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RURAL BIRTHRATE IN THE ALTAI TERRITORY: OBJECTIVE FACTORS AND TERRITORIAL LOYALTY

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Abstract

The purpose of the study is to determine the extent to which the Altai Territory rural areas population's birthrate is determined by objective socio-economic factors and to what extent subjective perceptual processes determine the birthrate of the Altai Territory rural areas population due to territorial loyalty. The study's information base was quantitative statistical data and interviews with residents of rural settlements of the Altai Territory. As a result of the correlation analysis of the Altai Territory rural areas' socio-economic indicators, it was impossible to confirm the hypothesis about its relationship with the birth rate, except that a higher birth rate is observed in areas characterized by a larger production volume. As a result of the analysis of interviews with residents of this region, a list of the main subjective factors influencing the population's birth rate was determined. In addition, residents' individual statements allow us to assert that the phenomenon of territorial loyalty really exists.

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Keywords: Birthrate, rural areas, territorial loyalty

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1. Introduction

1.1. Establishing a context

Today in the world, there is an ambivalent attitude towards the birth rate of the population. On the one hand, the report "The Limits to Growth", presented back in 1972 to the Club of Rome, notes that the uncontrolled growth of the world's population may already by 2100 lead to the depletion of the non-renewable natural resources, which will ultimately put humanity on the brink of survival. Countries with traditionally high birth rates, such as China and India, are forced to introduce special birth control measures to avoid overpopulation. On the other hand, a decrease in the total fertility rate in developed countries leads to depopulation, which poses the task of supporting the birth rate for these countries' leadership.

The Russian Federation is also currently experiencing a demographic decline, with a particularly acute problem of a rural depopulation, which, however, is typical also for other countries (Liu et al., 2010); (Omariba & Boyle, 2010); (Rezvani & Mansourian, 2013). Simultaneously, the preservation of traditional rural settlements is of great importance for ensuring the country's food security, retaining territories, and preserving traditional culture.

In this context, attention should be paid to one of the important agricultural regions of the Russian Federation – the Altai Territory, more than 2/3 of the rural territory. There is also a decrease in the rural population in this region, and its rates are higher than the national ones (Belyaev & Volkova, 2019). The analysis of statistical data showed that in the overwhelming majority of the Altai Territory municipal districts (57 out of 59), which mainly relate to rural areas, during 2016–2018 there is a natural decline in the population due to the excess of mortality over births.

These circumstances determined the relevance of the research devoted to the study of factors that contribute or hinder the increase in the birth rate of the Altai Territory rural population. The selection of only one constituent entity of the Russian Federation as an object of research is due to the historically high differentiation of birth rates across the regions of the country (Shubat, 2019), in particular, according to the Federal State Statistics Service, in 2018 the highest birth rate was observed in the Chechen Republic (20.7 ‰), the smallest - in the Leningrad region (7.6 ‰). Altai Territory in 2018 in terms of birth rate among 85 constituent entities of the Russian Federation takes 54th place (10.0 ‰).

We also note that as a result of the cluster analysis of the family sphere indicators, carried out by Shubat & Shmarova (2017), the Altai Territory entered the group of regions with a relatively favorable position of the family. This cluster is characterized by the lowest rates of childbirth out of wedlock and the number of children without parental care, the lowest number of single mothers raising children under the age of 18, and a lower number of abortions. At the same time, researchers note a not very high level of marriages stability and a noticeable proportion of married couples without children as "pain points" of the regions of this cluster (Shubat & Shmarova, 2017).

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1.2. Reviewing the literature

A review of the literature on the issue of reducing the birth rate of the population made it possible to identify two groups of factors that determine this phenomenon.

The factors of first group are objective (formal), which include socio-economic indicators. Thus, family income as early as 1949 was named as one of the main factors that have a positive effect on the birth rate (Woofter, 1949). Later studies also noted the influence of income on fertility, but the direction of this relationship is the opposite: despite the increased income and quality of life, today a typical woman has on average two children less than a typical woman living in a country with a similar level of development in 1960 (De Silva & Tenreyro, 2017).

Other formal factors that can potentially influence the birth rate of the population are the age structure (Nizova & Andreeva, 2020), the unemployment rate, the gross domestic product (Rybakovskiy, 2016), the level of education, urbanization and mortality (De Silva & Tenreyro, 2017).

Archangelskyi et al. (2017) believe that the change in the Russian Federation's total fertility rate over the past 15 years was largely determined by the change in the number of registered marriages. However, often in Russia, the onset of pregnancy precedes marriage and is even one of the main reasons for it. Therefore, in our opinion, it is the decision to keep the pregnancy (and thereby increase the birth rate) that is the reason for the marriage, and not vice versa. The birth of the second and subsequent children, according to the mentioned authors, is determined to a greater extent by socio-economic factors.

It should also be noted that some factors may not be linearly related to the birth rate. For example, the results of a study conducted in Egypt by Zalak and Goujon (2017) show that the employment rate of women in the public sector has a positive effect on the likelihood of having a first and second child, but has a negative impact on decisions about having subsequent children.

The factors of second group are subjective, associated with the peculiarities of the perceptual processes characteristic of the population of a certain territory. This group of factors is more difficult to identify and describe, but they can have a significant impact on the birth rate of the population. For example, as Rybakovskiy (2016) notes, it is possible to assess the effectiveness of measures aimed at solving demographic problems by clarifying the attitude of the population towards them, identifying in the course of sociological surveys the reaction of residents to the implemented measures of state and regional support for fertility.

Klupt (2020) notes that the birth rate in developed countries depends on which traditions prevail in society: familistic (loyalty to the family) or paternalistic (loyalty to the elders, as well as recognition of the state dominant role). A higher birth rate and a greater "response" to government measures stimulating the birth rate is noted precisely in paternalistic societies. Nizova and Andreeva (2020) also designate the loss of the family relations value and the low need for children, divorce and the loss of traditional foundations as one of the main reasons for the decline in fertility.

The perceptual processes that determine the propensity of the population to bear children are currently being formed under the influence of two coalitions: a coalition defending family values and a policy of promoting fertility, opposing a coalition that prioritizes reproductive and "sexual" rights, as well as sexual education of young people (Klupt, 2016). De Silva & Tenreyro (2017) note that high fertility rates are usually part of deep-rooted cultural patterns, and the timing and rate of fertility decline coincides

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with the rise of the neo-Malthusian global population control movement, which has developed and advocated a range of policies to reduce fertility rates. worldwide.

In Russian society, there are also social stereotypes associated with the optimal number of children in the family, the age at marriage, the right to divorce and termination of pregnancy, responsibility for raising children, etc. Age-related shifts in fertility are caused, for example, by an increase in the age of marriage, postponing the time of childbirth due to career considerations (Tikhomirov, 2016).

In addition, the respondents who took part in the study by Nizova and Andreeva (2020) designated that the birth rate is negatively affected by housing conditions (rather, even by dissatisfaction with housing conditions).

Nizova and Andreeva (2020), with reference to other authors, also note that depopulation may be due to historical and evolutionary processes.

2. Problem Statement

The literature review presented above shows that the scientific community pays a lot of attention to studying the factors that promote or hinder an increase in the birth rate. However, there are a lot of "blank spots" in this issue.

Thus, most studies of the Russian Federation's birth rate were conducted based on all-Russian or regional statistical indicators, which gives a very average understanding of the situation. However, differences can appear at the intraregional level. For example, according to 2018 data in the Altai Territory, with an average birth rate of 10 ‰ in municipal districts, this indicator ranges from 7.2 ‰ in the Yeltsovsky district to 13.1 ‰ in the Tabunsky district.

It should also be noted differences in the socio-economic development of the Altai Territory regions (for example, higher indicators in the areas of the so-called Barnaul agglomeration), as well as the cultural and natural diversity of a fairly large territory of the considered subject of the Russian Federation, which can cause the emergence of various perceptual processes in the population, in including those concerning fertility patterns.

In turn, the main methods of perceptual processes research are population surveys. But after examining a fairly extensive list of publications on the issue of fertility, we were unable to find the results of questioning or interviewing residents of the Altai Territory.

To eliminate the discovered "white spots", we developed a research methodology based on the use of Herzberg's theory of motivation, which in the context of the research topic can be interpreted as follows: two groups of factors determine the motivation of the population of a certain territory to have children:

- External objective (by analogy with the hygienic factors of Herzberg's theory), which include indicators of the socio-economic condition of the territory.
- Internal subjective (by analogy with the motivational factors of Herzberg's theory) – loyalty to a given territory (positive perception of it, the intention to start a family and a categorical unwillingness to change the region of residence, including, despite the possible unfavorable socio-economic situation).

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It is necessary to immediately stipulate that the work will not consider the impact on the birth rate of state policy measures aimed at solving demographic problems, since these measures are uniform on the territory of a constituent entity of the Russian Federation (for example, federal and regional maternity capital) and cannot explain inter-district differences in the meaning analyzed indicator..

