

Patterns of Birth Rate and Russian Female Reproductive Behavior of Population: Current Trends*



**Olga A.
KOZLOVA**

Institute of Economics of the Ural Branch of the Russian Academy of Sciences
Yekaterinburg, Russian Federation, 29, Moskovskaya Street, 620014

E-mail: Olga137@mail.ru

ORCID: 0000-0002-0448-3519; ResearcherID: M-4659-2016



**Olga O.
SEKITSKI-PAVLENKO**

Institute of Economics of the Ural Branch of the Russian Academy of Sciences
Yekaterinburg, Russian Federation, 29, Moskovskaya Street, 620014

E-mail: pavlenko_ola@mail.ru

ORCID: 0000-0002-1370-8724

Abstract. The article analyzes changes in the patterns of birth rate and female reproductive behavior in the period from 2000 to 2018. The object of the research is reproductive behavior, which is a system of actions and relationships aimed at giving birth to a certain number of children or refusing to give birth. The subject of the research is demographic and socio-economic aspects of the relationship between the need for children and the conditions of realization. The purpose of this paper is to consider current trends of birth rate and reproductive behavior, taking into account demographic, economic, and social factors that affect birth rate. The novelty of the study is the usage of an interdisciplinary approach based on the synthesis of demographic and economic theories that explain changes in reproductive behavior. The article analyzes the dynamics of demographic and socio-economic indicators, highlights the characteristic

* The publication was prepared in accordance with the research plan of the Institute of Economics of the Ural Branch of the RAS for 2019-2022.

For citation: Kozlova O.A., Sekitski-Pavlenko O.O. Patterns of birth rate and Russian female population reproductive behavior: current trends. *Economic and Social Changes: Facts, Trends, Forecast*, 2020, vol. 13, no. 5, pp. 218–231. DOI: 10.15838/esc.2020.5.71.13

features inherent in certain patterns of Russian female population reproductive behavior for the period from 2000 to 2018. The results obtained in the course of the study demonstrate fundamental restructuring of the system of values associated with the birth and upbringing of a child. The decline of crude and total birth rates, shifts in the age structure of birth rate, the focus on one- or two-child family pattern, the increase of an average maternal age at birth indicate a prevalence of economic and social benefits over the birth of more children. In practical terms, the results presented in the article can serve as a basis for future interdisciplinary research in birth rate area and be used as a methodological and informational base for developing demographic policy measures aimed at stimulating birth rate.

Key words: reproductive behavior, birth factors, changes, birth rate and reproductive behavior patterns.

Introduction

Key role in solving problems of demographic policy belongs to a formation of a set of measures to stabilize and increase the country population, as well as to create conditions that improve the quality of life¹. In this context, the family is the basic source of socio-economic capital, and birth rate is the basic of its reproduction. For almost the entire history of mankind, it was the family who played the key role in the population reproduction. The demographic events of the last two decades in Russia are closely related to great changes in reproductive behavior. The growth of the birth rate is impossible without understanding society's spiritual and moral guidelines, increasing the importance of the family institute and its role. At this stage of Russian society development, the maintenance and preservations of traditional family comes into strong contradictions with socio-economic and cultural realities. Disregard for these contradictions has already led to a significant demographic resource depletion, which will take more than a decade to fill.

Simple extrapolation of current birth rate trends is insufficient for the effective compliance of demographic policy measures. Changes

in birth rate are based on deep behavioral mechanisms predetermined by the historical, social, economic, cultural, and moral status of an individual and society as a whole.

The article attempts to link the socio-economic transformations taking place in society with changes in the reproductive behavior of Russian women over nearly the last 20 years. Due to the uneven dynamics of socio-economic processes, the impact of globalization and the decrease in dependence on the traditional way of women life, the population has developed adaptive mechanisms to adjust to the changed conditions. One of the results of adaptation to the ongoing changes became fundamental shift in reproductive behavior.

Issues related to the study of reproductive behavior affect the subject areas of many scientific disciplines: demography, sociology, economics, geography, psychology, etc. However, each of them focuses on its own subject area, in relation to its goals and research objectives.

In Russian demographic literature, reproductive behavior was considered in the context of birth rate as one of the main processes of population reproduction. Special place belongs to the works of such prominent writers of Soviet and later Russian demographic thought as B.Ts. Urlanis, D.I. Valentey, A.V. Borisov, A.Ya. Kvasha, A.G. Volkov, A.G.

¹ The concept of demographic policy of the Russian Federation for the period up to 2025: Decree of the President of the Russian Federation no. 1351, dated October 9, 2007. Available at: <http://www.demoscope.ru/weekly/knigi/koncepciya/koncepciya25.html>

Vishnevskiy. Among the sociologists who played a significant role in the study of reproductive, marital and family behavior, it is worth highlighting A.G. Kharchev, V.M. Medkov, A.B. Sinelnikov, A.I. Antonov. Economists, representatives of socio-economic geography, and historians made a significant contribution to development of the ideas about the population reproductive age. For example, the works of N.M. Rimashevskaya, V.A. Iontsev, A.A. Sagradov, M.A. Klupt, B.S. Khorev and others.

