

Geodemographic Potential of the Republic of Tatarstan: Analysis, Evaluation, Territorial Differences

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Abstract

Modern international scientific community recognizes that the territorial paradigm is of great importance for development of the region. Its essence is in the fact that the territory is considered as an arena of interaction of various driving forces, the components of nature and society, i.e. as a resource, as well as the space organized in a particular way. In this sense territoriality leads to the formation of a special socio-economic landscape which is the reflex of the content of this concept. In its turn, territoriality – from the comprehensive point of view – is the performance potential of the territory. To fulfil the demographic potential of the territory is the aim of the research. The article gives the author's definition of geo-demographic potential of the region based on the theory of geo-demography. The methodology of evaluation of the demographic potential of the territory from the perspective of the demographic situation and the demographic setting was developed. Since the analysis of the balance of labor resources is at the core of economic-demographic research, and already in the 60s V.V. Pokshishevsky and M.Ya. Sonin emphasized the importance of geographical study of the population and their relationship with manufacturing on the basis of the regional balance of labor resources which take into account changes of population, as well as production, the need to analyze the typology of the geo-demographic situation of the Republic of Tatarstan and to identify corresponding zones of formation of the demographic potential is required. On the basis of the proposed methodology, typological zonation of the demographic potential the directions of further development of the demographic situation of the relevant typological zones were identified, the forecast of population size in them was calculated. The presented typology is consistent with the program of the demographic development of the Republic of Tatarstan.

Keywords: geo-demography, geo-demographic situation, geo-demographic setting, geo-demographic potential, typology.

1. Introduction

A great part of the scientific and practical problems of geography of population is devoted to the study of large-scale integrated systems (Bagautdinova *et al.*, 2013). According to A.G. Vishnevsky, the term "demographic system" indicating the systemic nature of population stands for the synonym of the notion "population" (Vishnevsky, 1982). Based on this notion, territorial systems should be considered to be material tangible research objects in the study of geography (Bagautdinova *et al.*, 2012).

In the course of the geographical research of spatial-temporal organization of human activity the idea of population and forms of its settlement, of market economy, of service and infrastructure provision increased significantly. The notion "territorial community of people" (TCP) and the idea of the identification of society with the settlement and the territory appeared. The search for new forms of spatial-temporal organization of society led investigators to the category of "territorial social system" (TSS). Content of TSS is much wider than of TCP due to the "inclusion" of spiritual, psychological, moral, and other aspects of people's lives. TSS become the main object of cognition of economic and

social geography, in connection with which the new definition of science appeared. Among many definitions the following definition is the most common one: "Economic and social geography as a complete integrated-synthetic science studies the spatial organization of the society in specific conditions of the environment. Territorial (spatial) social systems are the main subject of its research"(Chistobaev and Sharygin, 1990). MD Sharygin stated that TSS is "the space-temporal form of the organization of the oecumene in which all spheres of life of people who are included in processes of social development and reproduction are relatively and interdependently combined."

Demographic potential starts to be considered as an important part of the national wealth. In a series of works the demographic potential is interpreted as exclusively reproductive capabilities of society which are determined by the number of reproductively active members of the community and their fertile activity. In the broader interpretation the same approach is represented in the works of T. Romashova who understands the demographic potential as "the rate of potential population growth on the basis of already established sex & age structure and dynamics of fertility, marriage and other special characteristics" (Romashova, 2006).

The idea of the demographic potential of society through the concept of population or life potential which is measured by the number of people with the account of total time of life they have lived, becomes more common. A consolidated list of approaches to the interpretation of the demographic potential was proposed M.V. Igoshev (Igoshev, 2011) (table 1).

Table 1. Main approaches to the interpretation of the demographic potential (Igoshev, 2011).

Characterization	Approach (author)
The number of inhabitants of the country	Vishnevsky A.G. Vasin S.A. Zayonchkovskaya J.A.
The number of inhabitants of the specific territory	Center for Strategic Studies of the Volga federal district
Population size and population makeup according to sex and age	Motrich E.L.
Set of quantitative and qualitative indicators of population groups – now and in the near future	Filimonov N. Krasnolobtsev V.
The number of people with the account of total time they have lived	Petrakova Y.N.
Life Potential	E. Filroze L. Hirsch
Quantitative and qualitative potential of reproduction of population of the designated area (country)	Fedotovskaya T.A.
Total population, its sex and age composition, dynamics of growth (decline) of population, migration processes	Shalmuev A.A.
Reproductive performance of the ethnic group, of the community	Koreshkin A.
Index of potential growth of population on the basis of already established age-sex structure and dynamics of fertility, marriage and other specific indexes	Romashova T.V.
Index of characteristics of the dynamics of population reproduction, as well as its demographic perspectives at the aggregate level	Ediev D.M.