3. Research Questions

Within the framework of the developed research methodology, a hypothesis that the birth rate of the Altai Territory rural areas population depends on indicators of the socio-economic state of the territorywas put forward; such indicators are: the size of the population of the district who is in working age, the average wages accrued at the enterprises of the district, the unemployment rate, the mortality rate (which may indirectly indicate the state of medicine in the district), the level of migration (indirectly indicating the quality of life in the district), as well as the volume of goods (work, services) produced in the district per one working-age resident.

If this hypothesis is rejected, that is, the dependence of the birth rate of the population of the region on the socio-economic indicators will not be found, it will be possible to talk about the existence of a specific phenomenon – territorial loyalty, due to perceptual processes, positive (in the case of high birth rate) or negative (low birth rate) the perception of the population of the territory of their residence. The perceptual population territorial loyalty processes can cause a higher or lower birth rate, which is not supported, respectively, by high or low values of indicators of the socio-economic indicators.

4. Purpose of the Study

The purpose of the study is to determine the extent to which the birthrate of the Altai Territory rural areas population is determined by objective factors (such as the working-age population size, the average wage, the unemployment rate, etc.), and to what extent subjective perceptual processes determine the birthrate of the Altai Territory rural areas population due to territorial loyalty.

5. Research Methods

Quantitative and non-quantitative (qualitative) methods were used to test the hypothesis.

A correlation analysis was carried out to study the relationship between the birth rate of the population and socio-economic indicators of the region. The study's information base was the data of official statistics posted in the public domain on the website of the Federal State Statistics Service of the Russian Federation.

When interpreting the obtained Pearson correlation coefficients, the results of in-depth interviews with Altai Territory rural areas residents, which were conducted in 2018, were used.

https://doi.org/10.15405/epsbs.2021.04.124
Corresponding Author: Natalia Volkova
Selection and peer-review under responsibility of the Organizing Committee of the conference
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6. Findings

6.1. Analyzing descriptive statistics of variables

Table 1 presents descriptive statistics on the correlation analysis; the names of the districts in which the maximum and minimum values of the indicators were observed are indicated in brackets.

Table 1. Indicators of descriptive statistics of the socio-economic situation of the Altai Territory districts

Indicator	Min	Max	Mean	Median
		2017		
Birth rate, ‰	7.3 (Klyuchevsky)	14.2 (Soltonsky)	10.8	10.5
Working-age population, people	2294 (Suyetsky)	28723 (Pervomaisky)	9209	7406
Average salary, rubles	16178 (Aleysky)	28952 (Zmeinogorsky)	19505	18996
Unemployment rate, %	0.65 (Altaisky)	7.39 (Tselinnyy)	3.00	2.72
Dearth rate, ‰	11.0 (Tabunsky)	20.0 (Ust-Pristansky)	16.0	16.0
Migration rate, ‰	-18.9 (Tretyakovsky)	14.3 (Krutikhinsky)	-5.9	-6.4
Volume of goods (work, services) produced in the district, rubles per one working-age resident	26.15 (Bayevsky)	533.97 (Pavlovsky)	169.35	128.96
		2018		
Birth rate, ‰	7.2 (Yeltsovsky)	13.1 (Tabunsky)	10.0	10.0
Working-age population, people	2216 (Suyetsky)	28736 (Pervomaisky)	8968	7216
Average salary, rubles	18465 (Soltonsky)	32966 (Zmeinogorsky)	22533	22130
Unemployment rate, %	0.57 (Altaisky)	6.81 (Tselinnyy)	2.87	2.79
Dearth rate, ‰	10.4 (German national)	21.7 (Ust-Pristansky)	16.2	16.0
Migration rate, ‰	-20.87 (Ust-Pristansky)	9.36 (Pervomaisky)	-8.70	-9.24
Volume of goods (work, services) produced in the district, rubles per	40.66 (Soltonsky)	627.80 (Pavlovsky)	183.01	142.19

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Corresponding Author: Natalia Volkova
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one working-age resident

The statistics for 2017–2018 show a decline in the birth rate, with a decrease observed for all descriptive statistics indicators.

Figures 1 shows the dynamics of demographic indicators for the Altai Territory regions, characterized by highest birth rates; the dotted lines in the figure show the linear trend lines plotted for the number of births.

