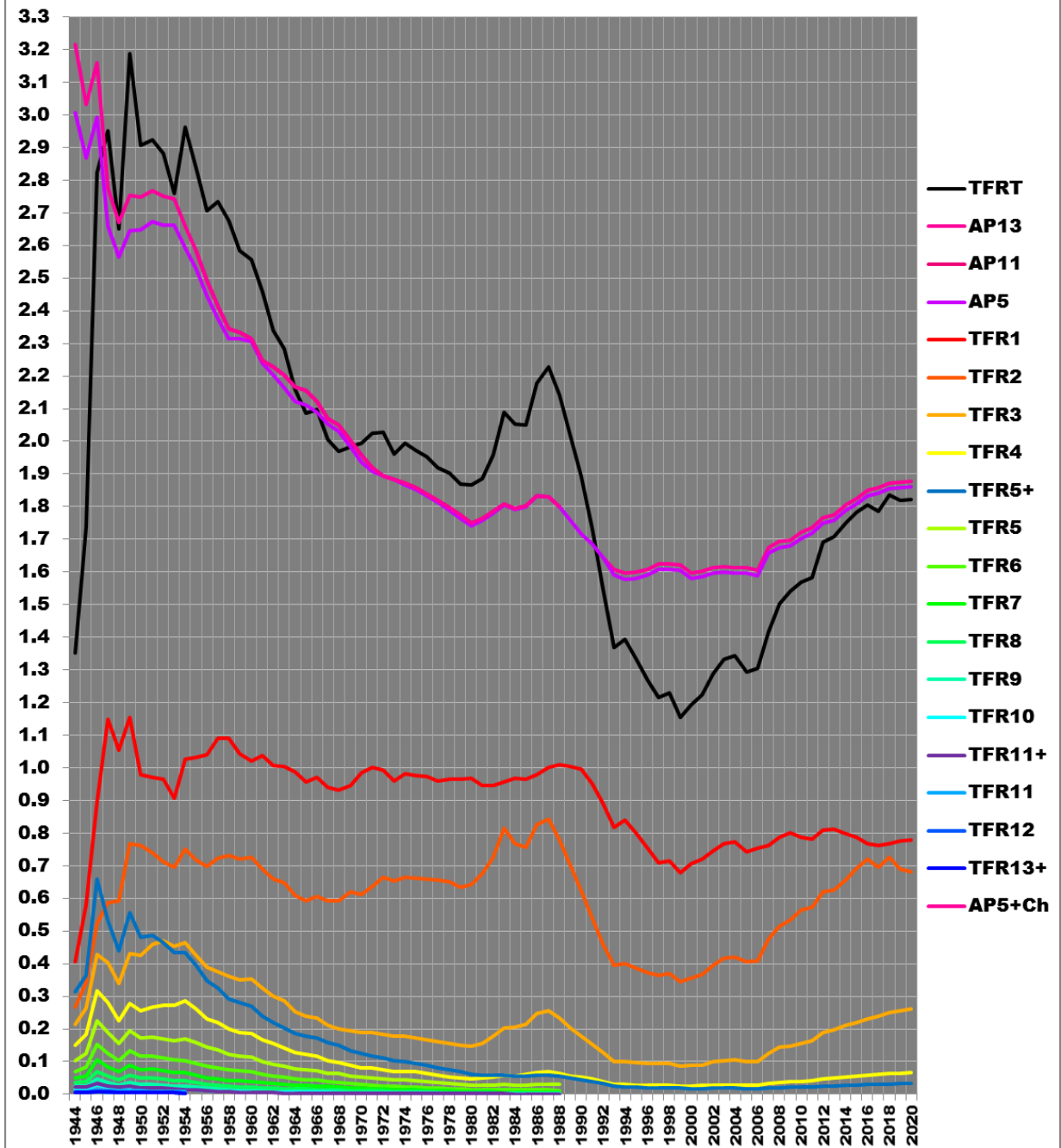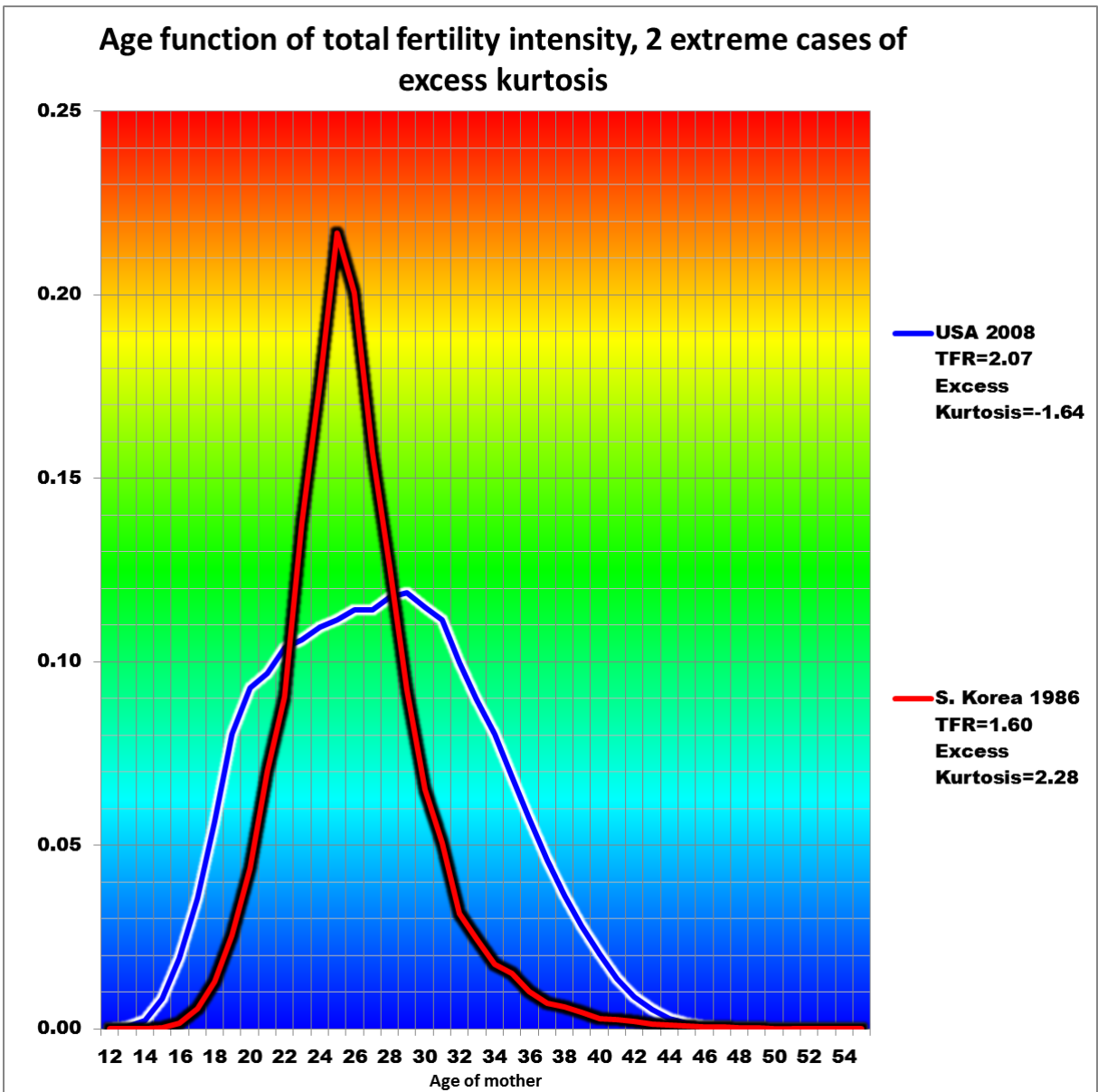