Based on the above, the definition of the demographic potential of the area requires further clarification. In our opinion, the demographic potential of the area is a set of human resources of the territory, formed in conditions of the current demographic situation, and which can be used in the development of the territory with the account of the demographic situation.

2. Methodology

In the scientific, as well as in the educational literature which is devoted to the question of demographic development, it is possible to find some methodological approaches, as well as the methodology for assessing the demographic potential. In particular, as it has already been mentioned, while analyzing the interpretations of the concept of demographic potential (Table 1), the main methodological approach of determination of demographic potential value is based on its quantitative assessment, or as a simple calculation of the country's population, or as the calculation of the number of inhabitants with the account of total time they have lived, or through life potential. However, in our opinion, such vision requires not the clarification, but the explanation relating to deeper understanding of the essence of the assessment

method of the demographic potential of the area.

As it has already been mentioned, in relation to the economy the population acts both as a wealth producer, as well as a consumer of material goods at the same time. Such two-sidedness of relations determines the complexity and sometimes the contradictory relations of population and economy. Population cannot exist outside the economy, and the economy cannot exist without population, they are two parts of one social organism (Gabbrakhmanov and Egorov, 2013). Consequently, for the in-depth study of geo-demographic situation it is necessary to study all the elements of TSS which influence it. To do this, G.M. Fedorov proposed to carry out the research in several stages: 1) regional-demographic: the study of the structure of demographic processes as such, the analysis of structural changes of demographic processes, their interaction and interdependence; 2) geo-demographic: the analysis of the impact of socio-economic factors on demographic processes, the analysis of indexes that characterize the connection of demographic processes and socio-economic factors, the study of the socio-economic dependence of connections of demographic processes with socio-economic factors (Fedorov, 1984).

Since the geo-demographic situation is formed under the influence of territorial socio-economic systems, and in their subordination the fundamental role belongs to the territorial-manufacturing system (of course, with the relative independence of all other systems), as far as exactly economic-demographic relations have a leading role with respect to the regional demographic, social-, population settling-, ethnic and ecological-demographic relations – the leading, but not the only one (Safiullin *et al.*, 2013). On this basis, the demographic potential is considered by us as a complex demographic, social, economic, population settling, ethnic, ecological phenomenon, which is the reflection and a complex characteristic of the most important interrelated features of TCP. In this work, the complex characteristic which includes various indexes of the demographic situation was offered to use as an integral measurer of demographic potential of the territory. In our opinion, this integral measurer consists of six large blocks: demographic, economic-demographic, population settling and demographic, socio-demographic, ethno-demographic and ecological-demographic (Gabbrakhmanov and Rubtzov, 2014).

The proposed methodology of analysis which includes the system of objective and subjective typological indicators, can become the basis for assessment of demographic potential of the area. The following categories are considered to be the main categories that form the demographic potential of the territory: demographic situation, labor resources, settlement system, demographic behavior, physical health and ethnic composition. As a result, the system of indicators used to assess the demographic potential of the area was developed (Table 2).

Table 2. The system of indicators used to assess the demographic potential of the area

Key figures blocks	Aggregates	Objective performance indicators
Demographical block	Dynamics of population	- population, - total growth (decrease) of population, - population growth rates and population increase, - share of natural population increase in general population growth
	Birth-rate (fertility rate)	- number of births, - the general fertility rate, - age fertility rates, - the total fertility rate, - the fertility rate by birth order, - age rates of marital fertility
	Mortality	- the number of deaths, - general mortality rate, - age mortality rates, - the infant mortality rate, - age mortality rates by major causes of death, - the average life expectancy
	Natural growth	- natural growth (decrease) - general rate of natural growth
	Migration of population	- Number of arrived migrants, - Number of left migrants, - net balance of migration, - general rate of net balance of migration, - age rates of net balance of migration

	Age-sexual structure of the population	- number of men and women, - the proportion ratio of men and women, - demographic burden, - the proportion of different age groups in the population, - the rate of demographic aging
	Family structure of the population	- the number of registered marriages, - general rate of marriage, - total number of registered divorces, - general divorce rate, - the proportion ratio of marriages and divorces
Economic block	Labor resources	- population number of working age, - average number of employees, - distribution of labor resources by industry sector, - value of industrial products per capita
Social block	Standard of living	- average income per capita, - the average monthly nominal wage of workers, - the average growth rate of gross wage, - number of the unemployed, - Life expectancy at birth, - The registered unemployment rate
	Educational level of the population	- the share of people with higher education, - the share of persons with specialized secondary education
Population settling block	The level of urbanization	- Proportion of urban and rural population, - Density of rural population, - The average distance between settlements, - Population size of settlements
Ecological block	Physical health of population	- Sickness rate of population by major disease groups - Sickness rate of population by age groups, - Sickness rate of children of the first year of life, - mortality of population by causes; - mortality of population by age groups - level of techno-genic burden
Ethnic-cultural block	Ethnic structure	- share of the Tatar population, - share of the Russian population, - share of other nationalities, - ethnic diversity (the number of people in the community) - changes in the share of the national population; - time of living of ethnic groups in the area

3. Results

The main differences of the demographic situation formed the basis of the typology of geo-demographic situation of the Republic of Tatarstan on the basis of two groups of features: production-economic and socio-demographic (Gabbrakhmanov and Rozhko, 2014). Thus, the following types and subtypes of the geo-demographic situation the Republic of Tatarstan and the corresponding types of demographic potential were identified:

- I type – city districts
- II type – district-side
 - 2.1 – Chelny-side
 - 2.2 – Kazan-side
- III type – oil
- IV type – the industrial-agrarian one with population decline
 - 4.1 – areas with "deteriorating" demographic situation
 - 4.2 – areas with "unfavorable" demographic situation
 - 4.3 – areas with "crisis" demographic situation

4. Discussion

The study of the demographic potential of the region, their positioning and competitiveness based on the labor resources are currently of great importance. The regular appearance of reports on this topic at various conferences of various levels is the evidence of this. In particular, a lot of statements of this article were discussed at several conferences devoted to various aspects of the development of regions. And the methodology of assessment of demographic resources of the regions with relation to their potential is the main discussion point in most cases. As a rule, in the frames of the discussion there are different points of view on this issue. But in our opinion, only the complex approach can provide an objective assessment of the demographic potential of the region.

5. Conclusion

I type – city districts – Kazan and Naberezhnye Chelny. In general, this type is characterized by "favorable" demographic situation. In 2010 1646867 people lived here (Kazan – 1136566, Naberezhnye Chelny – 510301). There is positive dynamics of natural and mechanical movement of the population. The highest population density is exactly here. A higher proportion of people of working age is the feature of the age structure of this type, the demographic burden is was - 0.57 which is below the republican indicator. This type refers to the old industrial areas where the proportion of the accumulated past labor is high. The current situation is due to the concentration of population, high standard of living, the considerable volume of industrial production, the development of market and transport infrastructures, the tertiary sector of the economy is actively developing, the performing of functions of the capital by Kazan also contributes to this. This type is characterized by the peculiar features of post-industrial society.

II type – district-side. This type is formed by municipal areas surrounding urban districts, it consists mostly of industrial cities and regions.

2.1 – Chelny-side (Mendeleevsky, Elabuzhskij, Nizhnekamsky, Tukaevsky, Zainsky municipal districts).

12.6% of the population of the Republic of Tatarstan live in these regions. This subtype is characterized by "good" demographic situation. Mechanical engineering (automobile manufacturing, electrical engineering industry), as well as the chemical and petrochemical industry, are the main industries. The population is distributed unevenly, mainly in urban areas. Regions of this subtype are characterized by favorable age-sex structure of population which determines high demographic potential. The average demographic burden was 0.62 (with minimum in Nizhnekamsky and Elabuzhsky areas - 0.55). in addition to the low demographic burden, the fact that the proportion of people of younger working age is higher than the proportion of people of retirement age is rather encouraging. In general, the regions of this subtype are characterized by average level of social welfare. However, deteriorating ecological situation is the main threat for the demographic situation; it is explained by concentration of a large number of industrial enterprises of chemical industry. Now Solution of environmental problems has led for improvement of health of the population, which results in a decrease of sickness rate and mortality.