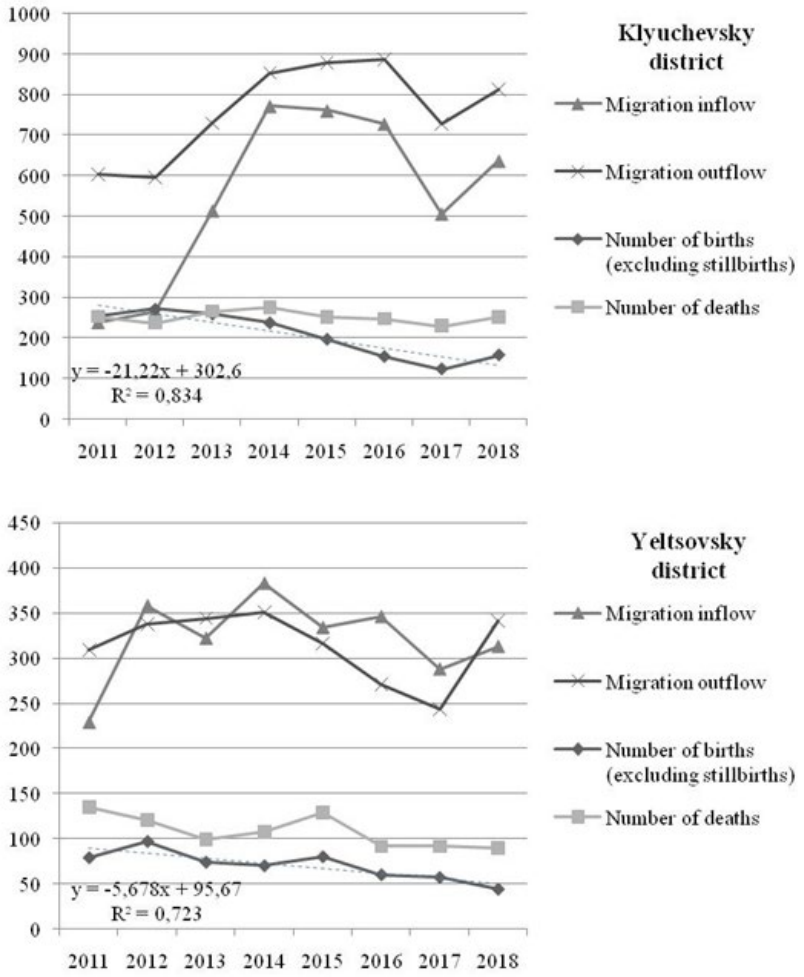

Figure 1. Dynamics of demographic indicators of the Altai Territory districts, in which in 2017-2018 the minimum birth rate was observed, people

Similarly, figure 2 shows the dynamics of demographic indicators for the Altai Territory regions, which are characterized by the lowest birth rate; the dotted lines in the figure show the linear trend lines plotted for the number of births.

https://doi.org/10.15405/epsbs.2021.04.124
Corresponding Author: Natalia Volkova
Selection and peer-review under responsibility of the Organizing Committee of the conference
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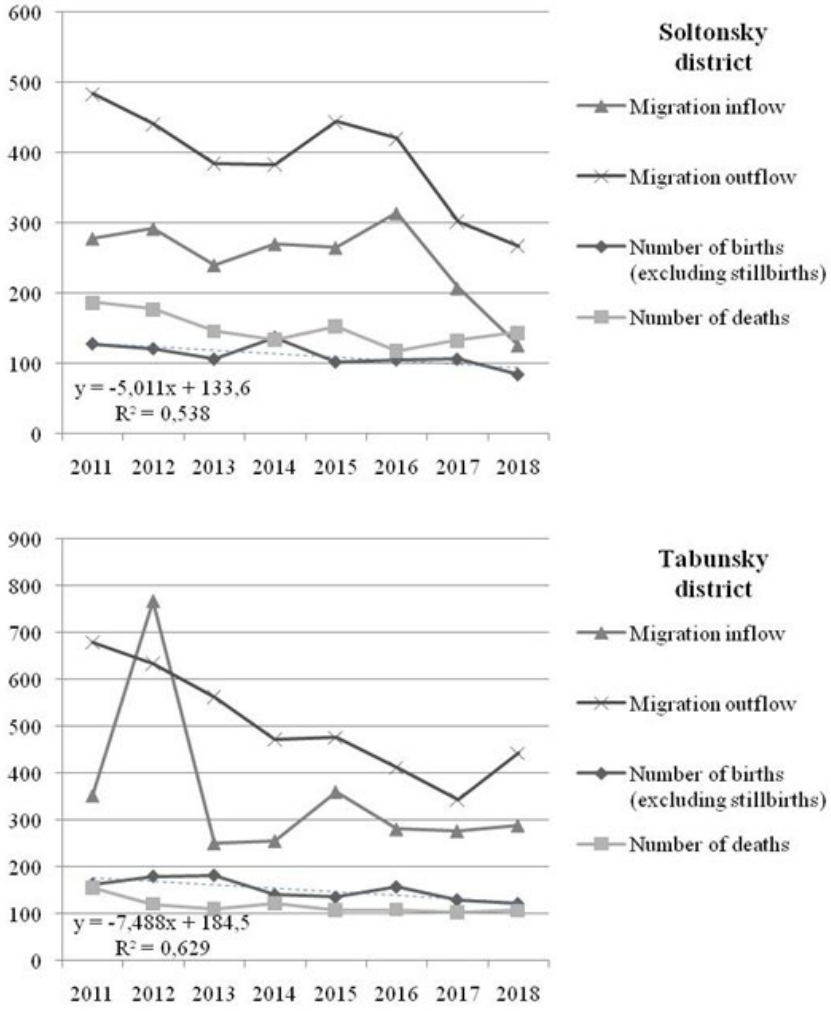

