

## Territorial Gradients of Socioeconomic Development of Russia's Borderland

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Received April 26, 2018; revised September 12, 2018; accepted October 4, 2018

**Abstract**—Socioeconomic differences in different parts of Russia's borderland are analyzed. Based on a compiled database of statistical indicators for 2000–2016 characterizing demographic, economic, and social development, as well as external economic ties of Russia's border regions and neighboring countries, the territorial gradients on both sides of the Russian border are assessed on a comparative basis. An increase in differences in the demographic potential has been identified in the Russian–Chinese and Russian–Kazakhstan regions. In the post-Soviet borderland, a growing inward turn of the borderline economies for the respective countries and an increasing marginality of border zones have been identified, which hinders interaction and cooperation. It has been established that the largest gradients in the level of economic development are observed at the old borders in the European part of the country inherited from the former Soviet Union. With an analysis of the economic and trade relations between the border regions of Russia and neighboring EU countries, as well as China, it has been shown that the larger the gap between their demographic and socioeconomic indicators, the higher the probability of unequal economic relations.

**Keywords:** borders, Russia's borderland, economic potential, socioeconomic contrasts, cross-border comparisons

**DOI:** 10.1134/S2079970519010118

### FORMULATION OF THE PROBLEM

To a certain extent, political borders not only correspond to spatial differentiation, but also favor it by forming differences between people and social systems on opposite sides of the border [6, 28, 30]. The territorial contrasts and structural features of the economy of border regions are often predetermined by the existing cross-border ties and development prospects for various forms of economic interaction.

Contrasts in the level of development can be a considerable bar to successful cross-border cooperation and a threat to the security of Russian regions [14]. Strong cross-border gradients often generate asymmetry in interactions and outbreaks of suspicion in relations between neighboring countries. The larger the gap in demographic and socioeconomic indicators between neighboring countries and regions, the less their interest in cooperation and the higher the risk of losses for one of the partners due to unequal economic relations [10]. Under the existing differences in the

indicators of economic effectiveness, standard of living, welfare, and level of civil society, it is difficult to create conditions for equal partnership and even more difficult to realize it [4].

However, in some cases, socioeconomic differences between neighboring borderland territories (population density, presence of large cities and traffic arteries, character and structure of the economy, and price relations) have a positive effect, allowing their residents to better satisfy their consumer needs, purchase higher quality services, or, vice versa, widen the internal market owing to bordering countries [21]. In addition, certain gradients can prompt more intensive cross-border exchange, improving production culture and consumer standards and changing the lifestyle.

Study of neighborhood problems by assessing differences in the level of development of border regions and bordering territories of neighboring countries makes it possible, on the one hand, to analyze the processes taking place in their economies and society and,

on the other, to estimate the prospects of bilateral interactions.

In global practice, an upsurge of such studies occurred in the early 2000s, when special attention was devoted to studying contrasts at the external borders of the EU. Such studies of differences in the level of socioeconomic development were carried out for the borderlands between Germany and Poland and Austria and Hungary [23, 24, 31]. A considerable number of the studies analyzed disproportions at the US–Mexico border as well [29].

Owing to the colossal length of their land borders (22 293 km after the inclusion of Crimea into Russia), Russian regions are bordered by territories that significantly differ in the level of socioeconomic development. Each pair of borders demonstrates their own characteristic features how the economy and society are organized on both sides—settlement pattern, communication systems, level of economic development, etc. Although these differences are often stable, some of their elements may vary owing not only to the non-uniformity and character of the socioeconomic dynamics of neighboring countries and regions, but also to current foreign political processes and events (military conflicts, sanctions, trade wars, etc.).

The aim of this article is to identify and evaluate cross-border gradients and contrasts between neighboring territories by comparing the main demographic and socioeconomic indicators of Russian and foreign regions, as well as to reveal and assess the trends in borderland development that directly affect the dynamics and potential of cross-border relations.

In terms of information, this study relies on the statistical database compiled by the authors, which provides objectivized information on all segments of Russia's border for 2000–2016 and, in some cases, in a deeper retrospect. It includes 65 indicators, reflecting the features of demographic, social, and economic development; external economic ties; and investment attractiveness of all border regions on both sides of Russia's border. In 2016, preliminary statistical information about Crimean districts and cities was included in the database. All the indicators were reduced to a comparable form taking into account the purchasing power parity (PPP) in accordance with the changes of 2016 introduced by the World Bank and the exchange rate. In creating the database, many methodological problems were solved that deal with disparities and changes in statistical collection methods. Calculations using the compiled data made it possible to compare at the regional level the cross-border gradients in terms of demographic and economic indicators and standards of living and to determine the specifics of emerging challenges.

## SETTLEMENT PATTERN AND THE PROBLEM OF DEPOPULATION AND MIGRATION

The border regions of Russia and neighboring states considerably differ in population size (Table 1). For example, the population of Russian regions bordering with Belarus is smaller than in the neighboring Belarusian oblasts by 850 000 people. The population of Kaliningrad oblast is 3.5 times smaller than in the two bordering Polish voivodeships. The starkest contrast in population size and density is observed in the Russian–Chinese segment, where the population on the Chinese side exceeds that on the Russian by 100 mln people.