4. Age- and order-specific fertility function in England and Wales, year 2014:
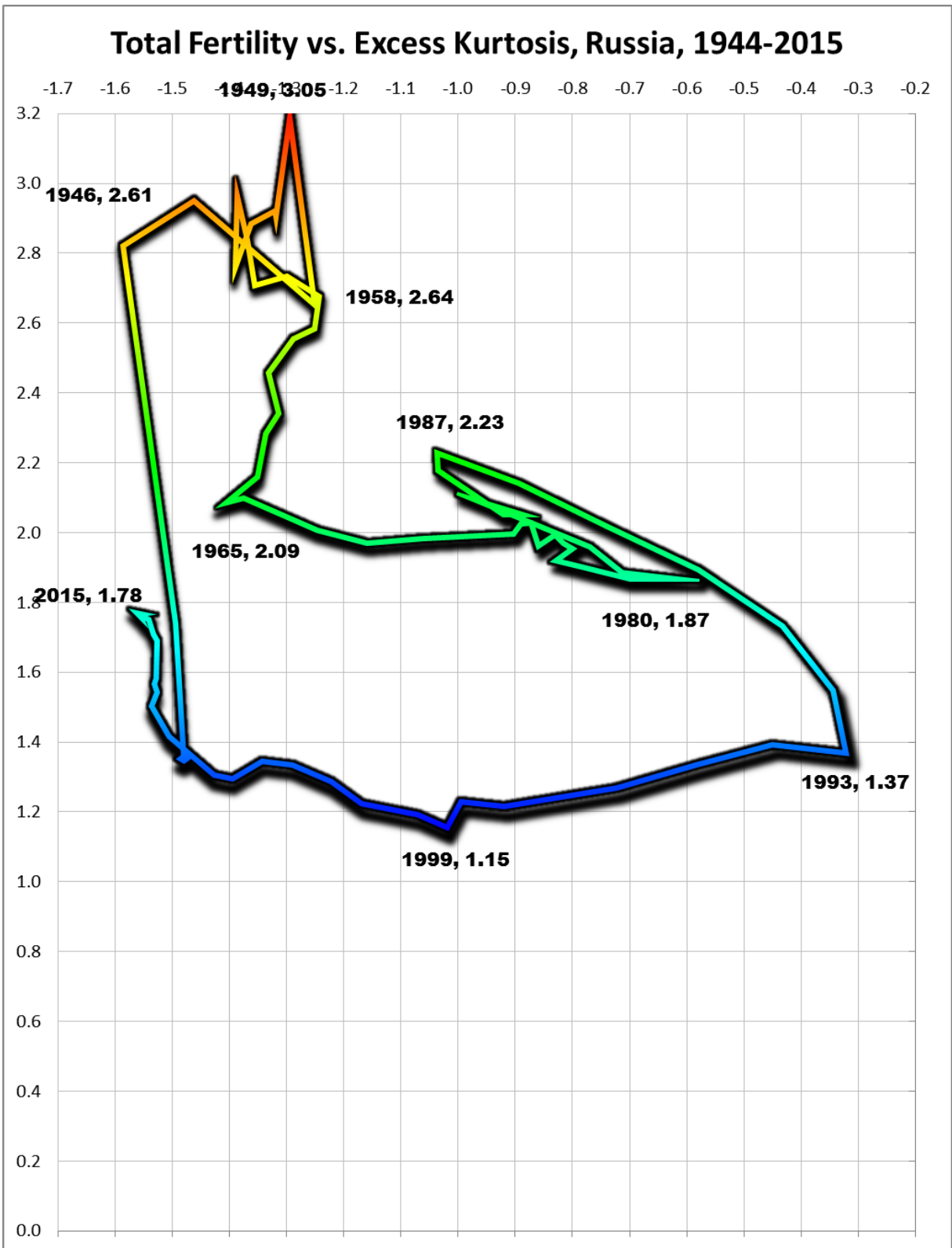

