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Spatial Differences in Fertility in Today's Russia: Uneven Responses to the Pronatalist Policy within the Context of Historical Trends

Abstract

Diminishing regional diversity in fertility indicators was the dominant trend in the second half of the 20th century. In the 1990s, a period of the most intense political and economic transformation, this trend was interrupted and Russia experienced a short-term increase in regional variations in fertility, which occurred against the background of the rapid fall in its average quantum. Soon, however, the differentiation of fertility once again continued to decline, and, by the early 2000s, the uniformity of the Russian regions returned to the level characteristic of the 1980s. It can be stated as a period of uniform compensatory increase in fertility with tendency pulling regions, where period fertility rates have fallen too low, up to the regions with an average fertility level.

The first five years of increase in total fertility rate (TFR) since 1999, not too change the regional heterogeneity, and it stagnated near the historically lowest level. But in 2007, the year when the new pronatalist measures started, regional differences in TFR increased sharply, especially for rural areas. In 2007-2012 for the rural populations standard deviation of the TFR has doubled, and the coefficient of variation increase from 15% to 25%. By historical standards it should be recognized as significant change. In fact, it is the return to the situation observed in Russia 30-40 years ago, when rural populations in many Russian regions have not yet completed the transition from high to low fertility. We can say that the recent pronatalist policies in Russia mainly boosted period fertility indicators in rural area, and, above all, in national autonomous republics with fertility higher than the average level for the whole country.

Spatial Differences in Fertility in Today's Russia: Uneven Responses to the Pronatalist Policy within the Context of Historical Trends

Historical trends and previous research findings

It is hardly possible to expect an absence of differences in fertility in Russia, with its vast territory and diverse natural, climatic, and socioeconomic conditions. If we add to this the numerous ethnic groups concentrated in national-territorial autonomies maintaining their ethnocultural integrity, significant territorial variance of fertility would seem to be self-evident. However, as it often happens, a seemingly obvious inference proves to be wrong, all the more so if the problem has been formulated imperfectly from the investigative point of view. A conscientious researcher will not offer a hasty conclusion about significant demographic differences in Russia unless he or she understands exactly what is implied by significant differences by those who pose the question.

The problem is that statistical fluctuation of demographic variables by territorial units of any level of division always reflects mass demographic processes. Therefore, from the formal statistical point of view, regional differences, say, in levels of fertility, will hold as long as childbirth has the meaning of a mass phenomenon and the links of demographic entities to territorial units keep corresponding to the administrative system of a nation. At the same time, a difference may be defined as "essential" or "significant" only in relative terms, since its dimensions depends on the accuracy of the investigative "microscope" and its adjustments, on the one hand, and the subjective conceptual attitude of the investigator to the problems, with all ensuing consequences, on the other.

The approach to the investigation of regional demographic differences described below and the findings on these differences of long-term evolution in Russia and other countries were discussed consecutively in [8, 9, 11], The participants in the well-known Princeton project for the study of fertility decline in Europe [3, 4, 7], and others [5, 6], including Russian investigators [2, 10], have developed their theoretical ideas in the same direction. The principal empirical and theoretical conclusions are the following.

The degree of regional difference manifestation is not a preset or historically constant measure. The more unexpected and/or the more rapid and fundamental the socioeconomic changes are, the more probable significant regional differentiation of all demographic indicators will be. On the contrary, relative stability of territorial diversity is observed in individual nations in more or less tranquil periods of their demographic history. Take Russia, for example, or other nations on the eve of demographic transition from high to low mortality and fertility. To be more exact, the case in point is relative stability of regional demographic typological structure of population reproduction patterns where slow or weak shifts—reciprocal passage of individual territories from one typological group to another without disturbing the typological structure as such—are observed. Regional homogeneity smoothing and subsequent descent to a certain limit appears as the leading vector of change in the periods of relative stability. It is difficult to

establish this level empirically. Most probably, it varies in different nations and in different periods, but its existence is unquestionable. Self-evolution of any complex system, social systems in particular, is impossible without maintaining social, including regional demographic diversity.

The period of gradual evolution is followed by a new stage of quick change, and regional differences grow significantly again. The reason for the appearance of vanguard, rearguard, and intermediate regions (formation of phasic differences) lies in the fact that changes in mortality and fertility cannot begin and proceed with equal speed simultaneously in all population groups, ethnoses, and regions. The weaker all kinds of ties between regions, countries, and nations, the greater the probability of essential differentiation.

If we divert from the inevitable cyclicality, that is, a periodical decrease or increase in regional differentiation, we see that absolute and relative decrease, rather than increase of regional differentiation—in other words, convergence, rather than divergence of regions on the inter- and intrastate levels—predominates in the long historical retrospect. This is proven by the experience of Europe as a whole, and of individual countries, including Russia. Various demographic data from the mid-19th century gathered in the provinces of European countries, including Russia, demonstrate that the growth of regional variation in the first phases of demographic transition is only an intermediate stage on the way to greater homogeneity of the provinces or regions. The relative level of regional fertility variation in individual countries, measured, for instance, by the coefficient of variation, was lower in the middle of the 20th century than on the eve of the demographic transition. Statistical characteristics of regional diversity continue to decrease in most posttransition populations. Thus, demographic transition is marked not only by a multiple decrease in mortality and fertility rates, but also by a great reduction of spatial differences in mortality and fertility levels.

In connection with the aforesaid, it is important to determine the stages of national social and demographic development and then form an adequate attitude about which regional differences must be considered as essential or nonessential. For Russia, the differences in fertility in the 1970s and 1980s must be considered as nonessential in comparison with the differences prior to the late-19th century demographic transition, more so, with the period of active decline of fertility in the 1920s through 1950s [9, 12]. An obvious trend toward unification of the regimes of fertility and population reproduction occurred in the 1960s. At the same time, stabilization at a rather high level in the 1980s and a temporary growth of regional differentiation in 1991-1993 are considered as anomalous for the post-transition nations. Could this not testify to (a) unfinished transition processes in fertility—unsteady fertility levels by years; and (b) apparent socioeconomic and political crisis—increased regional distinctions and isolation? In our opinion, there are grounds for an affirmative answer to this question. At the same time, caution is required in making more meaningful conclusions about the influence of the current situation on the character of regional demographic differences. Fertility indicators for the mid-1980s and 1990s are polar and mostly artificial deviations from the actual level of this process in Russia. However, the reasons for these significant fluctuations should be sought not only neither at macroeconomic nor at macrosocial levels.

