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DYNAMICS OF POPULATION OF PRIMORSKY KRAI

ДИНАМИКА ЧИСЛЕННОСТИ НАСЕЛЕНИЯ ПРИМОРСКОГО КРАЯ

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Abstract. In the real work the demographic situation in separately taken region is considered. In the Concept of population policy of the Russian Federation until 2025 one of solutions of population policy is “involvement of migrants according to requirements of demographic and social and economic development, taking into account need of their social adaptation and integration”. This decision leads only to visible improvements of a demographic situation leading to emergence of various social problems in respect of national identity. Therefore within work extent of influence of various regional factors on population is investigated. Various socio-economic indexes reflecting the standard of living of the population and development of the region act as the key indicators characterizing dynamics of population. On their basis to be under construction the corresponding regression model which factorial signs are number given rise, number of the dead and number of the registered crimes. To be carried out statistical assessment of the importance and degree of adequacy to the constructed model. Ways of increase in population in Primorsky Krai, as a result of carrying out the social policy directed to change of factorial signs are offered. The corresponding positive forecast of dynamics of population is constructed.

Аннотация. В настоящей работе рассматривается демографическая ситуация в отдельно взятом регионе. В Концепции демографической политики Российской Федерации на период до 2025 года одно из решений демографической политики является «привлечение мигрантов в соответствии с потребностями демографического и социально-экономического развития, с учетом необходимости их социальной адаптации и интеграции». Данное решение приводит только к видимым улучшениям демографической

обстановки приводя к возникновению различных социальных проблем в плане национальной идентичности. Поэтому в рамках работы исследуется степень влияния различных региональных факторов на численность населения. Основными показателями, характеризующими динамику численности населения, выступают различные социально-экономические показатели, отражающие уровень жизни населения и развития региона. На их основе строится соответствующая регрессионная модель, факторными признаками которой являются число рожденных, число умерших и число зарегистрированных преступлений. Проводится статистическая оценка значимости и степень адекватности построенной модели. Предложены способы повышения численности населения в Приморском крае, в результате проведения социальной политики направленной на изменение факторных признаков. Построен соответствующий положительный прогноз динамики численности населения.

Keywords: demography, regression analysis, modeling of population.

Ключевые слова: демография, регрессионный анализ, моделирование численности населения.

In work on the basis of the regression analysis to be considered dynamics of population of Primorsky Krai depending on a demographic situation and crime rate. The offers on increase in population of edge confirmed with the corresponding forecast are formulated.

The demographic question is one of the social and economic problems, most important in the decision. Especially sharply its influence is shown in regions where in the conditions of deficiency of qualified personnel, each person defines a powerful contribution to development of the edge.

As the key indicators characterizing dynamics of population the birth rate and mortality naturally acts. On an equal basis with them, allocate various socio-economic indexes reflecting a level of living of the population and development of the region (the monetary income and expenses of the population; production of consumer goods; security with full-time employment; development of a health care system; security with housing; education level, etc.).

In addition, there are indicators extent of influence which the number of the registered crimes is defined by a geographical location of the region, for example. Generally this indicator depends on the level of material welfare of the population and level of social tension. However in some regions which are close located with frontier, having passenger-and-freight seaports and also high traffic of foreign representatives, tourists and hired workers the favorable criminal situation is created. As a result, this factor has significant effect on conditions of accommodation of the population and its number.

One of such regions, the Far East, namely Primorsky Krai is. Now, in the region active work on development of the region as strategic representative in the world market in the Pacific Rim is conducted. It is a zone of the advancing development and the platform of holding annual international east economic forums. Naturally, to this the keen interest, as is shown from potential investors, and the faces of persons interested to use the arisen preferences and a situation for enrichment by illegal actions.

In the real work to be under construction the regression model describing dynamics of the population of Primorsky Krai. As the main factorial signs are taken: number given rise, number of the dead and number of the registered crimes in the region. The statistical importance and adequacy

to the constructed model is checked. The ways of increase in population confirmed with the forecast are offered.