Figure 2. Dynamics of demographic indicators of the Altai Territory districts, in which in 2017-2018 the maximum birth rate was observed, people

The figures clearly show that there is a stable decrease in the number of births in the regions considered, and the trend lines obtained allow us to predict the continuation of this trend in the future. A slight increase in the birth rate in 2018 compared to 2017 was observed only in the Klyuchevsky district, but this may well be an accidental phenomenon.

The article's volume does not allow to give graphs of the dynamics of demographic indicators of all Altai Territory districts, but this is not necessary – similartrends of a stable decrease in the birth rate are observed in the remaining 55 municipal districts. Even the Pervomaisky district, one of the districts of the Russian Federation's considered subject, in which a stable population growth is noted, was not an exception. Another area in which the population has grown over the past three years is the Yeltsovskydistrict, however, as shown above, in 2018 the birth rate of its population was the lowest among the rural areas of the Altai Territory. The reason for the lack of birth rate growth in these areas is that population growth is provided by the migration inflow of residents over the working age (and hence fertile) age.

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It should be also noted that the excess of the number of births over the number of deaths over the period under consideration was observed only in the Tabunsky district of the Altai Territory (Figure 2).

6.2. Objective fertility factors: correlation analysis

Table 2 present Pearson's correlation coefficients characterizing the relationship between the birth rate and indicators of the socio-economic situation of the Altai Territory regions.

Table 2. Analysis of the relationship between the birth rate and socio-economic indicators of the Altai Territorydistricts, 2017

Indicator	Relationship with fertility rates: Pearson's correlation coefficient
2017	
Working-age population, people	-0.156
Average salary, rubles	-0.025
Unemployment rate, %	0.125
Dearth rate, ‰	0.083
Migration rate, ‰	-0.076
Volume of goods (work, services) produced in the district, rubles per one working-age resident	**0.224***
2018	
Working-age population, people	**-0.209**
Average salary, rubles	-0.169
Unemployment rate, %	-0.121
Dearth rate, ‰	-0.056
Migration rate, ‰	0.020
Volume of goods (work, services) produced in the district, rubles per one working-age resident	**0.268***

* Correlation is significant at the 0.05 level (2-tailed)

According to the results of the correlation analysis, it can be stated that there is a weak relationship only between the birth rate and the volume of goods (work, services) produced in the district per one resident of working age: the birth rate in "highly productive" areas is higher than in areas with a relatively low level of production. Perhaps this is due to the greater confidence of residents in their future, in the fact that if there are stable working enterprises in the region, they will not be left without work.

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6.3. Subjective factors of fertility: revealing territorial loyalty of the population in quotes from in-depth interviews

To identify the subjective factors of fertility due to the territorial loyalty, an in-depth interview was conducted with residents of rural settlements in ten municipal districts of the Altai Territory. In accordance with the article's topic, we present excerpts from interviews with residents of the Yeltsovsky and Tabunsky districts of the Altai Territory, characterized in 2018 by the minimum and maximum birth rates, respectively.