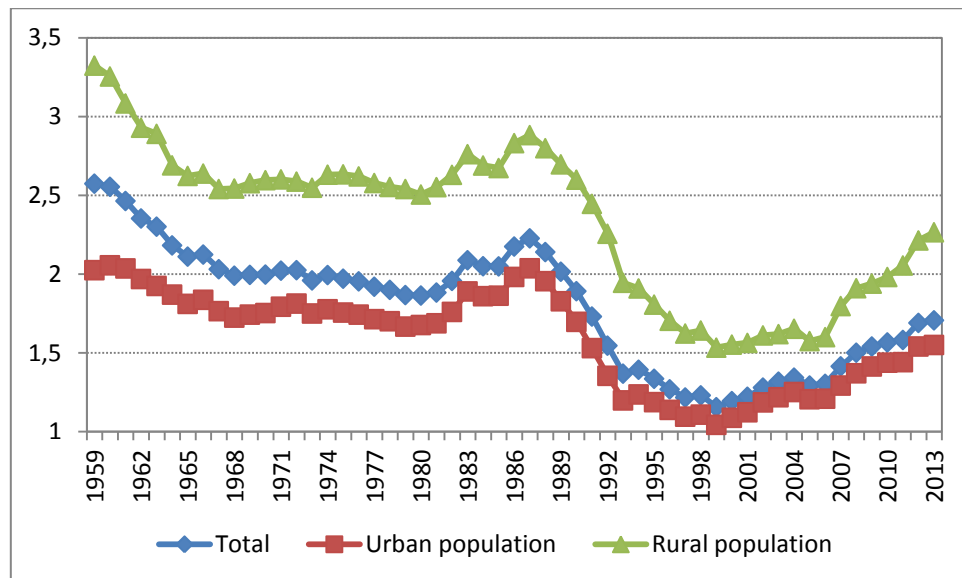


Figure 1. Total Fertility Rate, Russia, Urban and Rural subpopulations, 1959-2013.

Fertility rates were highly inflated in the 1980s due to the government's attempts to interfere into the demographic sphere through its new family policies (Fig.1): long maternity leaves with pay, correction of the housing policy, allowances, etc. Many families hastened to take advantage of the situation and to bear as many babies as they wished. Naturally, a sharp decline was observed in the following years. Parents were not going to reject the most popular model of a two-child family in favor of, say, a three-child family. Births "over and above the plan" in the 1980s resulted in "unscheduled leaves" in the 1990s for many families. In the final analysis, the complete fertility of the generations contributing to population reproduction in the 1970s and 1980s changed only slightly and hardly increased (for more detail, see [1, 13]. This stands in sharp contrast to the period indicators (e.g. TFR) characterized by sharp yearly fluctuations. In all probability, changes in the tuning of births over the 1980s and 1990s had regional features, which is corroborated by the indicators of regional variation. Fertility rates grew somewhat in Russia in 1994, and the regional differences began to diminish again. The tempo of family formation gradually returned to the "norm" recorded in the late 1970s, and this process was evidently accompanied by the smoothing of extreme regional deviations.

Summary of the historical dynamics will be the following:

- Reducing regional diversity in fertility has been the dominant trend in the second half of the 20th century.
- In the 1990s, during the period of the most intense political and economic transformation, this trend was interrupted, and Russia experienced a short-term growth of the regional variation in fertility, comes amid a rapid fall in its level.
- Soon, however, the differentiation of fertility continued to decline again, and, in the beginning of the 2000s, the degree of homogeneity of the Russian regions returned to the level characteristic of the 1980s.

Table 1. Total fertility rate and the characteristics of its regional variation, Russia*, 1958-1959, 1969-1970, 1978-1979, 1990, 1995, 2000-2012.

| | Total Fertility Rate, births per woman | | | Indicators of regional variation | | |
|---------|--|---------|---------|----------------------------------|-------------------------|--------------------------------------|
| | Mean** | Minimum | Maximum | Magnitude of variation (max-min) | Standard deviation (SD) | Coefficient of variation (CV) ***, % |
| 1958-59 | 2,84 | 1,40 | 4,81 | 3,41 | 0,60 | 21,2 |
| 1969-70 | 2,09 | 1,44 | 4,65 | 3,21 | 0,44 | 21,2 |
| 1978-79 | 1,99 | 1,46 | 3,94 | 2,48 | 0,37 | 18,4 |
| 1990 | 1,95 | 1,41 | 3,19 | 1,79 | 0,31 | 15,7 |
| 1995 | 1,37 | 0,99 | 2,44 | 1,46 | 0,25 | 18,6 |
| 2000 | 1,21 | 0,93 | 1,82 | 0,89 | 0,17 | 14,0 |
| 2001 | 1,25 | 0,97 | 1,84 | 0,87 | 0,16 | 13,2 |
| 2002 | 1,32 | 1,04 | 2,08 | 1,05 | 0,18 | 13,8 |
| 2003 | 1,35 | 1,08 | 2,27 | 1,19 | 0,18 | 13,6 |
| 2004 | 1,36 | 1,10 | 2,20 | 1,10 | 0,18 | 13,1 |
| 2005 | 1,32 | 1,03 | 2,14 | 1,12 | 0,17 | 13,2 |
| 2006 | 1,34 | 1,02 | 2,12 | 1,10 | 0,17 | 12,7 |
| 2007 | 1,46 | 1,07 | 2,70 | 1,63 | 0,22 | 15,2 |
| 2008 | 1,54 | 1,12 | 2,81 | 1,69 | 0,23 | 14,9 |
| 2009 | 1,58 | 1,18 | 2,97 | 1,79 | 0,24 | 15,1 |
| 2010 | 1,60 | 1,18 | 3,01 | 1,84 | 0,24 | 15,3 |
| 2011 | 1,62 | 1,17 | 3,19 | 2,02 | 0,26 | 16,2 |
| 2012 | 1,74 | 1,23 | 3,26 | 2,03 | 0,27 | 15,4 |

*72 provinces according to the administrative division of the Russian Federation until 1991 without Chechnya and Ingushetia. To keep the long-term territorial comparability Republic of Adygea, Karachay-Cherkess Republic, Republic of Altai, Republic of Khakassia, Nenets, Khanty-Mansi, Yamalo-Nenets, Chukotka and the Jewish autonomous districts are included in the former administrative-territorial units in which they were before 1991.