Let's enter into consideration the following indicators: x_1 – total number of the dead; x_2 – total number of been born; x_3 – number of the registered crimes; y – total number of the population of the region. According to Federal State Statistics Service for 2001-2016 (fig. 1-2), we will receive the corresponding equation of multiple regression:

$$\tilde{y} = 2633,23 - 0,0287 x_1 + 0,001927 x_2 - 0,000009 x_3. \quad (1)$$

Fischer's criterion confirms the statistical importance of the equation (1) with significance value 0,01, as a result of performance of a necessary condition $F_{эм}(65,16) > F_{маб}(8,45)$. The received multiple coefficient of determination, reflects the high share of dispersion of productive sign explained with the constructed model, equal 94,21%.

Thus, the low error of approximation of equal 0,57%, high significance value 0,01 the received equations of regression and the corresponding coefficient of determination, confirms the statistical importance and expediency of use of the equation (1) in forecasting of dynamics of the population of Primorsky Krai.

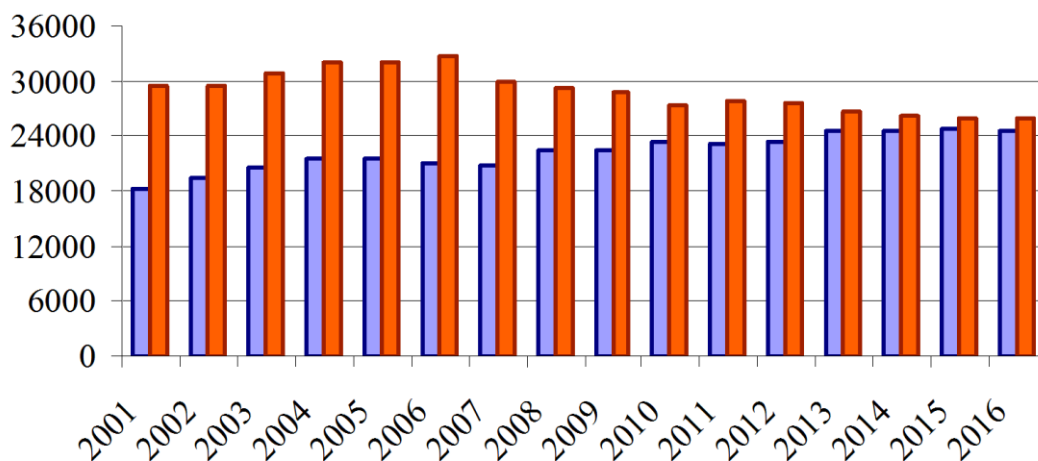


Figure 1. Total number been born (left) and the dead (right) in Primorsky Krai, 2001-2016 (1)

Calculation of average coefficient of elasticity, allows to define that reduction of total number of the dead, reduction of number of the registered crimes and increase in birth rate on average by 1%, leads to increase in population on average for 0,3197%, 0,0246% and 0,0278% respectively [1].

Therefore, high degree of correlation of population and crime in the region, owing to its geographical arrangement, with several countries and an exit in the Pacific Rim is confirmed by existence of frontiers. Respectively, before resolving a demographic issue it is necessary to reduce crime as follows:

- to carry out social work, precautionary and explanatory character with people of group of criminal risk, especially younger generation;

- to increase level of credibility to public agents from the population;
- to toughen legislatively responsibility for asocial behavior (alcoholism, violence, vagrancy, etc.) Inaction and parasitism are to be equated to an administrative offense with appropriate level of responsibility;
- to stop television and the Internet promotion of criminal life, by reduction of the corresponding series and transfers.