5.

Mean Age at Birth by order, Russia, 1944-2015

6.

Total and birth order fertility vs. average parity, Russia, 1944 - 2015

7.

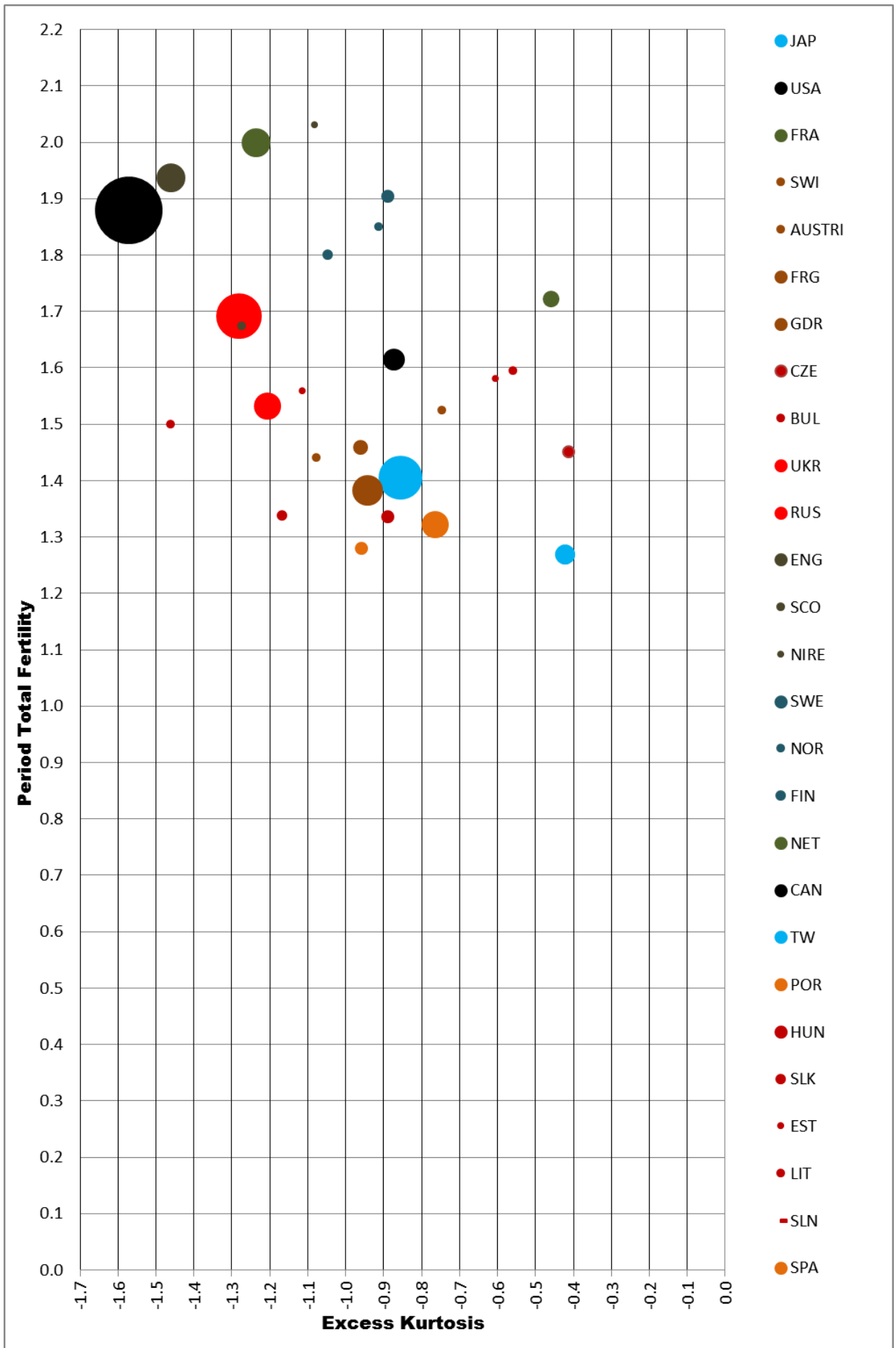Age function of total fertility intensity, 2 extreme cases of excess kurtosis

8.