For the respondents of the Yeltsovsky district, which has a low birth rate, negative or restrained statements are characteristic: the geographical proximity explains the outflow of young residents and better socio-economic situation of another region of the Russian Federation (Kemerovo Region), the lack of social infrastructure facilities is noted, as well as the negative consequences of optimization, in particular, the healthcare system, which negatively affects the availability of medical services, Attention is focused on the lack of teachers in general education schools and the corresponding outflow of residents of fertile age. Several such statements are listed below.

"When a powerful industrial region with a large number of jobs is very close by, young people will inevitably flow there. Again, young families need to create, give birth to children, and where there are children, there are different vaccinations, sores, where to take a family to the countryside in the wilderness."

"We really don't have anything here. We lived in another area, in a large village, where the children in the kindergarten had a pool and a special massage room. Dairy cuisine. Nearby in the regional center there is a cinema, shopping centers, a hospital equipped, in the recreation center there are 40 clubs for children. What do we have? You can't get medical help. Children cannot be taught. My children will finish their studies up to grade 9 – and they will go to the city to our relatives."

"First, a doctor- general practitioner was fired, then – a paramedic too, and now you won't get to see doctors in the district ... And so in everything. Either schools are optimizing, then offices..."

"Some, due to the lack of teachers in their village or village, had to send their children to a school located in Yeltsovka or another large village. And because of this, they also left later."

And, as a summary, the following statement can be cited.

"Do you know what they wrote about our village in the newspaper? That we had a wedding! For the first time in several years! Can you imagine what an outflow of young people we have if the wedding is an event for the newspaper ?! Sasha and Christina are now the youngest family. And I go to school for a meeting – everyone is older than me. There are no youth people, no one to give birth. So the school will soon be unnecessary..."

Statements of Tabunsky district residents are more positive: noting the general decline in the economic indicators of the region, as well as the lack of infrastructure, the respondents focus on their own activity, quite a lot of the respondents talk about the natural resources and tourism potential of Tabunsky district and neighboring ones. Such statements are listed below.

"There are no roads... And why should they – there is no one to travel along them anyway. When you came to visit us, did you see the abandoned farms? Everything is in desolation. But we are not discouraged. We survive as we can. There is a school – so we will learn the children. Our teachers are

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Corresponding Author: Natalia Volkova
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wonderful. The library works, so nobody won't be left without education. And three years ago, a student from our regional center, following the results of a quiz show, was enrolled in MGIMO without exams, so our level of education is decent. Our village, of course, is not a regional center, everything is simpler here, but children are not worse"; "Of course, jobs in the district are not very good. But there is "Tabunsky elevator". The work there is not easy, but if you work and don't drink [alcohol], you can earn good money. My husband works at the elevator, and I take care of the children and the household. And for a family of four, his salary is enough for us, but taking into account, of course, the fact that almost all our products come from our own garden. I would have given birth to a third child, because we have two sons, but we want a daughter."

"There has been no school in our village for a long time. But all the same, children are born – we send them to Slavgorod, to a boarding school to study. And we studied like that, so it's okay, they won't be left without education. This is how the village is still surviving."

"There used to be virgin lands here, a lot of agricultural crops were grown, and now there is waist-deep grass. The salary is low. And our places are very beautiful, the beauty is indescribable. And children feel good here. There are salt lakes. That is why children grow up healthy, do not get sick".

"Yes, there are many children in the region. And I don't want to leave, because we have a resort. We even have grapes ripening! People pay big money, they come to us from everywhere. And we have everything here, all our own."

Thus, it is possible to pay attention to the observed differences in the perceptual processes of the inhabitants of the Yeltsovsky and Tabunsky districts, which gives us the opportunity to talk about the existence of a specific phenomenon – the territorial loyalty of the population, with the formation of which the individual strives to create a family and have children in the territory of his residence.

7. Conclusion

Thus, according to the results of the correlation analysis, it can be concluded that objective factors associated with the socio-economic development of the district have practically no effect on the birth rate of the population (the corresponding hypothesis cannot be confirmed, except a positive relationship between the birth rate and the volume of production in the district). The search for fertility factors should be continued among the subjective factors determined by the residents' territorial loyalty. The results of in-depth interviews preliminary confirm the need for a more detailed study of the subjective factors associated with an individual's perception of the territory of his residence and an analysis of their impact on the population's birth rate.

Of course, based on the results of a small number of interviews, it is impossible to form a complete list of such subjective fertility factors. However, it was based on the analysis of the respondents' statements that a questionnaire was formed to conduct a more detailed study and verify the hypothesis about the influence of factors of territorial loyalty of the population on fertility. The survey of respondents is currently being conducted and the first results will be published shortly.

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