

International Conference on Research Paradigms Transformation in Social Sciences 2014

Interdependence of demographic and economic development of regions

Nikulina I.E., Khomenko I.V.

National Research Tomsk Polytechnic University. Tomsk, Russia

Abstract

Interdependence of demographic and economic development of a region can be confirmed by defined demographic and economic process chains. Each link of such chain can be described by a system of indicators, vector of its changes and trends. Knowing or predicting these trends, it is possible to build a conceptual model of territorial development in social and economic areas.

© 2015 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/3.0/>).

Peer-review under responsibility of Tomsk Polytechnic University.

Keywords: Demographic indicators, economic growth factors, population growth, migration, death-rate, birth rate, population ageing, working population, sickness rate, disability, development goals of the region.

1. Introduction

Demography - is one of the most important factors of economic development of Russia and its territories. In general, the UN predicts a downward trend in the Russian population dynamics is likely to continue until 2100. (World Population Prospects 2011) However, this prediction did not amount to all territories of the Russian Federation. For example, the demographic situation in the Tomsk region, starting in 2007, characterized by an increase in population, and the natural population growth rate is observed in the region since 2009. By the beginning of 2014 the resident population of the Tomsk region totaled 1,070.1 thousand people, which is more than the number at the beginning of 2007 by 3.4% (See. Figure 1).

2. Review of related research

Features of the demographic development of the Tomsk region and the effects of some factors expressed in the regional economy can be described through the processes stated below.

1. The urban population in the beginning of 2013 was 765.7 thousand people (71.6%), the rural population – 304.4 thousand people (28.4%) (Data of Tomskstat, 2014). Characteristic of migration in the Tomsk region is the growth of urban population and a steady decline in rural areas. As a result of stable migration outflow, the village loses mainly working-age population. The predominant reasons for the outflow of the working population from the rural areas are education and structural unemployment, associated with a lack of work in the specialty. Thus, in rural

Nikulina I.E. Tel.: 8 (382-2)50-36-99 E-mail address: nie@tpu.ru
Khomenko I.V. Tel.: 8(382-2) 50-01-62 E-mail address: xiv@tpu.ru

areas migratory movement contributes to the deterioration of the demographic status, decline in business activity and as a result leads to a decrease in the index of agricultural production in all categories of farms. The actual value of this indicator in 2013 in relation to the planned was 96.9%. Profitability of agricultural enterprises has fallen down to 5%.

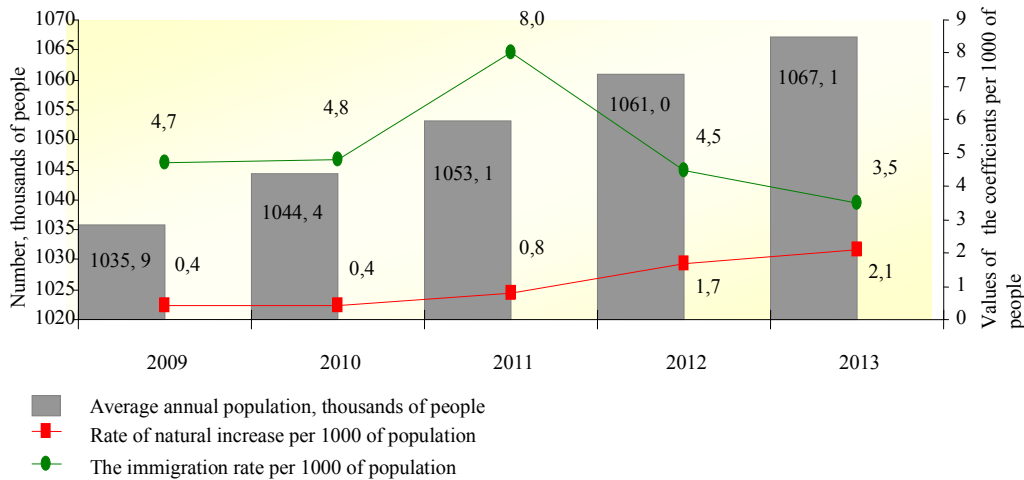


Fig. 1 Population Dynamics in the Tomsk region (Source: Evaluation of the Department of economics of the Tomsk region administration).

2. Decline in the share of the working population is typical for the region as a whole. It is explained by the growing proportion of the population above working age due to increased life expectancy and the growing proportion of young people in connection with an increase in the birth rate (Table. 1).

Table 1. The structure of the working population of the Tomsk region

| The structure of the working population | 01.01.2007 | 01.01.2013 |
|---|------------|------------|
| Total population (%) | 100.0 | 100.0 |
| including population: | | |
| under working age | 15.8 | 17.3 |
| working age | 66.4 | 62.2 |
| above working age | 17.8 | 20.5 |

One result of this reformatting structure was reduction of the number of small businesses in 2013, according to Tomskstat to 77.8% compared to 2012.