Of the latest research, the largest works devoted to the problems of reproductive, marital, and family behavior belong to the V.N. Arkhangel'skiy. Thus, in the monograph "Birth factors" [1], the scientist, after analyzing a lot of surveys, conducted in Russia, presented not only an overview of the factors that affect the birth rate but also devoted separate chapters to the value-motivational determination of reproductive behavior, living conditions as one of the leading factors of birth rate, ethnic and educational differentiation of birth rate and marital behavior. As a result, V.N. Arkhangel'skiy came to the conclusion about an almost complete loss of the norms of average number of children in Russian society. As a way out of this situation, within of demographic policy, he suggests not only creating conditions conducive to the creation of a family and the birth of children, but also directing all efforts to increasing the need for children. In our opinion, this approach can be described as civilized, as the increase of the need for children implies fundamental society restructuring, its cultural and moral norms. In the article "Reproductive and marital behavior" [2], based on the results of the research of demographic behavior of young people in 18 regions of Russia in 2010, V.N. Arkhangel'skiy considers relationship

of reproductive orientations with the age of marriage, childbearing, and first birth, and he comes to the conclusion that changes in relation to marriage and childbearing are associated with negative changes in the family institute and decrease of a marriage value. Such conclusions can be seen in other works of the scientist [3; 4].

T.M. Maleva and O.V. Sinyavskaya made a tangible contribution to the consideration of the issues of reproductive behavior. Based on the international research program "Generation and gender" they made one of the largest socio-demographic surveys called "Parents and children, men and women in the family and society" (hereinafter – P&ChM&W)² in three stages: the first stage was in 2004, the second – in 2007 and the third – in 2011. The sampling size of each stage was about 11 thousand respondents. The uniqueness of P&ChM&W is that the same group of respondents was surveyed with an interval of three years. It made it possible to track the realization of their reproductive plans. A wide range of indicators in details described the level of income, size of households, marital status, respondents' health and their reproductive plans, and values. The survey provided a unique basis for studying reproductive and marital behavior.

Another significant project, studying reproductive behavior, is the research of Ya.M. Roschina and A.V. Boikov "Fertility factors in modern Russia" [5]. It was an empirical analysis of economic models of fertile behavior based on the Russian monitoring of economy and health (RLMS) for the period from 1994 to 2001. The authors analyzed models of probabilities of having a child in

² Maleva T.M., Sinyavskaya O.V. Socio-economic factors of birth rate in Russia: empirical measurements and challenges to social policy. *Demoscope Weekly*, 2007, no. 309–310. Available at: <http://www.demoscope.ru/weekly/2007/0309/analit02.php> (accessed: May 25, 2020).

the family, termination of pregnancy, and the desire to have a child in the future. In the process, the scientists concluded that demographic, cultural and value factors, such as age, parental status, alcohol consumption, and satisfaction with their financial situation, have the primary influence on reproductive behavior. Attention is also focused on significant differences in the birth rate between regions and urban and rural areas of respondents' residence. The significance of economic factors (employment, education level, work status, income level) in their influence on reproductive behavior was confirmed only in separate models of a sample of women. A few years later, based on G. Becker's approach, Ya.M. Roschina and A.G. Cherkasova tested patterns of fertile behavior for groups of women of various socio-economic categories³. The main conclusion of their research was a significant differentiation of the impact of socio-economic causes on birth rate. Thus, the authors draw attention to the fact that the decision to give birth to the first child is usually made regardless of housing availability, income level, and other socio-economic components, and the decision to give birth to the second and subsequent children is largely determined by whether the family has material resources and its amount.

The monograph by O.N. Kalachikova and A.A. Shabunova presents the results of group surveys conducted in the Vologda Oblast in 2005–2014 [6]. Long-term monitoring along with a broad statistical base let the authors trace the dynamics of changes in reproductive behavior and suggest mechanisms for regulating demographic policy in the field of increasing

the birth rate. Among the characteristic features of transformation of reproductive behavior, the authors identified decrease in the need for children, which is especially evident in rural areas. On the other hand, a high value of parenthood and family remains. The main factors influencing the result of reproductive choice include reproductive orientations, marital status, housing conditions, access to medical care, and the ability to provide quality education for future offspring. The peculiarity of this research is a detailed analysis of the results of implementation of demographic policy measures and proposal of specific solutions to improve the situation.

All aforementioned works emphasize the relevance of studying reproductive behavior and identify the urgent need to implement efficient demographic policy measures aimed at increasing the birth rate.

Research methods and methodology

The theoretical basis of the research is an interdisciplinary approach based on a combination of scientific knowledge from the fields of demography, economics, sociology, and psychology. A distinctive feature of our work is an attempt to explain cause-and-effect links and features of reproductive behavior from the point of view of the synthesis of scientific approaches, not limited to the usage of a single concept. In our opinion, it is an interdisciplinary approach that allows us to examine more deeply the processes and phenomena of a demographic nature, to find the relationship between reproductive behavior and its economic, social, and psychological components in a particular historical period of society's development.

The study is based on the usage of four concepts, in which we explain the transformation of birth rate and reproductive behavior of female population of our country:

³ Roschina Ya.M., Cherkasova A.G. Differentiation of birth factors for various socio-economic categories of Russian women. *Demoscope Weekly*, 2009, no. 401–402. Available at: <http://www.demoscope.ru/weekly/2009/0401/analit02.php> (accessed: May 25, 2020).