2.2 – Kazan-side (Verkhne-Uslonsky, Vysokogorsky, Zelenodolsky, Laishevsky, Pestrechinsky, Atninsky, Arsky municipal regions). Its share is 9,3% of population of the Republic of Tatarstan. In general, the demographic situation can be characterized as "good". Despite the negative performance indicators of natural population movement the migration growth rate in the region, on the contrary, was positive, and this compensated the loss of natural population decline, and also ensured its increase. In all regions of this subtype the number of people of younger working age is less than the number of people of retirement age, and this negatively influences the formation of the demographic potential. However, the low value of the resource potential of the Capital Economic Area (equal to 0.684) convincingly demonstrates the most efficient use of production potential and other resources of the region in comparison with the other economic regions and points to the existing potential for economic growth with more efficient use of available resources.

III type – oil – (Aznakaevsky, Almetyevsky, Bavlinsky, Bugulminsky, Leninogorsky, Yutazinsky municipal regions): the economy of regions of this type has strongly marked specialization: oil extraction and production of oil equipment. Average urbanization rate is 73.28%, which is slightly lower than the national indicator, despite the presence of a large number of towns and urban-type settlements. This type is characterized by "relatively good" demographic situation. Negative natural population growth is worsened by the negative migration balance.

IV type – the industrial-agrarian one with population decline: the economy of cities and regions of this type is based on the agricultural enterprises, building materials industry, the food industry. The regions of this type are characterized by the natural population decline, which is worsened by migration outflow.

4.1 – areas with "deteriorating" demographic situation. This subtype united 5 municipal regions – Agryzsky, Aktanyshsky, Menzelinsky, Muslyumovsky, Sarmanovsky. 156,004 people live here, it is 4.1% of the population of the

Republic of Tatarstan. The economy is based on agricultural enterprises, building materials industry, food industry. The number of the employed in the economy is 6% of all the employed people in the economy of the Republic. The level of population demographic burden is higher than the republican level. This subtype is characterized by gradual decline of population. Natural population decline that occurs in all municipal regions, makes the main contribution to the decrease of population. However, the natural decline is compensated by positive migration balance.

4.2 – areas with "unfavorable" demographic situation. This subtype consists of 6 municipal districts – Baltasinsky, Kukmorsky, Mamadyshsky, Rybnoslobodsky, Sabinsky, Tyulyachinsky. Its share is 1.2% of the population of the Republic of Tatarstan, the total number of people is 44798 residents. The economy of the regions is based on agricultural enterprises, building materials industry, food industry. The number of the employed in the economy is 6% of the number of all employed people in the economy of the Republic. This subtype is characterized by a generally long life time and low standard of living. The proximity of the city of Kazan causes the high level of techno-genic burden, and only the remote Rybnoslobodsky region is characterized by favorable situation from the ecological point of view.

4.3 – areas with "crisis" demographic situation. The largest number of regions of the Republic of Tatarstan (Apastovsky, Buinsky, Drozhzhanovsky, Kaybitsky, Kamsko-Ustyinsky, Tetyushsky, Aksubaevsky, Alkeyevsky, Alekseevsky, Novosheshminsky, Nurlatsky, Spassky, Cheremshansky and Chistopolsky municipal regions) belong to this subtype. Despite the significant occupied area (one fourth of the area of the Republic of Tatarstan), only 427,602 inhabitants live here, which is 11.3% of the population of the Republic of Tatarstan. Regions of this type have the limited – on a republican level – potential of natural resources; this potential is represented mainly by land resources (soils of mainly chernozem type), resulting in the economy based on the food industry, agriculture, building materials industry. The small share of working-age population is the peculiar feature of the age structure of the region, this is typical for all rural areas. Demographic burden is 0.79 on average is. High proportion of people of retirement age is the second peculiar feature which follows from the first one. Such situation allows to speak about possible difficulties to provide workforce, specialists of the new industries, as well as of traditional agriculture.

6. Statements

Thus, the geo-demographic typology allows to make the conclusion about the impact of the two "points of growth": Kazan and Naberezhnye Chelny. Territorial peculiarities of formation of the demographic potential greatly depend on the peculiarities of the industry of economic development of the region (the predominance of the secondary and tertiary sectors of the economy).

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