3. In 2013, according to Tomskstat 14 701 people were born, which is 300 children (2.1%) more than in 2012. The birth rate was 13.8 per 1,000 of population against 13.6 in 2012. This was achieved through effective measures such as the introduction of "maternity capital", cash payments for the third child and subsequent children, the development of perinatal technologies. However, even with the positive dynamics, the current level of fertility in the region does not provide the expanded reproduction of the population and is not sufficient even for the alternation of generations. The total fertility rate, which shows the number of children that would be born per woman on average throughout her life in 2013 was 1.6. The value of the total fertility rate required for the reproduction of the population is at least 2.2. Among the regions of the Siberian Federal District Tomsk region takes 10th place in terms of fertility. The analysis showed that the nature of the birth rate in the Tomsk region is determined by: the massive proliferation of small families (1-2 children), postponement of the first birth and growth of illegitimate births. This level of fertility cannot meet the requirements of preserving the human potential of the region.

It is known that the inevitable consequence of the low birth rate is aging nation. The UN estimates that the world's average age of the population increased from 23.9 years in 1950 to 41.9 years in 2010 (World Population Prospects 2011), which will inevitably lead to various problems of economic development.

4. The natural increase in the Tomsk region is formed, in spite of the low birth rate, primarily due to lower mortality. Among the regions of the Siberian Federal District in 2013 Tomsk region had the 3rd place in the level of mortality (after the Republics of Tyva and Altai, where the mortality rate is the lowest in the SFD). The number of deaths in 2013 compared to 2012 decreased by 113 persons (0.9%) and was 12 534 people. The mortality rate in 2013 was 11.7 (2012 – 11.9). For 100 births in 2013, there were 85 deaths (2012 – 87).

Reasons for the deterioration in mortality were the disease. It should be noted "youthification of morbidity" in the Tomsk region. Increase in the disease incidence of children from 0 to 14 years from 2008 to 2012 was 17.4%. However, the disease incidence of children (15-17 years) in 2006 decreased by 32.5%. Inevitable are non-medical causes of death: 1.7 times increase in the number of deaths from accidental alcohol poisoning, the number of suicides and homicides increased by 36.6% and 52.4%, respectively, the number of deaths from accidents, poisoning and injuries increased by 3.3 %, of transport types of injury – by 11.3%. However, there is positive steady decline in infant and maternal mortality. In the Tomsk region, the infant mortality rate has decreased 2 times compared to 2000 and reached 5.6 per 1000 live births in 2013. This is the first place in the SFD and fifth in Russia.

However, one of the most pressing problems is the death rate of working age people. Annual losses of the working age population are 3.7 – 4.3 thousand people. It's more than a third of the total number of deaths. If in the short term the decline in working-age population will continue to grow, it may cause labor shortages in the labor market.

5. In the region and in Russia as a whole, there is a growing disability level of population. Disability annually appropriated to 4-5 thousand people of all ages. The main causes of disability in the adult population of the Tomsk region are diseases of the circulatory system (25.5%), malignant neoplasms (22.8%), diseases of the musculoskeletal system and connective tissue (8.3%). Considering this demographic factor, besides investing in the prevention of disability, they should actively create jobs for people with disabilities.

6. Among the acute problems of demographic development of the Tomsk region is the problem of low male life expectancy. It is largely due to the exceptionally high mortality among men of working age. Male life expectancy in 2012 was 64.5 years, women – 75.7 years. Currently, the life expectancy of men in the Tomsk region is about 15 years (women – 10 years) lower than in most developed countries. Comparison with international data shows that Tomsk region is lagging behind regions with close level of economic development and per capita income.

According to regional administration, the lowest life expectancy in the Tomsk region is due to several reasons, which include:

- lack of motivation for a healthy lifestyle and culture of safe life activities in the majority of the population;
- environmental pollution;
- lack of infrastructure for physical culture and sports, combined with the high cost of services not available to the disadvantaged population.

Extremely low male life expectancy and a huge gap in life expectancy between men and women – 11.2 years (in the most developed countries it's only 4-7 years) leads to a substantial gender deformation in the population. In the Tomsk region at the beginning of 2013 there were 1129 women for every 1000 men. Exceeding numbers of women over men were observed in all age groups above 35 years of age and are highest in the older age groups.

7. The last factor of the demographic development of the Tomsk region is a positive migration balance, which remained in the past 8 years. The reasons for the attractiveness of the region for migrant workers are:

- quality of life in the Tomsk region, exceeding the level of quality of life in the regions of previous residence of migrants;
- developed infrastructure of public organizations of national and ethnic character, which promotes the rapid adaptation of migrants to work in the region;
- availability of quality education at all levels for migrants and their children due to the operation of a leading in Russia research and educational center in Tomsk. More than a third of all nonresidents of the region indicate an education as the main reason for coming here. However, after graduation, almost three-quarters of non-resident students leave Tomsk region. It is due to the slower growth of the real economy, which limits the creation of new jobs. That is why graduates of Tomsk universities move to other more developed regions for employment.

Thus, the migration processes in the Tomsk region are closely related to the trends of economic development, labor market condition and social infrastructure availability and development.