- theory of the second demographic transition;
- theory of rational choice;
- theory of consumer behavior;
- theory of child value.

Each of them belongs to a specific area of scientific knowledge. Thus, the theory of the second demographic transition is purely demographic in nature. The theory of rational choice and the theory of consumer behavior were developed in the framework of such disciplines as economics and sociology. The theory of child value is based on the usage of knowledge from the field of axiology and psychology.

Based on the interdisciplinary nature of our work and aforementioned theoretical concepts, we explain current behavior of population, on the one hand, through the mutual influence of socio-economic and value components and reproductive behavior of female population on the other.

To understand the demographic changes in Russia, we will consider the guidelines of each of the theories relative to the reproductive behavior of the population.

According to the theory of the second demographic transition, the changes taking place in Russian society over the last 20 years are similar to changes that began to appear in Western Europe in the 1960s and 1970s:

- decreasing the level of crude and specific birth rate;
- increasing the level of education and employment of female population;
- promoting the usage of contraception;
- increasing the number and percentage of cohabitations;
- raising the age of marriage;
- growing a number and percentage of single-parent families;
- spreading of extramarital births.

A distinctive feature of the second demographic transition is individualism, including broad opportunities for its realization in various spheres of life [8; 9]. Russia, like a number of European countries of the former communist bloc, entered the phase of the second demographic transition with some delay. Its characteristic trends began to appear in Russia in the late 1980s–early 1990s [10].

The theory of rational choice explains the transformation of reproductive behavior [11; 12]. It emerged in the 1960s and was based on the works of M. Weber. The theory offers to determine the rational behavior of an individual in terms of opportunities available to him/her and the conditions for its realization. In the context of reproductive behavior, offspring are considered goods, and an individual decides whether to choose them or not and in what quantity. In this case, an individual is assigned a right to take into account the costs that he/her may incur after having offspring and advantages of this process. These costs or advantages can be financial, social, or temporary, and, based on a balanced (rational) choice, an individual is inclined to make a decision about the absence or presence of offspring and their number [13; 14].

The theory of consumer behavior is derived from the theory of rational choice [15; 16]. From the point of view of the relationship between reproductive and consumer behavior, it is explained that the level and quality of consumption is higher in richer families, therefore, investment in children increases with the growth of the socio-economic status of a family. In families with low social status and income, the level of consumption is significantly lower, and children are considered not as objects for investment, but as an economic asset, which can be used to get various types of social support from the government.

The transformation of reproductive behavior models can also be explained using the theory of child value. Its essence lies in the fact that children help an individual to implement his or her internal needs, such as a sense of immortality, a sense of affection, a state of “adult life”, social comparison, power and others [17; 18].

A proper synthesis of theories is important for an objective analysis of models of reproductive behavior transformation, without which it is impossible to pursue an effective demographic policy.

We selected the following parameters as the main criteria for transformations of reproductive behavior patterns:

- 1) number of births;
- 2) crude birth rate;
- 3) total birth rate;
- 4) number of women of fertile age;
- 5) age-specific birth rates;
- 6) average maternal age at birth;
- 7) average maternal age at first birth.

Choosing the criteria that determine the characteristics of reproductive behavior, we were guided by the availability of demographic data, their information completeness, and the ability to provide an idea of changes in reproductive behavior over an almost 20-year period. We considered it appropriate to use these very indicators, since their statistical accounting is carried out regularly on the basis of generally accepted methods, and it is optimal tools for studying the patterns of quantitative and qualitative demographic changes.

A number of births and a number of women of fertile age are the leading indicators in the study of fertile issues, thus, their inclusion as a criterion when considering models of transformation of birth rate and reproductive behavior, in our opinion, is necessary. Such a criterion as the crude birth rate allows not only determining the birth rate but also allows

leveling the values of absolute numbers. The total birth rate is one of the most important parameters in considering reproductive behavior; it most fully reflects the intensity of the birth rate process. Age-specific birth rates allow us to assess changes of birth patterns in women’s reproductive behavior. Average maternal age at birth and average maternal age at first birth help to explain the fullness of women’s reproductive plans. The increase or decrease in these indicators is associated with time shifts at the birth of the first and subsequent children, reduction or increase in the interval between births, and, accordingly, with changes in the reproductive attitudes of female population. Usually, when an average maternal age at first birth increases, a number of subsequent children is often less than desired.

Results and discussion

Dynamics of the leading indicators reflecting reproductive behavior from 2000 to 2018 for five-year intervals is presented in *the table*.

In the first decade of the new Millennium, Russia entered a phase of increasing a number of births. In the period from 2000 to 2010, a number of births increased from 1.266 to 1.789 thousand people, i.e. by 41.3%. Crude birth rate increased from 8.7% to 12.6% and total birth rate increased from 1.19 to 1.56 births per a woman (*Fig. 1*).

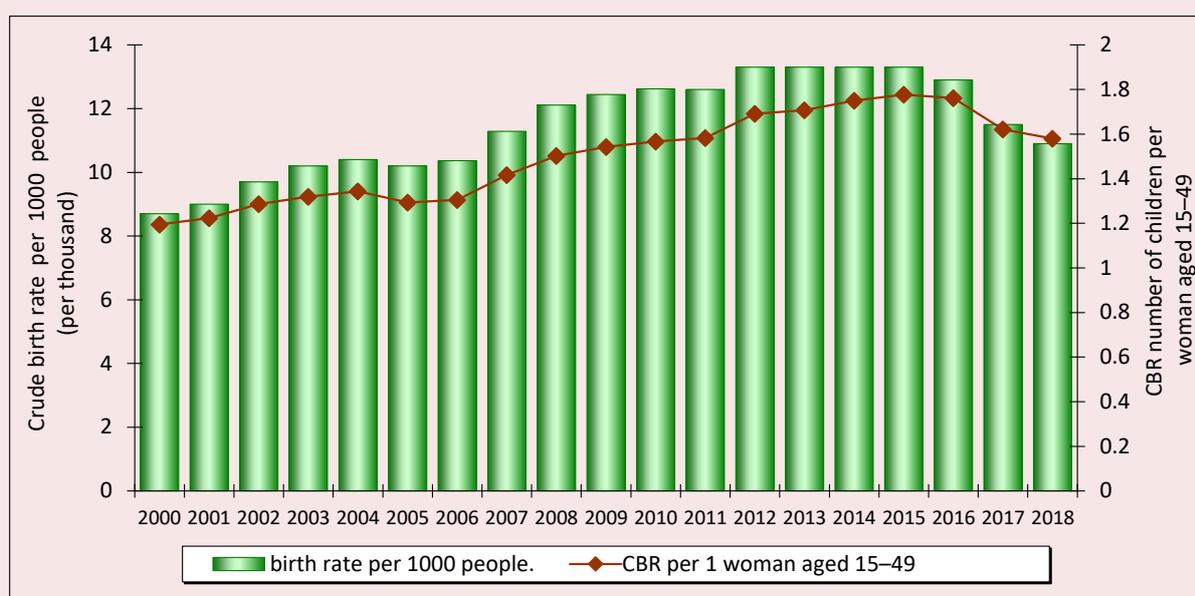
The increase in birth rate is explained by a relative stabilization of population’s living standards after the crisis of the 1990s, the implementation of demographic policy measures, which began in 2007. However, the decisive importance belongs to the peculiarities of the age structure of female population of Russia, as, since the beginning of the 2000s, large in numbers generations of women, which were born in the early 1980s, have entered childbearing age.

Dynamics of indicators determining the reproductive behavior of the female population of the Russian Federation, 2000–2018

Indicator	Year				
	2000	2005	2010	2015	2018
Number of births, thousands of people	1 266	1 457	1 789	1 944	1 604
Birth rate per 1000 people, %	8.7	10.2	12.6	13.3	10.9
Total birth rate	1.19	1.29	1.56	1.77	1.58
Number of women aged 15–49 years, thousands of people	39 348	39 680	37 690	35 197	34 905
Average mother's age at birth, years	25.8	26.5	27.7	28.1	28.7
Average mother's age at first birth, years	23.5	24.1	24.9	25.5	25.9

Sources: public data of the Unified interdepartmental information and statistical system (UIISS) of the Federal State Statistics Service. Available at: <https://www.fedstat.ru/indicator/31606> (accessed: June 5, 2020); <https://www.fedstat.ru/indicator/31269> (accessed: June 5, 2020); <https://www.fedstat.ru/indicator/31517> (accessed: June 5, 2020); Population of the Russian Federation by gender and age. Available at: https://gks.ru/bgd/regl/B18_111/Main.htm (accessed: June 5, 2020).

Figure 1. Dynamics of crude and total birth rate in the Russian Federation, 2000–2018



Source: public data of the Unified interdepartmental information and statistical system (UIISS) of the Federal State Statistics Service. Available at: <https://www.fedstat.ru/indicator/31269>; <https://www.fedstat.ru/indicator/31517> (accessed: June 5, 2020).

In the second decade, up to 2015, the birth rate trends of the first decade continued. By 2015, the crude number of births increased by 8.6%, amounting to 1.944 thousand people. Since 2010, the crude birth rate increased from 12.62% to 13.3% in 2012 and passed into so-called five-year “plateau”, and, after that, the

indicator began declining to 10.9% which was recorded at the end of the studied period. The total birth rate increased from 1.56 to 1.77.

Short time period from 2014 to 2016 may be called some kind of an upper limit of Russia birth rate, when maximum birth numbers, crude and total birth rates were reached. Since

2016, despite the government efforts, the possibilities for increasing the birth rate have been almost exhausted. This is evidenced, first of all, by the decline of the total birth rate, which, even in the most favorable period, was insufficient for simple reproduction of generations. In addition, women born in the 1980s, who are responsible for increasing the birth rate due to their numbers, have been replaced by small generations of women born in the 1990s, which undoubtedly affects the decline of the birth rate at the present time.

The leading factor in the transformation of the reproductive behavior of women in Russia is the changes of the age distribution of fertility (Fig. 2).

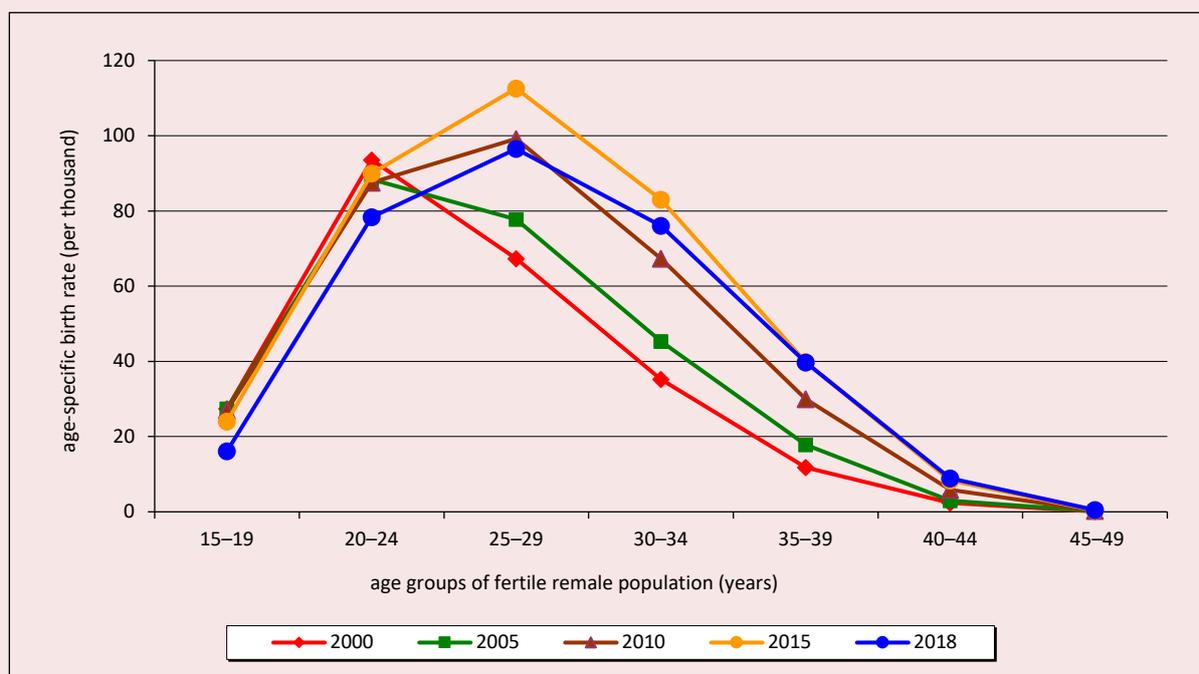
If, in 2000, the highest birth rate differed in the most biologically productive group (20–24 years) amounting to 93.6 live births per 1000

women, then, by 2005, this indicator in this age group dropped to 88.4.

In 2010, there was a transition of the maximum birth rate from the group of women aged 20–24 years to the age of 25–29. The birth rate in initially leading age group of 20–24 years was 87.5‰, while it was 99.2‰ in the group of 25–29 years.

Five years later, in 2015, along with crude birth rate increase and increase of the birth rate per woman, there was a clear growth in the age-specific rate in the group of women aged 25–29 years from 99.2 to 112.6‰. At the same time, there is the increase of the birth rate in neighboring age groups. Thus, in the group of 20–24 years, the birth rate increased by 2.5‰ in comparison with 2010, amounting to 90 births per 1000 women, and in the group of 30–34 years – by 15‰ (83 births per 1000 women).

Figure 2. Dynamics of age-specific birth rates in the Russian Federation, 2000–2018



Source: *Demographic Yearbook of Russia. 2002, 2005–2019: Stat. Coll.* Rosstat. M.: Federal State Statistics Service, 2002, 2005–2019.

In our opinion, this redistribution of the birth rate is related to two factors:

1. Realization of deferred reproductive plans of the female population at a later age. It is mainly about first births.

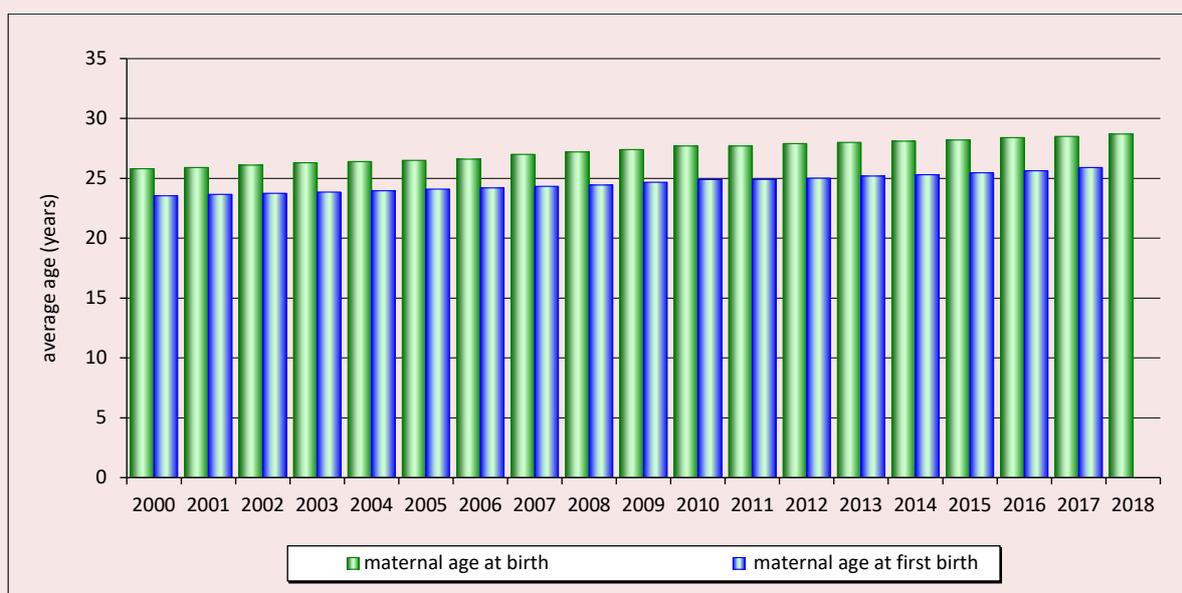
2. Birth of second and subsequent children, i.e. it is worth speaking about the fullness of reproductive plans, which was contributed to a certain degree by the state pronatalist policy, which flourished and had the greatest impact in the second decade of this century.

At the end of the study period (2018), as well as in 2015, the main birth concentration occurred at the age of 25–29 years (96.5%), and, in the neighboring ages, birth rates were approximately at the same level (78.4% at the age of 20–24 and 76.1% at the age of 30–34). However, in 2018, the birth rate in these three age groups was significantly lower than in 2015, due to changes in the age structure of female population.

Changes related to the transformation of patterns of birth rate and women’s reproductive behavior affected such important indicators as an average maternal age at birth of children and average maternal age at first birth. A characteristic feature of their dynamics since the beginning of the 21st century has been their stable growth, indicating the postponement of motherhood to a later age (*Fig. 3*).

Thus, since 2000, the average maternal age at birth has risen to 28.7 years (in 2018) and at first birth – to 25.9 years. The average maternal age has increased by almost 3 years since the beginning of the study period. The average maternal age at first birth, i.e. the age at which 50% of first child births occurred in a given year, increased from 23.5 to 25.9 years (the growth was 2.4 years). These indicators correspond to age-specific birth rates and confirm the transition of Russian women to a new reproductive behavior model.

Figure 3. Dynamics of the average maternal age at birth of children and at first birth in the Russian Federation, 2000–2018



Source: *Demographic Yearbook of Russia. 2002, 2005–2019: Stat. Coll.* Rosstat. Moscow: Federal State Statistics Service, 2002, 2005–2019.

As a result, at the beginning of the 21st century in Russia, there is a significant transformation of birth rate and reproductive behavior patterns of female population. Conditionally, three types of such patterns can be distinguished that significantly differ from each other.

The first pattern is typical for the period from 2000 to 2005. Its main features are:

- growth of a number of births from 1.2 million to 1.4 million: increase of the crude birth rate from 8.7 to 10.2% and a very slight increase of the total birth rate from 1.19 to 1.29 births per woman of fertile age;

- rather high birth rate intensity (up to 27.4%) in the youngest group of fertile women aged 15–19;

- strongly pronounced peak of births in the group aged 20–24 (93.6% in 2000 and 88.4% in 2005) and a sharp drop of birth intensity after the peak;

- very low birth rates in the second phase of a woman's reproductive life, namely at the ages of 35–39, 40–44, and 45–49;

- maternal average age at first birth increased from 23.5 to 24.1 years, which is consistent with the peak of age-specific birth rates.

The patterns reflect typical features of the second demographic transition. In this period, many researches note the increase of a number and percentage of informal marriages and gradual replacement of abortion with contraception, which demonstrates the change of reproductive behavior in terms of planning the child birth⁴. The birth rate level, even with a

slight increase, is well below the level needed to replace generations. A low total birth rate and the increase of an average maternal age at birth can be explained by the theory of rational choice and the theory of consumer behavior in the key intelligent design of the socio-economic conditions for birth and upbringing of children.

The second birth rate and reproductive behavior pattern is typical for the longest period from 2006 to 2015. Its characteristic features are:

- growth of birth number up to 1.9 million; growth of the crude birth rate up to 13.3%, significant increase of the total birth rate from 1.30 to 1.77 births per a fertile woman;

- decrease of birth intensity in women of the youngest fertile group at the age 15–19 up to 24%;

- disappearance of strongly pronounced peak birth rate at the age of 20–24, which is replaced by concentration of births in two age groups: 20–24 and 25–29 years;

- by 2015, the peak birth rate fell on the age of 25–29 (112%), when, in the neighboring age groups, the birth rate is distributed relatively equally; 20–24 years – 90% and 30–34 years – 83%;

- the beginning of delayed first births and the birth of second and subsequent children coincides with the entry into the intensive reproductive women's period born in the 1980s, as well as with the realization of demographic policy, which leads to the increase of birth intensity;

- sharp increase of birth rate by one and a half to two times in the second phase of the reproductive women's cycle aged 35–39, 40–44, and 45–49, which is associated with the spread of assisted reproductive technologies.

⁴ *Population of Russia, 2005. Thirteen Annual Demographic Report*, Executive editor S.V. Zakharov; National Research University "Higher School of Economics", 2007. Pp. 40–125; A.R. Mikheeva, *Marriage, Family, Parenthood: Social and Demographic Aspects*. Novosibirsk State University Novosibirsk, 2001. Pp. 74.

The economic component of the theory of rational choice and the theory of consumer behavior is shown in the second type of birth rate and reproductive behavior patterns of female population. In our opinion, this is largely facilitated by the realization of pronatalist policy. Birth of a child, especially of a second and third, significantly affects the family financial situation and a possibility of improving housing conditions. It is through the economic component that reproductive plans are implemented in relation to a number of children in a family. In this pattern, the theory of child value most clearly appears through increase in the birth rate in older age categories. In older age groups of fertile women, the economic component fades into the background, as they already have relatively solid material resources and certain career achievements, and therefore the leading factor is the axiological and psychological motives that contribute to making decisions on a child birth.

The third pattern of the birth rate and reproductive behavior is typical for the period from 2016 to the present. Its main features are:

- decreasing number of births to 1.6 million, the crude birth rate to 10.9%, drop of the total birth rate to 1.58 births per woman of reproductive age, which coincides with the level of 2011;

- natural potential represented by women born in the 1980s has almost completely exhausted itself. At the same time, there is a shift of child birth to a later age, which is expressed through a noticeable decrease of the birth rate in the age group of 15–19 from 24 to 16.1‰;

- the concept of “conscious motherhood” became common; as in the second reproductive behavior model, birth concentration falls on

three age groups: 20–24, 25–29, and 30–34 years with a peak at the age of 25–29 years, but the birth intensity in these age groups is significantly lower than in the second type of model;

- birth rate level in older reproductive ages remains persistently high;

- average maternal age at birth and an average maternal age at first birth reach their maximum values (28.7 and 25.9, respectively).

The third type of reproductive behavior patterns shows all the features described in the theory of the second demographic transition and the theory of the value of the child, i.e. it is worth speaking about complete change in the regime of population reproduction. Women’s personal preferences come to the foreground in the context of getting an education, building a career, and starting a family. The main factor of child birth becomes the rational behavior of families or mothers, which is emphasized in the theories on consumer behavior and rational choice.

In our opinion, decrease in both absolute and relative birth rates should be expected in the near future. The highest birth concentration will occur in the 25–29 and 30–34 age groups; the spread of assisted reproductive technologies is likely to ensure a stable birth rate in older age groups of women. It also makes sense to speak about the continued growth of an average maternal age at child birth and at first birth.

Discussion

Summing up the transformations of reproductive behavior patterns of female population, it is worth emphasizing the main features inherent in the new behavior pattern:

1. Cardinal reconstruction of women’s values in favor of one or two-child family hoping to provide their children with a decent living

standards and good education. This transformation is confirmed by a low total birth rate.

2. Orientation of female population to education, high social status, and economic independence. As a result, there is a gradual shift in age-specific birth rate to the second half of women's fertile age.

3. The average motherhood age increases in Russia, which reflects women's preference to create conditions for their economic, social, and cultural independence.

The question remains open: what is the influence measure of economic, social, and axiological factors on reproductive behavior in a particular historical period? The answer to the question will allow evaluating and adjusting measures of the state demographic policy. In our opinion, consideration of only economic and social aspects in attempting to increase the birth rate is insufficient and fundamentally contradicts the reproductive behavior concept, as any behavior is based on axiological, i.e. value factor. It is the combination of all the factors that will help to understand the reproductive behavior mechanism and, consequently, regulate it. Such views are noted in the works of the Ural Demography School. Thus, A.I. Kuzmin noted that the spread of childlessness was associated with the weakening of the economic substance, the strengthening of a value birth rate aspects and family formation [19; 20].

Conclusion

Reproductive behavior transformations in Russia show that population has adaptation mechanisms to a new socio-economic reality, and they are an integral part of demographic development at this historical stage. The whole set of changes not only affects the problems

of demographic nature but also determines the future socio-economic and cultural development of the country.

In spite of the dependence on traditions, tendencies in the reproductive behavior development in Russia are also affected by the general influence of the processes of globalization and increasing individualism of population. In this case the socio-economic component is a catalyst for these changes and their consequence.

State demographic policy without transformation of reproductive and marital-family behavior models may not only be inefficient in long term but also lead to formidable obstacles in development of Russian society.

As a result of our research, we proved the necessity to consider the birth rate and reproductive behavior patterns from the point of view of an interdisciplinary approach. It is the interdisciplinarity and usage of the main guidelines of the selected demographic and socio-economic theories that represent an element of scientific novelty and serve as the basis for deeper and more comprehensive study of birth rate and reproductive behavior. Our proposed approach can be used to enrich the theoretical base of future research in the field of birth rate. In practical terms, the results of the work can be used by scientific community as a material for more detailed issue consideration related to birth rate and reproductive behavior transformation and serve as a source of knowledge for the authorities in improving demographic policy measures and making management decisions aimed at improving the demographic situation in the country as a whole and in its entities.