** Unweighted arithmetic mean.

*** Coefficient of variation calculated as ratio of standard deviation to unweighted mean/

Table 2. Total fertility rate and the characteristics of its regional variation, Russia, urban settlements*, 1958-1959, 1969-1970, 1978-1979, 1990, 1995, 2000-2012.

| | Total Fertility Rate, births per woman | | | Indicators of regional variation | | |
|---------|--|---------|---------|----------------------------------|-------------------------|--------------------------------------|
| | Mean** | Minimum | Maximum | Magnitude of variation (max-min) | Standard deviation (SD) | Coefficient of variation (CV) ***, % |
| 1958-59 | 2,23 | 1,40 | 3,61 | 2,21 | 0,38 | 16,9 |
| 1969-70 | 1,85 | 1,44 | 4,19 | 2,75 | 0,35 | 18,8 |
| 1978-79 | 1,78 | 1,46 | 2,91 | 1,45 | 0,22 | 12,6 |
| 1990 | 1,77 | 1,39 | 2,66 | 1,27 | 0,22 | 12,5 |
| 1995 | 1,23 | 0,99 | 1,97 | 0,98 | 0,17 | 13,6 |
| 2000 | 1,11 | 0,93 | 1,52 | 0,60 | 0,12 | 11,1 |
| 2001 | 1,15 | 0,97 | 1,58 | 0,60 | 0,12 | 10,9 |
| 2002 | 1,22 | 0,99 | 1,77 | 0,79 | 0,14 | 11,7 |
| 2003 | 1,26 | 1,01 | 1,96 | 0,96 | 0,15 | 11,6 |
| 2004 | 1,28 | 1,07 | 1,88 | 0,82 | 0,14 | 11,3 |
| 2005 | 1,23 | 1,02 | 1,82 | 0,80 | 0,14 | 11,5 |
| 2006 | 1,25 | 1,01 | 1,80 | 0,78 | 0,14 | 11,6 |
| 2007 | 1,34 | 1,07 | 2,33 | 1,27 | 0,18 | 13,3 |
| 2008 | 1,41 | 1,11 | 2,32 | 1,21 | 0,18 | 12,5 |
| 2009 | 1,46 | 1,19 | 2,41 | 1,21 | 0,18 | 12,4 |
| 2010 | 1,47 | 1,19 | 2,35 | 1,16 | 0,18 | 12,2 |
| 2011 | 1,47 | 1,15 | 2,38 | 1,23 | 0,18 | 12,3 |

| | | | | | | |
|------|------|------|------|------|------|------|
| 2012 | 1,58 | 1,20 | 2,31 | 1,11 | 0,18 | 11,6 |
|------|------|------|------|------|------|------|

*72 provinces according to the administrative division of the Russian Federation until 1991 without Chechnya and Ingushetia. To keep the long-term territorial comparability Republic of Adygea, Karachay-Cherkess Republic, Republic of Altai, Republic of Khakassia, Nenets, Khanty-Mansi, Yamalo-Nenets, Chukotka and the Jewish autonomous districts are included in the former administrative-territorial units in which they were before 1991.

** Unweighted arithmetic mean.

*** Coefficient of variation calculated as ratio of standard deviation to unweighted mean/

Table 3. Total fertility rate and the characteristics of its regional variation, Russia, rural settlements*, 1958-1959, 1969-1970, 1978-1979, 1990, 1995, 2000-2012.

| | Total Fertility Rate, births per woman | | | Indicators of regional variation | | |
|---------|--|---------|---------|----------------------------------|-------------------------|--------------------------------------|
| | Mean** | Minimum | Maximum | Magnitude of variation (max-min) | Standard deviation (SD) | Coefficient of variation (CV) ***, % |
| 1958-59 | 3,50 | 2,15 | 5,63 | 3,48 | 0,75 | 21,4 |
| 1969-70 | 2,51 | 1,19 | 5,90 | 4,71 | 0,63 | 25,0 |
| 1978-79 | 2,51 | 1,34 | 4,89 | 3,54 | 0,52 | 20,8 |
| 1990 | 2,49 | 1,48 | 3,76 | 2,27 | 0,39 | 15,8 |
| 1995 | 1,75 | 1,10 | 3,04 | 1,94 | 0,36 | 20,7 |
| 2000 | 1,50 | 0,96 | 2,38 | 1,42 | 0,25 | 17,0 |
| 2001 | 1,53 | 1,06 | 2,29 | 1,23 | 0,24 | 16,0 |
| 2002 | 1,59 | 1,11 | 2,46 | 1,35 | 0,26 | 16,3 |
| 2003 | 1,63 | 1,12 | 2,65 | 1,53 | 0,25 | 15,4 |
| 2004 | 1,62 | 1,13 | 2,60 | 1,48 | 0,27 | 16,6 |
| 2005 | 1,57 | 1,04 | 2,56 | 1,51 | 0,26 | 16,5 |
| 2006 | 1,61 | 1,04 | 2,51 | 1,47 | 0,25 | 15,4 |
| 2007 | 1,81 | 1,08 | 3,11 | 2,03 | 0,31 | 17,3 |
| 2008 | 1,92 | 1,14 | 3,38 | 2,24 | 0,34 | 17,8 |
| 2009 | 1,95 | 1,16 | 3,65 | 2,49 | 0,37 | 19,0 |
| 2010 | 1,99 | 1,16 | 3,88 | 2,72 | 0,40 | 20,0 |
| 2011 | 2,08 | 1,10 | 4,43 | 3,33 | 0,46 | 22,3 |
| 2012 | 2,29 | 1,16 | 5,11 | 3,95 | 0,57 | 24,8 |

*72 provinces according to the administrative division of the Russian Federation until 1991 without Chechnya and Ingushetia. To keep the long-term territorial comparability Republic of Adygea, Karachay-Cherkess Republic, Republic of Altai, Republic of Khakassia, Nenets, Khanty-Mansi, Yamalo-Nenets, Chukotka and the Jewish autonomous districts are included in the former administrative-territorial units in which they were before 1991.

** Unweighted arithmetic mean.

*** Coefficient of variation calculated as ratio of standard deviation to unweighted mean/

Changes in the regional variations on the stage of fertility growth in the 2000s

The first five-year increase in the total fertility rate (TFR) in Russia, after reaching the minimum value in 1999, has not changed much relative performance of regional variations, continues to stagnate near the historically lowest level: the urban population coefficient of variation in those years was in the range of 11- 12% of the rural population - at the level of 15- 17% (Table. 1-3, Fig. 2-4). If we start from a purely statistical criteria, then Russia within this period should be considered as a country with a high degree of regional homogeneity of fertility, despite the fact that the maximum TFR differ from the minimum by more than one birth per woman - these were the differences between North-Caucasian Republic of Dagestan and city of St.Petersburg. Even more significant range of variation was observed for the rural part of the Russian population - 1.5 births (the differences between the rural populations of Leningrad

oblast and Republic of Tuva in Siberia). At the same time the average regional differences of TFR were in a narrow range - 0.2 births per woman (2006 in 55 areas of the 72 TFR fluctuated between 1.2 and 1.4). So, the overall increase in the birth rate in the first five years of the 21st century, Russia was not accompanied by increased regional diversity. Rather, we could talk about quite evenly and uniformly during a compensatory increase in the birth rate with a certain tendency pulling regions, where the birth rate has fallen too low, the regions with the average level. At the same time it was possible to observe a mildly increased specificity of certain areas, which is mostly populated ethnic groups that have not yet completed the historic transition to low fertility (republics and autonomous regions of the North Caucasus and Siberia).

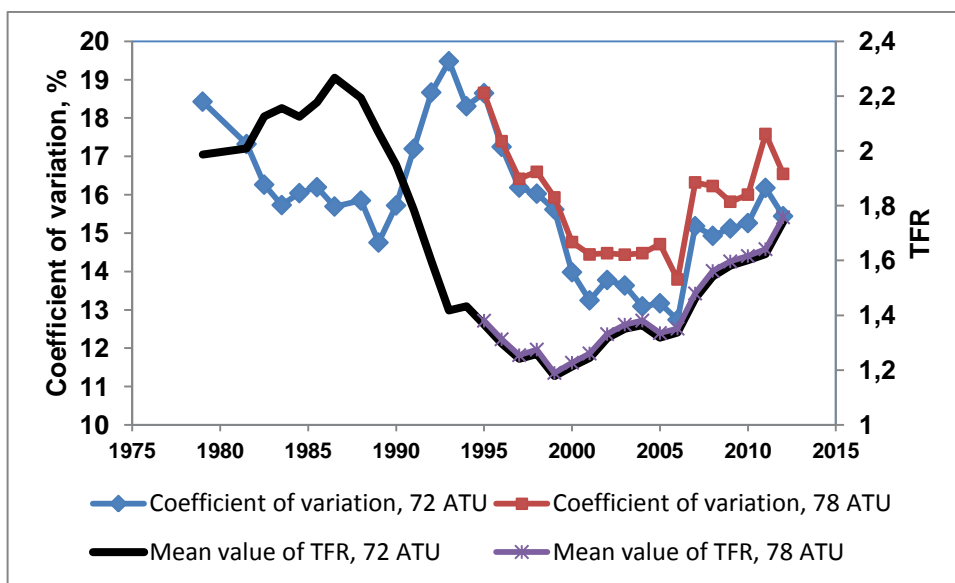


Figure 2. Total fertility rate (unweighted arithmetic mean) and coefficient of regional variation for two aggregates of provinces of the Russian Federation, 1979-2012: 72 territorial units by the administrative division of before 1991 without Chechnya and Ingushetia; and 78 territorial unites by the actual administrative division without Chechnya and Ingushetia.

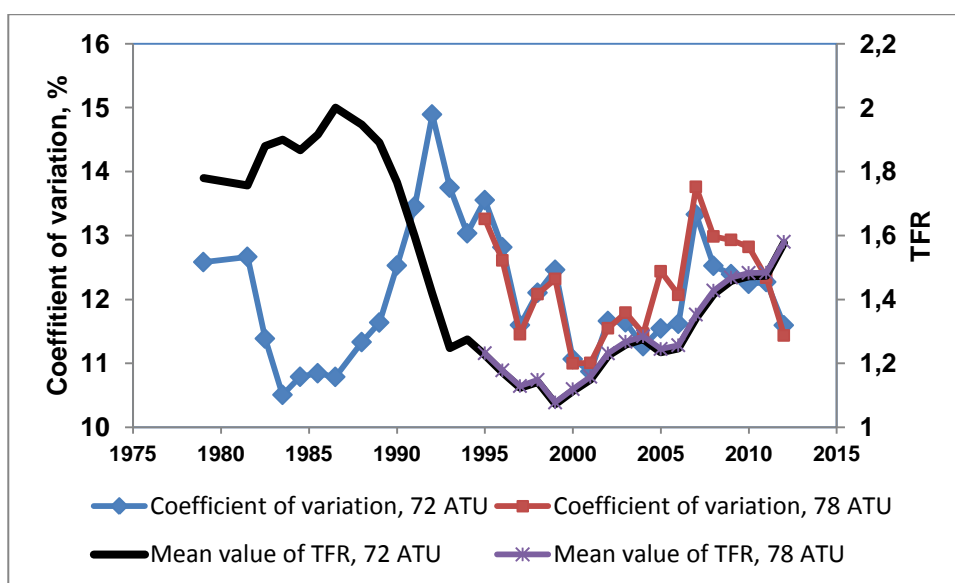


Figure 3. Total fertility rate (unweighted arithmetic mean) and coefficient of regional variation for *Urban* subpopulations of two aggregates of provinces of the Russian

Federation, 1979-2012: 72 territorial units by the administrative division of before 1991 without Chechnya and Ingushetia; and 78 territorial unites by the actual administrative division without Chechnya and Ingushetia.

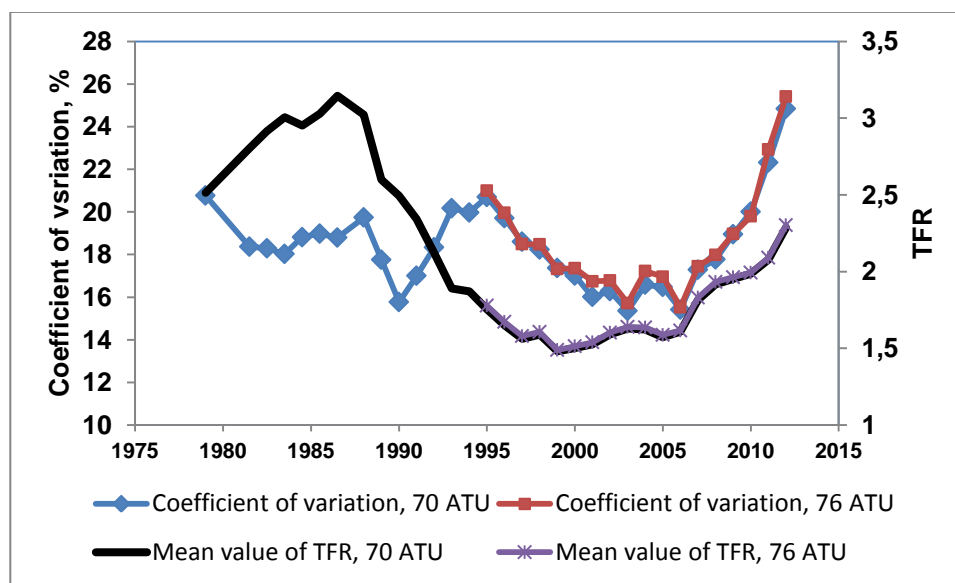


Figure 4. Total fertility rate (unweighted arithmetic mean) and coefficient of regional variation for *Rural* subpopulations of two aggregates of provinces of the Russian Federation, 1979-2012: 70 territorial units by the administrative division of before 1991 without Chechnya and Ingushetia; and 76 territorial unites by the actual administrative division without Chechnya and Ingushetia.

In 2007, regional differences in Russia’s fertility indicators have increased significantly, especially for people living in rural areas (Tables 1-3, Fig. 2-4). For the urban population can also see a jump in statistical indicators characterizing the degree of heterogeneity of the TFR, but a few years later the regional variation decreased for urban areas, and its relative index, coefficient of variation (CV) is gradually returned to the level observed before 2007. At the same time, the rural population of Russia in 2007 -2012. steadily increasing interregional diversity of fertility levels: standard deviation (SD) has doubled, CV increased from 15.4% to 24.8% (figures calculated for aggregate of 70 republics, territories and regions without Chechnya and Ingushetia, which administrative boundaries are conditionally comparable in long retrospect view). Such an increase in diversity should be recognized as significant. In fact, it is the return to the situation observed 30-40 years ago, when the rural population in many Russian regions have not yet completed the transition from high to low fertility rates, and the min-max-limits of TFR in rural areas reached 3 or more births per woman (Table 3). In 2012, according to official vital statistics estimates, the absolute scale of regional disparities in the rural areas of Russia reached 3.95 (rural population of the Leningrad oblast - 1.16, the Republic of Tuva - 5.11).

Such a large scale of the differentials happened very recently raise the question, whether the Russian villagers share the universal model of fertility. Fig. 3.22-3.24 demonstrate that the degree of heterogeneity in the distribution of Russian regions has increased dramatically, especially in rural areas, and has gone beyond the boundaries of diversity, recorded in 1990, in the rural population one-third of Russian regions had TFR less than 2, and another one-third -

more than 2.5 per woman (and 15 regions even 2.7 or more). Practically, this means that for the rural population of two dozen Russian regions the birth of third and subsequent children became as a mass phenomenon. Significant strengthening of the rural population heterogeneity pulled up characteristics of fertility variation of Russia's regions in general (urban and rural population in total).

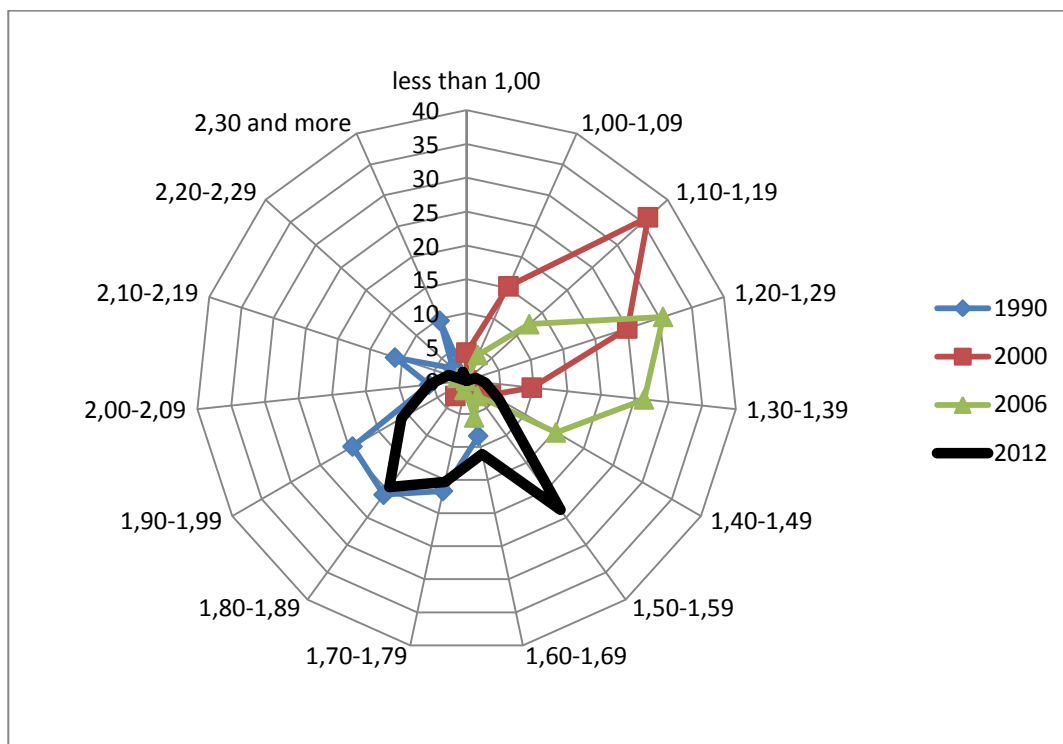


Figure 5. Distribution of Russian regions by the value of TFR in 1990, 2000, 2006 and 2012.,% (72 territorial units by the administrative division of before 1991 without Chechnya and Ingushetia).

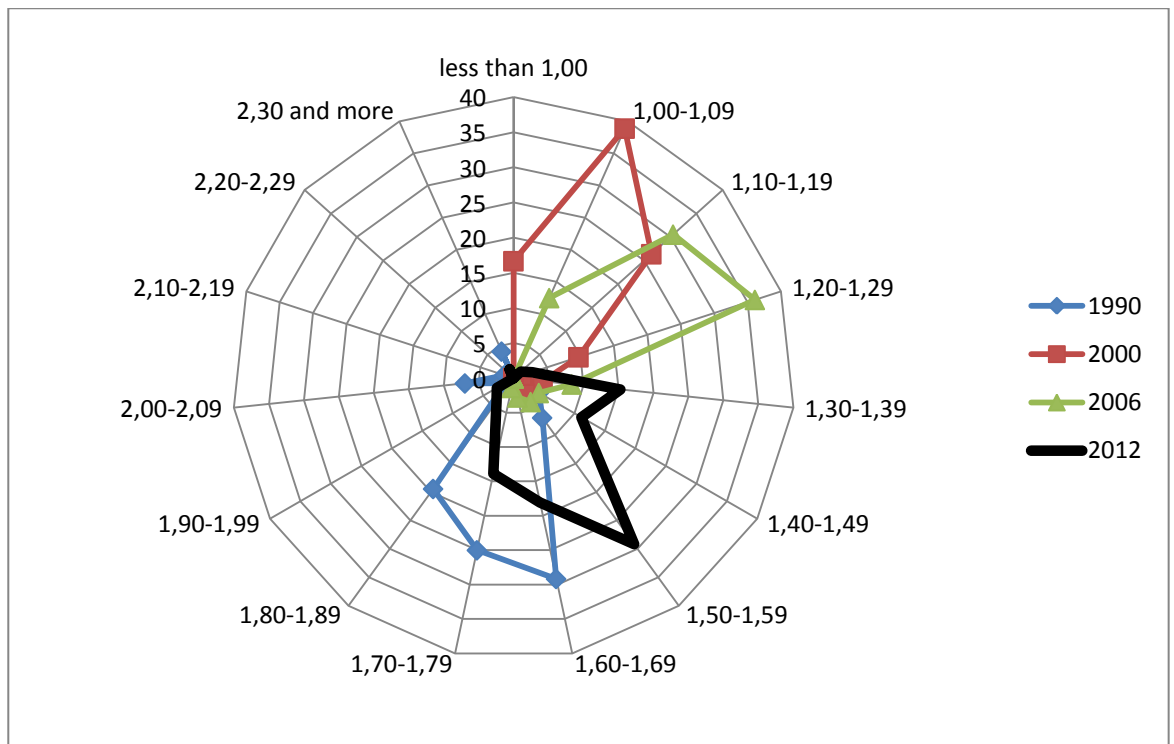


Figure 6. Distribution of *Urban* subpopulations of Russian regions by the value of TFR in 1990, 2000, 2006 and 2012.,% (72 territorial units by the administrative division of before 1991 without Chechnya and Ingushetia).

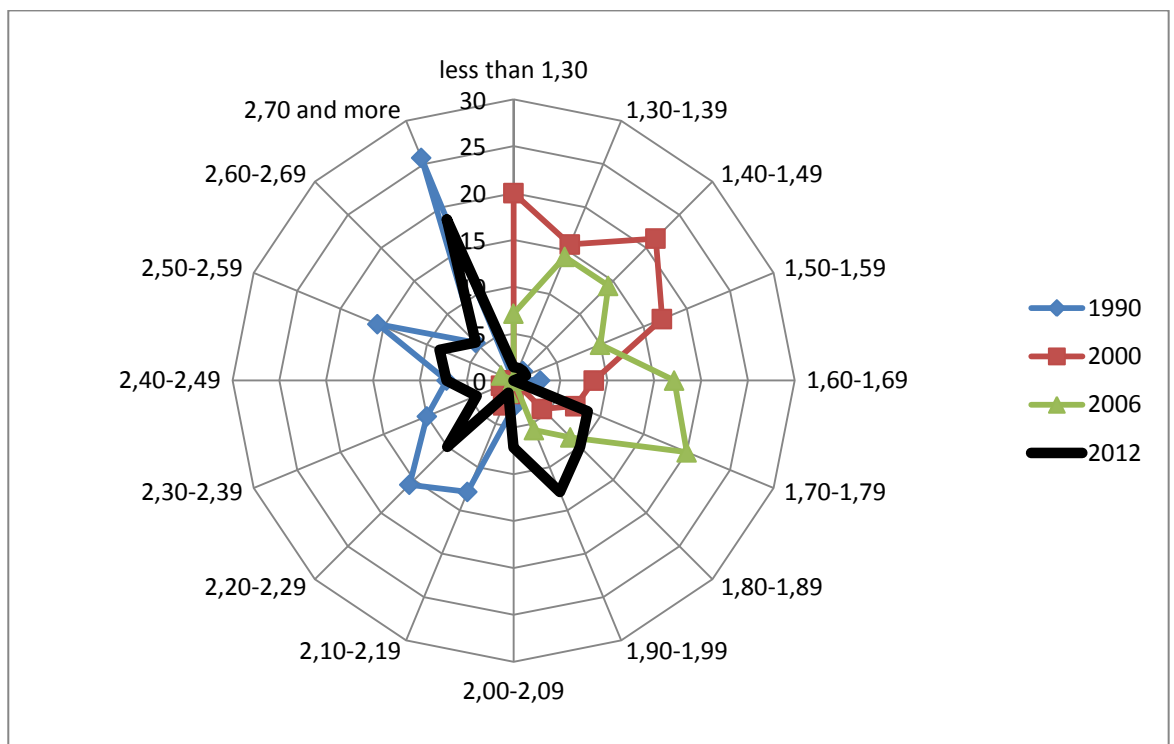


Figure 7. Distribution of *Rural* subpopulations of Russian regions by the value of TFR in 1990, 2000, 2006 and 2012.,% (72 territorial units by the administrative division of before 1991 without Chechnya and Ingushetia).