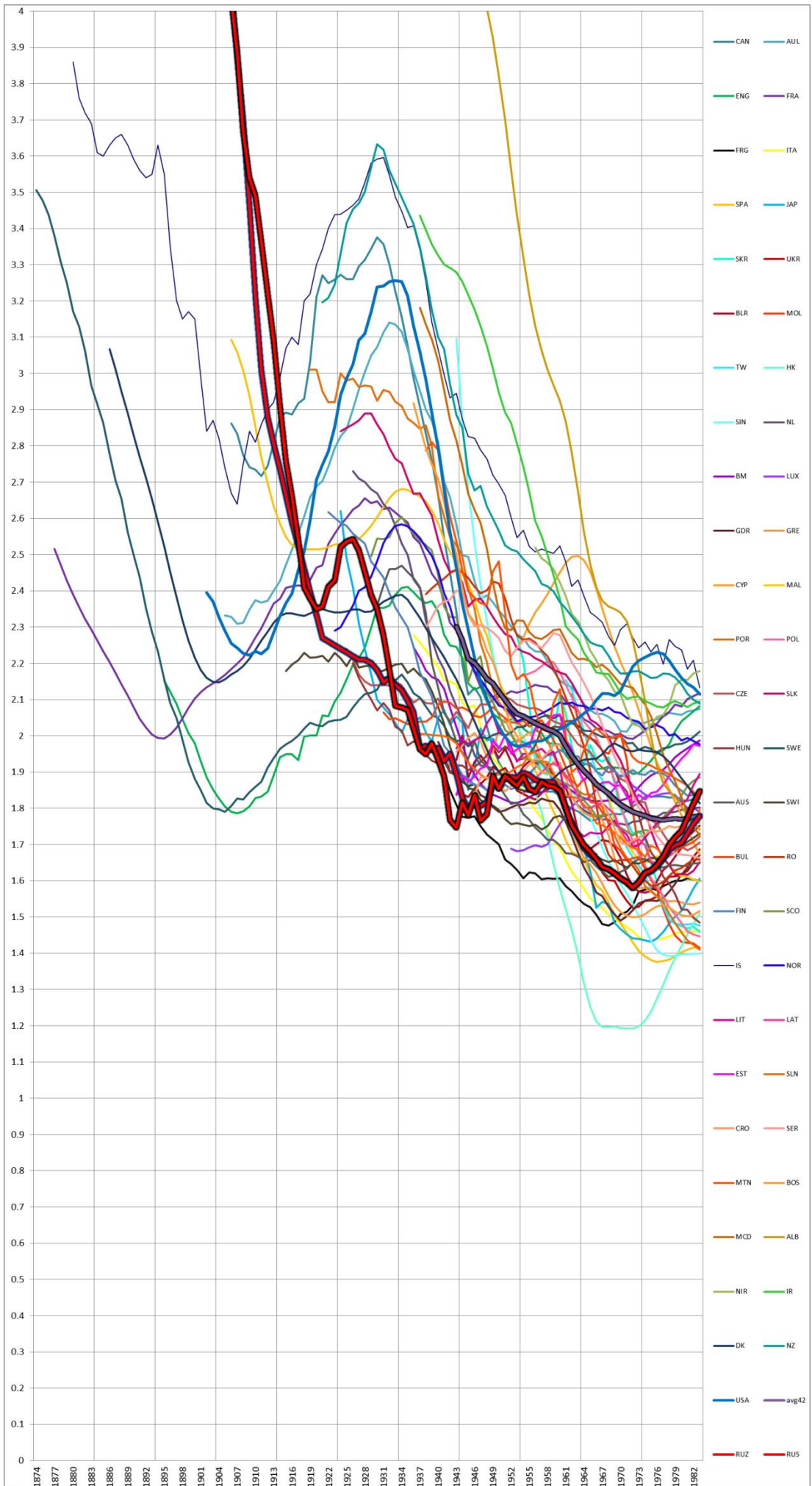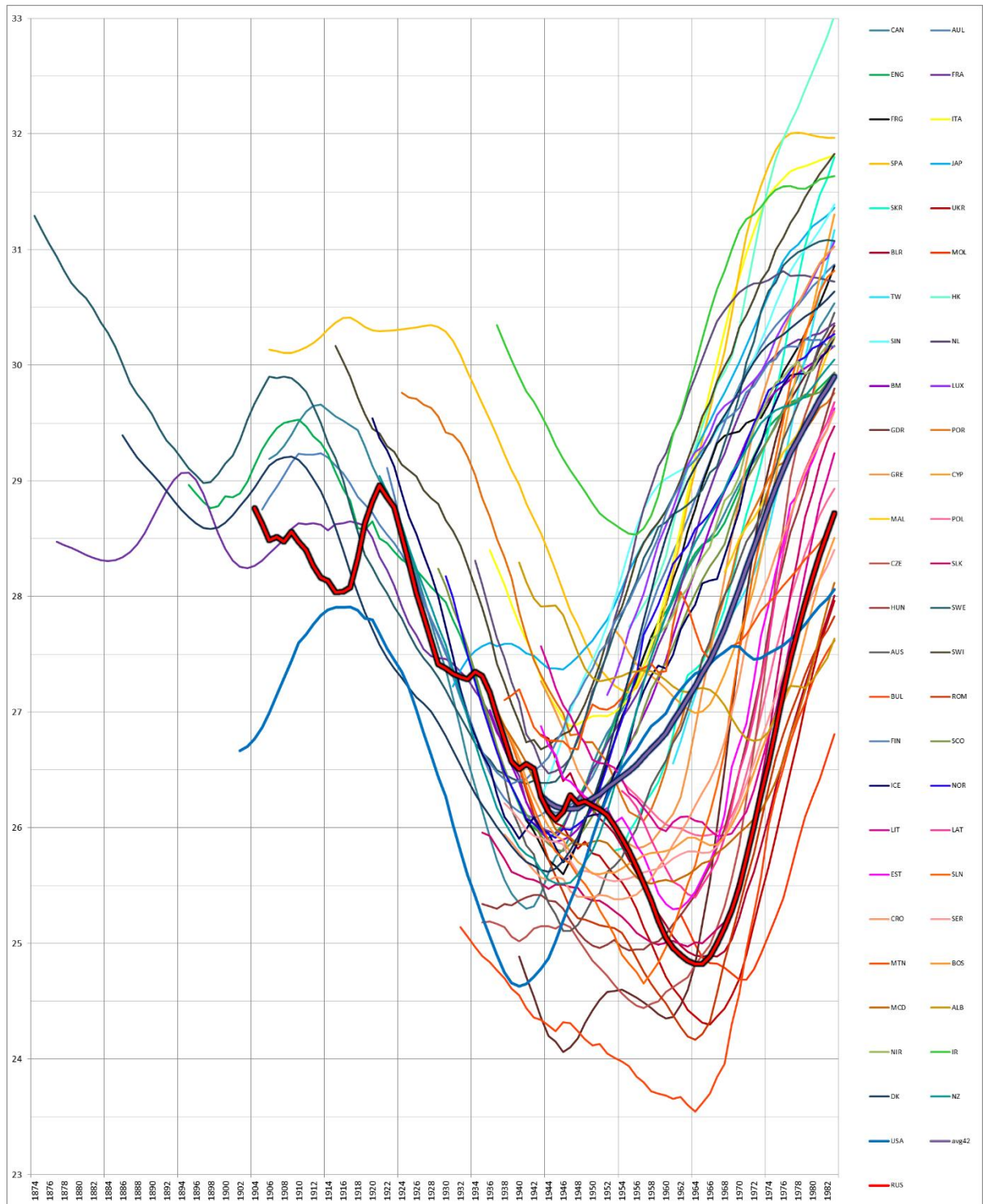**Total Fertility vs. Excess Kurtosis, Russia, 1944-2015**

9. Period Total fertility and excess kurtosis

10. Completed cohort fertility, developed countries:

11. Mean age at birth, cohort:

12. Achieved cumulated fertility rate for 3rd births by age for cohorts: