

# Cross-border interaction and regional sustainability

I Kolchurina<sup>1</sup>, E Ivanova<sup>1</sup> and V Shipunova<sup>1\*</sup>

<sup>1</sup> Siberian State Industrial University, 42 Kirova str, Novokuznetsk 654006 Russia

E-mail: shipunovav@yandex.ru

**Abstract.** The paper presents analytical results the development dynamics of the border regions of the Siberian Federal District (Russia). It also focuses on the dependence of this dynamics on the cross-border interaction of territories and analyzes those factors that prevent these cross-border regions from strengthening their interaction in improving territorial sustainability.

**Keywords:** cross-border region, cross-border interaction, development, sustainable development, socio-economic indicators

## 1. Introduction

In recent years, the growing interest in the problems of regional sustainable development is due to the proliferation of a strategic approach in planning the development of territories and the need to increase their competitiveness, ensuring positive socio-economic changes in the country in general.

The rapidly progressing processes of globalization and blurring the boundaries of the national economy create certain conditions for cross-border cooperation, providing certain advantages to the border (especially peripheral) regions. Among such advantages, we would like to not the following: development intensification through integration processes at the external borders of states; formation of cross-border strategic alliances to attract funding, investment, and strengthen political power; improvement of various spheres of public life through implementing large-scale projects, the expansion of ties and the involvement of a large number of actors [5, 6].

At the same time, the question of considering transboundary interaction as an effective tool for the rational use of resources of a single territory and raising the living standards of the population remains quite controversial. In this regard, the purpose of this paper is to study certain trends in the territorial development of Western Siberia, which are included in the cross-border Russian-Kazakh region, as well as to identify factors hindering the use of the advantages of cross-border cooperation to ensure the sustainable development of the territories under consideration. Subsequently, this fact will allow developing a specific system of measures for transforming the identified factors in the right direction.

## 2. Materials and Methods

The solution of the designated purpose was provided by using a system of scientific methods, including economic analysis, synthesis, comparisons, abstraction, system, situational, and correlation analysis.

A number of excellent theoretical sources on sustainability of national economies and territorial systems served as a methodological basis of our research, namely we relied on the following authors: L. Abalkin, A. Gaponenko, A. Ivolga, A. Chaplitskaya and others. Also, we used the following works

in the field of research on the nature and specific trends of cross-border regions: N. Vegeland, J. Hackley, A. Casvio, K. Mrikaev, G. Fedorov, V. Korneevets, and others.

### 3. Results

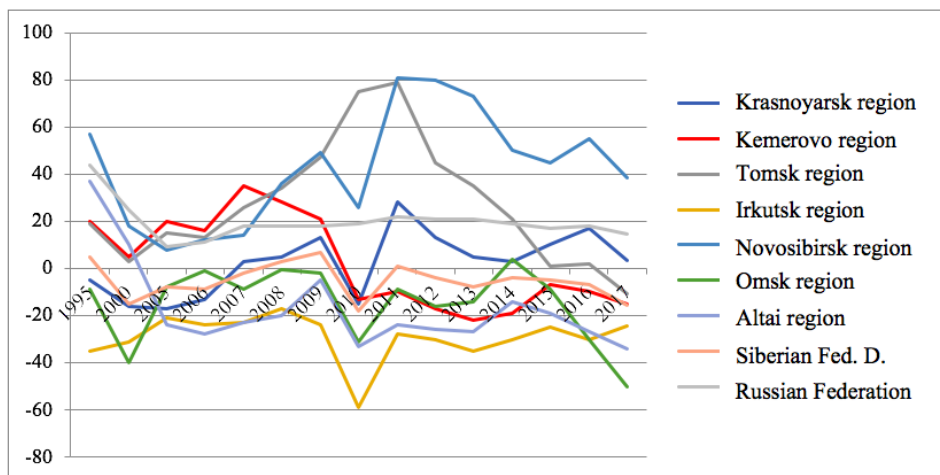
Russia's strategic priorities aimed at shaping a modern innovative economy integrated into the Euro-Asian economic space determine the very special role of Siberia. Its special role is determined by its geographical location, significant production, scientific, technical, personnel and educational potential, and its ability to provide unique natural resources.

To analyze the impact of cross-border interaction on sustainability of development of the border regions of the Siberian Federal District (SFD), subjects with similar operating conditions were selected. Thus, the Kemerovo, Altai, Krasnoyarsk, Irkutsk, Novosibirsk, Omsk, and Tomsk regions were among the regions under consideration. Basically, these regions have a high population density (more than 10 people / sq. km, except for the Krasnoyarsk region, in which the population density is 1.2 people / sq. km, and 3.1 people / sq. km in the Irkutsk region), significant industrial specialization (except for the Altai region), a higher level of infrastructure development (investment in fixed assets in the economy and the social sphere of more than 75 billion rubles), and income levels of the consolidated budget (more than 65 million rubles) [1].

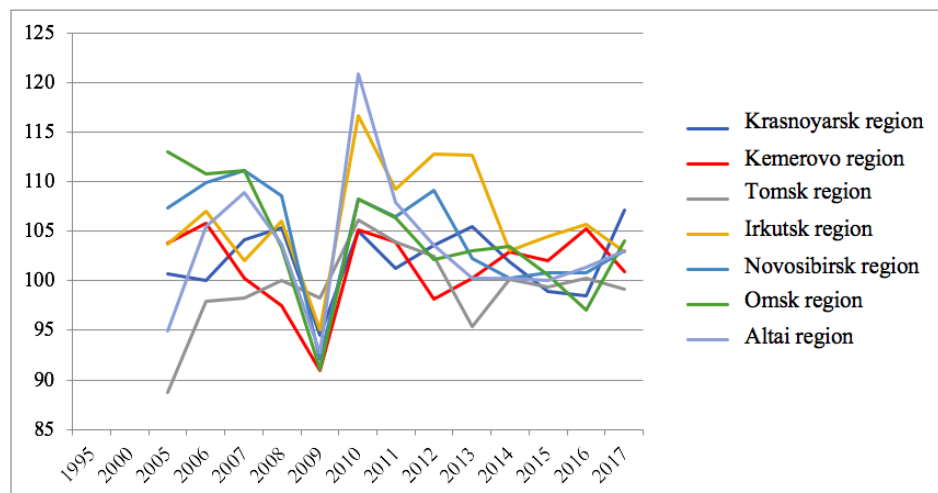
Among the considered regions of the Siberian Federal District, the Omsk, Novosibirsk, Altai regions belong to the border regions (with Kazakhstan). Currently, 37% of the population of the Siberian Federal District (or 5% of the population of Russia) live in these border regions. The authors compared the main socio-economic indicators in the border regions, and also compared them with similar indicators of the territories of the Siberian Federal District that are not included in the cross-border region.

The results of a comparative analysis of the main socio-economic indicators reflect the following patterns:

1. Despite the general insignificant but steady tendency of population growth in the Siberian Federal District, this territory is very heterogeneous in the regional context. Since 2010, there has been an increase in population in the Tomsk, Novosibirsk, and Krasnoyarsk regions. There is a decrease due to a drop in the birth rate, an increase in mortality, and a decrease in life expectancy in the Kemerovo, Omsk, Irkutsk, and Altai regions.
2. The Novosibirsk region shows a positive and highest migration increase (38.3 per 10,000 people) among other regions of the Siberian Federal District. While in two other border regions, this indicator is negative (at the same time, the worst result among the regions under consideration is in the Omsk Region) (Figure 1). The largest among other regions is the share (about 25%) of migrants from outside the Russian Federation (mainly from neighboring countries, mainly from Kazakhstan) in the Novosibirsk region.
3. The regions under consideration have a positive and symmetrical dynamics of GRP per capita, which is typical both for border regions and "internal" regions of the Siberian Federal District. However, border regions have lower values of this indicator. At the same time, the industrial production index has asymmetric and asynchronous dynamics in the border regions since 2010 (Figure 2).
4. And in terms of innovation activity, the border regions demonstrate asynchronous and asymmetric dynamics. Moreover, it is worth noting that, the proportion of organizations implementing technological, organizational, marketing innovations was maximum and amounted to 12.4%, in the total number of organizations in the Altai region in 2010, then the proportion was only 7.6% in the same period (the third place on this indicator in the Siberian Federal District) in the Novosibirsk and Omsk regions.



**Figure 1.** Dynamics of migration growth rates in the regions of the Siberian Federal District, per 10,000 people. *Source:* Compiled by the authors using [1, 2].



**Figure 2.** Industrial production index as a percentage of the corresponding period of the previous year. *Source:* Compiled by the authors using [1, 2].

5. In terms of the balanced financial result of enterprises and organizations, the border regions occupied only 4th, 6th, and 7th places among the seven regions in 2017. In the amount of investment in fixed assets in the whole economy, they have 4th, 5th, and 7th places (the best result has the Novosibirsk region, the worst performance is by the Altai region). At the same time, from 1995 to 2017, the dynamics of this indicator is almost symmetrical in the border regions under consideration. Border regions demonstrate the worst results in terms of investment per capita (5-7 places): 51,788 rubles/person in the Novosibirsk region, 44,596 rubles/person in the Omsk region and 31,745 rubles/person in the Altai Region against 72,721 rubles/person on average in the Siberian Federal District and 99,812 rubles/person on average in Russia [3].
6. The statistical analysis carried out using paired correlation coefficients made it possible to detect a close direct relationship between the indicators of the Altai region and the Novosibirsk Region (in particular, consumer spending per capita, per capita income, public debt service, tax revenues payed to the budget, unemployment rate, and others). At the same time, communication in the dynamics of such indicators as the time needed to find a job and the production index of the Altai and the Omsk regions is rather weak.