The above demographic processes are endogenous risk factors for the economic development of Tomsk region and can lead to:

- changes in the structure of supply and demand on the labor market with the inclination towards staff shortages caused by the reduced availability of the labor force as a consequence of an aging population;
- failure to accept labor innovation by aging population;
- decline in the real economy;
- slowing down or stagnation of GDP growth per capita at constant productivity level;
- reduction of ratio of the employed population to the number of retired people, which will lead to an increase in the load on the social security and support system and increase costs of the regional budget;
- lack of qualified professionals to meet the needs of the regional economy.

3. Conclusion

According to some economists by 2017 it may require a full employment of economically active population, and then increase of the number of employees by means of economically inactive population and migrant workers (Zuev V.E., 2013) Assuming unchanged trends in demographic development and the impact of this situation on the dynamics of the regional economy, we may suggest the example of the policy of social and economic development goals for the upcoming years (Fig. 2)

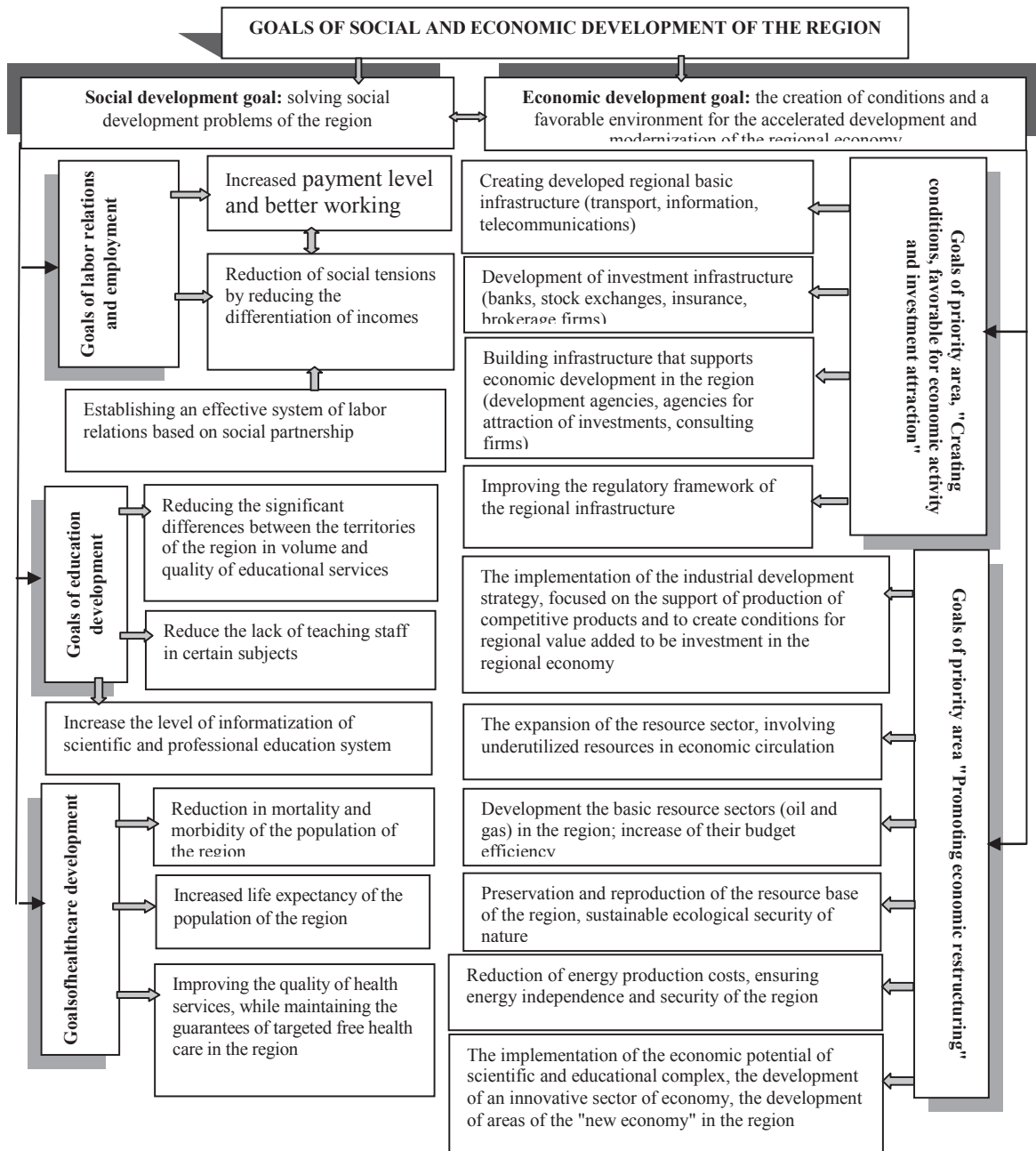


Fig. 2 Strategic goals of socio-economic development of the region

References

- World Population Prospects. *The 2010 Revision* / UN. 2011.
- Data of Tomskstat: *Regional office of the Federal State Statistics Service of the Tomsk region*, 2014
- Zuev V.E. (2013) Factors of economic development and structural reform in Russia, *Problems of Economics*. No5, pp. 56 -72.