References

1. Arkhangel'skiy V.N. *Faktery rozhdaemosti* [Fertility Factors]. Moscow: TEIS, 2006. 399 p.
2. Arkhangel'skiy V.N. Reproductive and marriage behavior. *Sotsiologicheskie issledovaniya=Sociological Studies*, 2013, no. 2, pp. 129–136 (in Russian).
3. Arkhangel'skiy V.N. Studying fertility issues. *Uroven' zhizni naseleniya regionov Rossii=Living Standards of the Population in the Regions of Russia*, 2008, no. 3–4, pp. 80–93 (in Russian).
4. Arkhangel'skiy V.N. The influence of the subjective assessment of living standards on the reproductive behavior. *Uroven' zhizni naseleniya regionov Rossii=Living Standards of the Population in the Regions of Russia*, 2011, no. 8, pp. 36–41 (in Russian).
5. Roshchina Ya.M., Boikov A.V. *Faktery ferti'nosti v sovremennoi Rossii* [Fertility Determinants in Modern Russia]. Moscow: EERC, 2005. 64 p.
6. Kalachikova O.N. Shabunova A.A. *Reproduktivnoe povedenie kak faktor vosproizvodstva naseleniya: tendentsii i perspektivy* [Reproductive behavior as a factor of population reproduction: Trends and prospects]. Vologda: ISERT RAN, 2015. 172 p.
7. Kalachikova O.N. Some aspects of students' reproductive behavior. *Vyssee obrazovanie v Rossii=Higher Education in Russia*, 2012, no. 3, pp. 132–136 (in Russian).
8. Van De Kaa, D. The Idea of a Second Demographic Transition in Industrialized Countries. In: *The Sixth Welfare Policy Seminar of the National Institute of Population and Social Security, Tokyo, Japan, 2002*. Available at: <https://scinapse.io/papers/2185048759> (accessed: 26.05.2020).
9. Van De Kaa, D. Is the second demographic transition a useful research concept: Questions and answers. In: *Vienna Yearbook of Population Research, 2004*. DOI: 10.1553/populationyearbook2004s4 (accessed: 27.05.2020).
10. Vishnevskiy A.G. *Demograficheskaya revolyutsiya. Izbrannye demograficheskie trudy. T.1. Demograficheskaya teoriya i demograficheskaya istoriya* [Demographic Revolution. Selected Demographic Works. Vol. 1. Demographic Theory and Demographic History]. Moscow: Nauka, 2005. 214 p.
11. Becker G.S. An economic analysis of fertility. In: *Demographic and Economic Change in Developed Countries*. Editor: Universities-National Bureau, 1960. Pp. 209–240. Available at: <https://www.nber.org/chapters/c2387.pdf> (accessed: 27.05.2020).
12. Wachter K.W., Bulatao R.A. Offspring: Human fertility behavior in biodemographic perspective. In: *National Research Council. Panel for the Workshop on the Biodemography of Fertility and Family Behavior*. Washington, DC: The National Academies Press. 2003. 400 p.
13. Becker G.S. *The Economic Way of Looking at Life*. University of Chicago Law School Chicago Unbound. 1993. 31 p.
14. McDonald P. Gender equity, social institutions and the future of fertility. *Journal of Population Research*, 2000, no. 17, pp. 1–16. DOI: 10.1007/BF03029445. Available at: https://www.researchgate.net/publication/225763511_Gender_Equity_Social_Institutions_and_the_Future_of_Fertility (accessed: 27.05.2020).
15. Michael R.T., Becker G.S. On the new theory of consumer behavior. *The Swedish Journal of Economics*, 1973, vol. 75 (4), pp. 378–396. Available at: http://blog.wbkolleg.unibe.ch/wp-content/uploads/MichaelBecker1973_On-the-New-Theory-of-Consumer-Behavior.pdf (accessed: 27.05.2020).
16. Gurko T.A. *Teoreticheskie podkhody k izucheniyu sem'i* [Theoretical approaches to family studies]. Moscow: Institut sotsiologii RAN, 2010. 184 p.
17. Hoffman L.W. The Value of Children to Parents and the Decrease in Family Size. In: *Proceedings of the American Philosophical Society*, 1975, vol. 119(6), pp. 430–438. Available at: <https://www.jstor.org/stable/986377?seq=1>
18. Friedman D., Hechter M., Kanazawa S. A theory of the value of children. *Demography*, 1994, no. 31, pp. 375–401. Available at: <https://doi.org/10.2307/2061749>
19. Kuz'min A.I., Kuz'mina A.A., Lansikh V.N. The influence of the deformation of the institution of the family on the demographic behavior of the population in the Ural Federal District. In: *Instituty razvitiya demograficheskoi*

sistemy obshchestva: V Ural'skii demograficheskii forum: sbornik materialov [Development Institutions of the demographic system of society: Fifth Ural Demographic Forum: A collection of materials]. Ekaterinburg: Institut ekonomiki UrO RAN, 2014. Pp. 74–91 (in Russian).

20. Kuz'min A.I. Socio-economic factors of fertility in light of the concept of demographic transition. *Uchenye zapiski Zabaikal'skogo gosudarstvennogo universiteta*=*Scholarly Notes of Transbaikal State University*, 2013, no. 4 (51), pp. 62–69 (in Russian).

Information about the Authors

Olga A. Kozlova – Doctor of Sciences (Economics), Professor, Head of the Center, Institute of Economics, Ural Branch of Russian Academy of Science (29, Moskovskaya Street, Yekaterinburg, 620014, Russian Federation; e-mail: Olga137@mail.ru)

Olga O. Sekitski-Pavlenko – Leading Economist, Institute of Economics, Ural branch of Russian Academy of Science (29, Moskovskaya Street, Yekaterinburg, 620014, Russian Federation; e-mail: pavlenko_ola@mail.ru)

Received July 15, 2020.