A. A. Chub [4] presented a definition according to which cross-border regions are a kind of artificial formation based on real-life and existing economic ties or economic conditions created “from above” to ensure sustainable socio-economic development of a country corresponding to world trends. Based on this definition, we note that the links and dependencies between the subjects of different countries of the Russian-Kazakh transboundary area and their performance indicators identified by the authors are not closer than the links and dependencies of each analyzed cross-border region with other similar subjects.

#### **4. Discussion**

The research conducted clearly shows that Russia and Kazakhstan have the potential for mutual development (natural resources, a developed infrastructure base, qualified labor resources). Being large exporters of natural resources, they have significant means to maintain a decent standard of living in the event of a favorable economic situation on the world markets for raw materials and energy. However, the considered transboundary cooperation did not significantly affect the socio-economic indicators of the border areas of the Siberian Federal District and did not particularly contribute to ensuring the sustainability of their development. There are several reasons for this:

- Predominance of products with low added value in trade in this transboundary region (rolled ferrous metals, ferroalloys, iron ore concentrate, etc.). This fact makes this cooperation dependent on the world markets and poses a threat to the national security of both Russia and Kazakhstan;
- Authorities fearing the possibility of transforming cross-border regions into independent entities with respect to national economies, with cross-border regions being the key structural elements;
- Low initiative, weak development of territorial self-government with a high level of dependence on a rigid centralized management system, as well as differences in tax and customs regulations.

The absence of a significant positive impact of cross-border relations on the sustainable development of territories within a cross-border region is primarily due to the fact that the considered border regions of the Siberian Federal District have an insufficient number and low density of border crossings, a low level of engineering infrastructure (like many other Russian border regions). Therefore, most likely, they are not a factor in the development of cross-border interaction, but a certain obstacle to the active integration of Russia into the transnational economy. In addition, modern Russian conditions are such that cross-border cooperation is influenced by multidirectional vectors. On the one hand, one vector is Russia's desire to open (expand) the external borders of trade. On the other hand, this is a strong desire to preserve the integrity of the domestic economic space by strengthening external borders, to prevent external relations from dominating over domestic economic relations.

The processes of self-organization of the Russian-Kazakh transboundary region and the production of a positive impact on the sustainability of the development of territories are an extremely complex phenomenon requiring the adaptation of demographic, political, social, cultural, and other factors. Without any doubt, it so happened historically that the state plays a leading role in the organization of Russian territories.

In this regard, the development of a qualitatively new, in the form of organization and content, single intergovernmental regional economic space that contributes to sustainability development of border areas requires the following: (1) revitalizing the work of bilateral and multilateral government commissions regulating exclusive rights and powers of regional authorities; (2) improving the regulatory framework; (3) establishing and implementing a mechanism to rationalize the cross-border interaction of business entities and elements of the system of management of regional development.

At the same time, the system of indicators on sustainability of regional development, taking into account the influence of integration processes and cross-border interaction, requires further research to quickly identify problems in a particular area and assess the quality of such changes.

## 5. Conclusion

In sum, we should note that to ensure sustainable development of cross-border regions and their bordering areas, further work is necessary (including with active state assistance) to improve the formation and implementation of the strategy of cross-border cooperation. Among other things, the strategy envisages implementation of projects related to expanding the range of marketable products, organizing new types of products with high added value, and ensuring resource saving.

## References

- [1] Rosstat 2017 *Russian regions: Main characteristics of Russian Federation regions in 2017* Available at: [http://www.gks.ru/free\\_doc/doc\\_2017/region/reg\\_sub17.pdf](http://www.gks.ru/free_doc/doc_2017/region/reg_sub17.pdf) (Accessed 19 03 2019)
- [2] Rosstat 2005 *Russian regions: Social-economic indicators in 2005* Available at: [http://www.gks.ru/bgd/regl/B05\\_14p/Main.htm](http://www.gks.ru/bgd/regl/B05_14p/Main.htm) (Accessed 19 03 2019)
- [3] Ivanova E V, Efremkova T I, Shipuniva V V, and Sabanova L N 2019 Problems and prospects of digitalization of the Kemerovo region economy *Regional Economy and Management: Electronic Scientific Journal* **1**(57) Available at: <https://eee-region.ru/article/5706/>
- [4] Chub A A 2011 Creation transboundary regions in Russian Federation *Regional Economy: Theory and Practice* **25**(208) pp 27-34
- [5] Bogoviz A V, and Elykomov V A 2019 Algorithm of the work of the system of emergency medical aid and services on the basis of the internet of things *Studies in Computational Intelligence* **826** pp 901-907
- [6] Bogoviz A V, Gulyaeva T I, Semenova E I, Lobova S V 2019 Transformation changes in the system of professional competences of a modern specialists in the conditions of knowledge economy's formation and the innovational approach to training *Studies in Systems, Decision and Control* **169** pp 193-200