What are the socio-economic variables can be associated with differences in the growth rates of fertility in the Russian regions since 1999?

We calculate Spearman's rank correlation coefficients associating the absolute and relative growth of TFR with some demographic and socio-economic characteristics of the regions for two of specific periods, 1999-2006 and 2006-2012 years (see table in Appendix).

First, consider the extent to which changes in TFR depended on prior level of fertility, we took the average number of ever born children per woman aged 35-39 years (the 2002 Census data) as the "base" characteristics of fertility. This cumulative fertility rate refers to the characteristic cohorts of women born in 1963-1967, and, therefore, unlike traditional period TFR, it is unbiased in the sense of the impact of changes in the timing of births to prevail in the 1990s.

The first important observation is that, if in 1999-2006 absolute and relative increase in TFR had a negative relationship with the previous "baseline" level of fertility in regions, in 2006-2012 years, on the contrary, we have observed a direct relationship to the baseline. The positive relationship is especially characteristic for the absolute values of increments of TFR (measured as number of births per woman). And a crucial role in the emergence of this new pattern played countryside. Interestingly, differences in growth rate of TFR in 2006-2012 more contradictory, and generally less associated with baseline fertility. So, for the rural population correlation coefficient for absolute increments of TFR with baseline fertility rates was 0.54, and at the same time the correlation of relative increases with baseline fertility level had a negligible value, and, moreover, with a minus sign (Appendix).

The second important observation concerns the correlation of changes in TFR with a proportion of subpopulations living in urban areas, as well as the share of the number of ethnic groups with a low birth rate in the total population of the regions (to the nations with low fertility such as Jews, Russian, Belarusians, Ukrainians, Latvians, Lithuanians, Estonians, Georgians, as well as representatives of some other minorities including representatives of European nations with completed cohort fertility not more than 1.9 births for generations born in the second half of the 1950s. Either the proportion of the urban population, or the ethnic composition of regions, have the common pattern: the positive correlation with the growth of the regional TFRs in 1999-2006, and negative correlation when considering changes of TFR in 2006-2012. Similarly looks correlation with changes in the regional TFRs with the proportion of people with higher or incomplete higher education.

Rank correlation coefficients relate the change in TFR with the economic characteristics of the regions show that in Russia after 1999 was observed two specific periods of TFR growth. Within the first period, in 1999-2006, there was a positive correlation of absolute and relative increases in TFR with economic indicators of regional development, which significantly weakened by its magnitude or turn into a negative ones when considering changes in TFR in 2006-2012. This trend is equally visible both in terms of indicators of overall socio-economic development of regions (investment in fixed assets, the share of own revenues in the consolidated budgets of regions, development of social infrastructure) and by comparing the characteristics of the housing and financial conditions of the population and households in these regions. Unfortunately, a wider range of comparable integrated socio-economic characteristics of

all regions, we have only for the most recent years, 2012-2013. Nevertheless, assuming a sufficiently large resistance of occupied position of regions in the overall ranking of economic prosperity, we can assume that if we correlate the same gains in TFR with the economic characteristics of regions, observed in the early 2000s, most likely, the picture would have been similar.

Conclusions and discussion.

The period of 1999-2006 can be characterized as a period of compensatory growth of completed fertility for generations born in the 1970s after they reach very low levels in the 1990s when they were at the beginning of their fertility career. At the heart of this growth lay the realization of births delayed during the most difficult years of economic and political transformation of the Russian society. The fundamental socio-economic changes in the Russian society initiated the transformation of the age pattern of fertility: the rejection of early family formation in favor of a later marriage and parenthood. The rapid fall in Russia's TFR and the growth of regional heterogeneity of fertility in the 1990s explained by these factors.

As soon as economic conditions improve, there is increased activity of the families in the implementation of pending marriages and births, and we begin to fix the expected relationship of absolute and relative changes in regional TFRs with baseline level of fertility which is specific to regions: the lower fertility level was before the fall, so then we had more compensatory growth. Equally logically it looks the positive relationship between TFR changes ranking and social and economic development ranking of regions (the higher the educational level of the population, the better the socio-economic situation, the higher the gain in TFR). Generalized portrait of the region with the greatest chance of a significant increase in the total fertility rate in 1999-2006 demonstrates previous baseline fertility level lower than the average, share of the urban population there is higher than the average, the ethnic structure of the local population heavily biased in favor of the peoples with fertility below the average level, the education level is higher than the average level. As for overall economic development and social infrastructure development regions with higher TFR increase had better, above the average level, housing and financial conditions for families with children. Increased regional diversity in fertility rates in this period did not occur.

For the period of 2006-2012 the picture changed fundamentally. It is safe to state that measures of demographic policy, launched in 2007, had unequal response in the Russian regions, as evidenced by the sharp and significant increase in inter-regional variation in total fertility rate, especially among people in rural areas. In contrast to the previous period the increase was positively related to baseline fertility: what it was once higher, the greater the increase appeared after 2006, i.e. fertility has increased more significantly in those regions where it previously, despite the upheavals of recent decades, remained relatively high compared with other regions. Accordingly, the new measures of pronatalist policy adopted in 2006-2007 has changed socio-demographic portrait of the spatial differentials of the Russian population showing the different propensity to increase fertility. Higher increase rates of TFR we find in those regions where we have concentration of people with fertility higher than the average and where the level of education of the population below the average for Russia.

It is important to emphasize that the rank correlation coefficients show a very weak link, or lack thereof between the increase of TFR in Russia's regions in 2006-2012 and economic parameters for regional development, as well as regional differences in the economic situation of families with children. Since the federal government adopted measures to stimulate the birthrate were initially poorly differentiated at the regional level, we would expect that a stronger effect they will have in the least developed regions with the worst economic conditions for families with children, ie, in areas where additional financial measures to support families have more importance. However, such a correlation we do not observe. In fact, for the period of 2006-2012 we did not find any association neither positive nor negative with indicators of economic well-being of regions. On the other hand, could play the role of transfer in 2005 to the regional level the right to set the size and terms of payment of the monthly family allowances, as well as the provision in 2011 to the regional level the right to establish different "regional maternal capitals" in addition to the "maternal capital" of federal government, and focused them mainly to increase the birth rate of third and subsequent children.