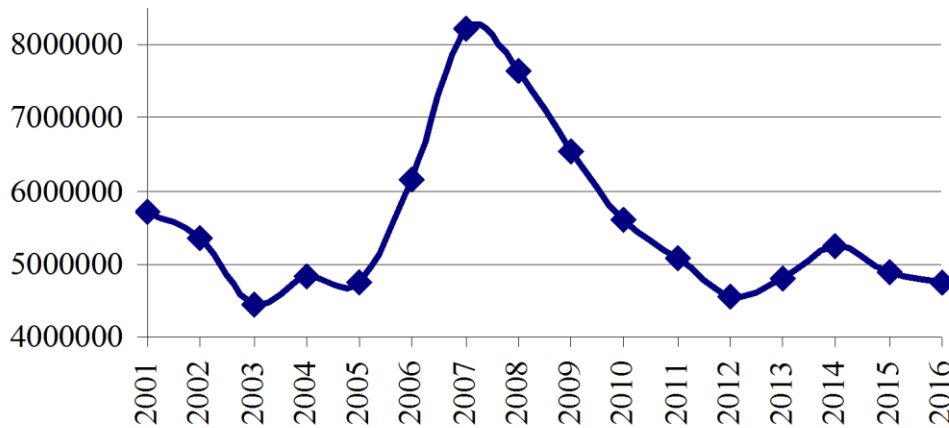


Figure 2. Number of the registered crimes across Primorsky Krai, 2001-2016 (I)

As a result, the positive scenario of development of the situation, perhaps to achieve at annual change of all considered indicators for 5%. Namely, increase in total number been born, reduction of total number of the dead and numbers of the registered crimes. As a result, by 2017 population of edge to increase till 1978 (thousand people), to 2018 till 2016 (thousand people) that there correspond 2,5% and 1,9% to a population increase (Figure 3).

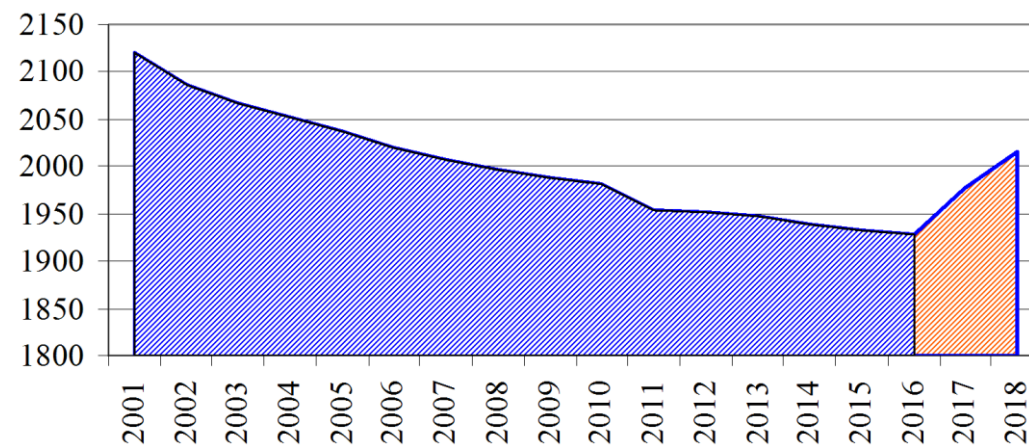


Figure 3. The forecast of population of Primorsky Krai for 2017-2018

On implementation of the received forecast in practice, it is necessary to bring the corresponding indicators to the specified level. Namely, on increase in birth rate, it is offered:

- to set the status of parents of a large family before achievement of majority by all children;
- to increase the tax concessions to large families;

- to expand privileges for receiving all steps of education of children from large families;
- to continue the program of maternity capital.

Decrease in an indicator of mortality is possible as a result of holding the following events:

- promotion of a healthy image among the population;
- carrying out clear social policy;
- ensuring growth of welfare and culture of the population;
- expansions of the sphere of cultural leisure.

Sources:

(1). Russian Federation. Federal State Statistics Service. Available at: <http://www.gks.ru>, accessed 17.09.2017.

References:

1. Bruce, E. (2017). *Econometrics*. University of Wisconsin, Department of Economics, 427

Список литературы:

1. Bruce E. *Econometrics*. University of Wisconsin: Department of Economics. 427 p.

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