CONCLUSION

Deep differences in fertility evolution between Russia and the Western countries are related to Russia's lagging in matrimonial and reproductive behavior modernization. A most controversial question of Russian demography is whether this lag is a temporary event or a specific mode of evolution. Indeed, there seems to be no categorical answer. While Russia differs little from the Western, primarily European, nations in birth level today, its very young age model of marriage and fertility isolates Russia from these countries. It can be supposed that, with the appearance of a similar economic and social system in the future, Russia will emulate the developed countries in this respect, too.

Russia is presently going through the hardest stage of the socioeconomic reform, when destroying mechanisms prevails over constructing them. Therefore, the temporal deviation of regional differentiation from the general vector of evolution in the 1990s is not that surprising. The question is, to what extent will the regional typological structure formed in the previous developmental period prove elastic or steady in the crisis period? The demographic behavior of regions in the nearest future cannot be predicted with confidence. Researchers have not yet elaborated clear ideas about the extent of regional autonomy in the demographic and socioeconomic spheres of man's vital activity. Judging by the empirical experience of foreign countries, a trend toward regional convergence in birth and death levels will most probably be restored in the foreseeable future, and differentiation will decrease even faster than in the previous decades.

How strengthening the regional dimension of demographic policy affects the differences in the direction and pace of change in the birth rate in the Russian expanses have yet to understand. We look forward to expanding and deepening in the future research in this area. At the same time today, in our view, it is obvious that Russian efforts to increase the focus of pro-natalist family policy have a positive response first of all among the social and ethno-demographic groups that either have not yet forgotten the historical experience of high fertility, or for whatever reasons (religious, in particular) continue to be guided by the ideals of a large

family. The higher proportion of these social groups in the population of the region, especially among the rural population, the more significant increase in fertility was observed after 2006, and without any connection to the economic opportunities of the region. It is clear that in the long run we can hardly be to rely on a such mechanism for increasing the birth rate in the country. Strengthening the demographic heterogeneity of the regions, it has more negative than positive points. It is well known that the growing confrontation between the poor regions with high fertility and rich regions with a low birth rate is always a great challenge for society and the economy.

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APPENDIX. The rank correlation coefficient (Spearman's) between the increase (absolute and relative) of the total fertility rate for the periods 1999-2006 and 2006-2012, and some demographic and socio-economic characteristics of regions of the Russian Federation (82 administrative unites of the Russian Federation without Chechen Republic).

| | Increase in 1999-2006 | | Increase in 2006-2012 | |
|--|---|------------------|---|------------------|
| | Absolute increase, number of births per woman | Rate of increase | Absolute increase, number of births per woman | Rate of increase |
| Average number of children ever born, women aged 35-39 лет, 2002 Census | | | | |
| Urban and rural subpopulations | -0,25 | -0,45 | 0,55 | 0,23 |
| Urban subpopulations | -0,10 | -0,13 | 0,20 | -0,10 |
| Rural subpopulations | -0,15 | -0,23 | 0,54 | -0,02 |
| Percentage of people live in urban settlements, 2002 Census | 0,54 | 0,64 | -0,18 | -0,03 |
| Percentage of ethnic groups with low fertility, 2002 Census* | 0,30 | 0,42 | -0,28 | -0,12 |
| Percentage of people with complete and non-complete university education, 2002 Census | 0,17 | 0,29 | -0,40 | -0,24 |
| Investments in fixed capital per capita, 2012 | 0,27 | 0,28 | -0,05 | -0,13 |
| Share of own revenues in total consolidated budget of a region, 2012 | 0,36 | 0,44 | 0,10 | 0,20 |
| Provision of social infrastructure facilities, 2012 | 0,38 | 0,45 | 0,05 | 0,12 |
| Housing conditions of population, 2012** | 0,14 | 0,26 | -0,18 | 0,01 |
| Income level of population, 2012*** | 0,29 | 0,40 | -0,04 | 0,03 |
| Cash balance of families with two working spouses and two or more children up to 18 years after deducting the minimum cost, 2012**** | 0,34 | 0,33 | 0,08 | 0,01 |

Comments:

* **Percentage of ethnic groups with a low fertility** - the proportion of Jews, Russians, Ukrainians, Belorussians, Latvians, Lithuanians, Estonians, Georgians, as well as representatives of some other minorities from European countries, recorded by 2002 Census as residents of Russia.

****Housing conditions of the population** - an integral index constructed on the basis of aggregate rating points on a normalized scale of values of the following statistical indicators: average living area of dwellings per inhabitant; the proportion of the population living in apartment buildings officially recognized as in emergency status; the proportion of the total area of housing, equipped with running water; the proportion of the total area of housing, equipped with sewage; the proportion of the total area of housing, equipped with hot water; the officially recognized level of deterioration of municipal infrastructure facilities.

*****Income level of the population** - an integral index constructed on the basis of aggregate rating points on a normalized scale of values the following statistical indicators: volume of deposits of individuals in banks per capita; the ratio of cash income to the cost of a fixed basket of consumer goods and services; the official recognized proportion of the population with incomes below the subsistence minimum.

**** The calculation is made by adding two average nominal wages in the region and subtracting the amount received from the four regional subsistence minimum, taking into account the category of family member (working person, a child under 18 years).

Source: Author's calculations based on the following data: Rating of the quality of life in Russia. The results and methods of calculation. Moscow: RIARATING, 'RIA Novosti' Group. 2012 (<http://www.riarating.ru>); Rating of Russia's regions on quality of life of families in 2012. Moscow: RIARATING, 'RIA Novosti' Group. 2013 (<http://www.riarating.ru/infografika/20130521/610561447.html>); Fertility. (Results of the 2002 National Census. Vol.12). Federal State Statistics Service, 2005; Summary results of the population census of 2002 (Results of the 2002 National Census. Vol.; 14). Federal State Statistics Service, 2005; Demographic Yearbook of Russia. M.: Federal State Statistics Service, 2005; as well as published and unpublished data of Federal State Statistics Service (ROSSTAT).