In population density indicators, the existing gradients mostly disfavor the Russian Federation. In the western and southwestern areas, the border regions of neighboring countries, with few exceptions, have a higher population density and economic development levels. Even Leningrad oblast has a nearly two times smaller population density than the county of Ida-Viru, an old industrial area in Estonia. Despite the fact that the Caucasus is densely populated, the borderland here consists of hard-to-reach, thinly populated mountainous areas. Farther eastward, the border runs south of the main settlement pattern zone of the former Soviet Union, crossing the Volga, Southern Ural, and South Siberian steppes. In this segment of the border, on the contrary, Russia's regions are more densely populated than those of Kazakhstan, where settlement pattern is patchy [20].

The situation at the Russian–Chinese border is different. Even Heilongjiang Province, which is not very densely populated by Chinese standards, surpasses this indicator by 7.5 times for Primorskii krai, the most developed region of the Russian Far East, and more than 40 times for Amur oblast. Nevertheless, China's demographic pressure on Russia's borderland is less significant than meets the eye. Settlement pattern in the China's borderland, just like on the Russian side, is patchy, with considerable thinly populated spaces.

The border zone of Russian regions is mostly characterized by a relatively stable demographic situation, tending toward a decrease in population as a result of natural decrease and migration outflow (Fig. 1). For 2000–2015, statistics recorded a population increase by 370 000 people in Russia's borderland. Official data on population increase/decrease processes vary significantly. The regions near the northwestern and western segments of the Russian border (Murmansk, Pskov, Smolensk, Bryansk, and Kursk oblasts and the Republic of Karelia) predominantly lose population, with a decrease of over 10%. A similar situation is observed in Eastern Siberia and the Far East (Zabai-kalskii, Khabarovsk and Primorskii kraes, Amur oblast, and the Jewish Autonomous Oblast).

An opposite trend is characteristic of the Caucasian segment of the border, where the population increases

**Table 1.** Population dynamics in border federal subjects and regions of neighboring states (NS) by sectors of Russia's borderland, 2000–2015

| Sector of Russia's borderland | Population size of first-order border administrative units, mln people |        |                                                       |                                 |                               |              |
|-------------------------------|------------------------------------------------------------------------|--------|-------------------------------------------------------|---------------------------------|-------------------------------|--------------|
|                               | 2000                                                                   |        | 2016                                                  |                                 | 2000–2015                     |              |
|                               | Russia                                                                 | NS     | Russia                                                | NS                              | Russia                        | NS           |
| Norwegian                     | 0.94                                                                   | 0.07   | 0.76                                                  | 0.08                            | −0.18                         | +0.01        |
| Finnish                       | 3.36<br>(8.11) <sup>1</sup>                                            | 1.15   | 3.17<br>(8.40) <sup>1</sup>                           | 1.14                            | −0.19<br>(+0.29) <sup>1</sup> | −0.01        |
| Estonian                      | 2.48                                                                   | 0.45   | 2.43                                                  | 0.39                            | −0.05                         | −0.06        |
| Latvian                       | 0.79                                                                   | 0.64   | 0.65                                                  | 0.47                            | −0.14                         | −0.17        |
| Lithuanian                    | 0.96                                                                   | 0.71   | 0.98                                                  | 0.57                            | +0.02                         | −0.14        |
| Polish                        | 0.96                                                                   | 3.59   | 0.98                                                  | 3.74                            | +0.02                         | +0.15        |
| Belarusian                    | 3.32                                                                   | 4.11   | 2.83                                                  | 3.68                            | −0.49                         | −0.43        |
| Ukrainian <sup>2</sup>        | 11.10                                                                  | 13.14  | 12.79<br>(10.46)                                      | 12.40<br>(11.35)                | −<br>(−0.64)                  | −<br>(−0.74) |
| Abkhazian                     | 5.13                                                                   | 0.20   | 5.51                                                  | 0.24                            | +0.38                         | +0.04        |
| Georgian                      | 5.90                                                                   | 1.36   | 6.92                                                  | 1.04                            | +1.02                         | −0.34        |
| South Ossetian                | 0.69                                                                   | 0.05   | 0.70                                                  | 0.05                            | +0.01                         | 0            |
| Azerbaijani <sup>3</sup>      | 2.44                                                                   | 8.03   | 3.02                                                  | 9.70                            | +0.58                         | +1.67        |
| Kazakhstan                    | 25.79                                                                  | 5.73   | 24.40                                                 | 4.27                            | −1.39                         | −1.46        |
| Mongolian <sup>3</sup>        | 2.80                                                                   | 2.40   | 2.60                                                  | 3.06                            | −0.2                          | +0.66        |
| Chinese                       | 6.33                                                                   | 107.18 | 5.53                                                  | 113.73                          | −0.8                          | +6.55        |
| North Korean                  | 2.17                                                                   | 22.89  | 1.92                                                  | 24.45                           | −0.25                         | +1.56        |
| Total                         | 61.62<br>(66.36) <sup>1</sup>                                          | 171.7  | 61.99<br>(67.22) <sup>1</sup><br>(59.67) <sup>2</sup> | 179.01<br>(177.96) <sup>2</sup> | +0.37                         | +7.31        |

Source: [19].

<sup>1</sup> Including St. Petersburg.<sup>2</sup> For 2000: Russian regions: Bryansk, Kursk, Belgorod, Voronezh, and Rostov oblasts; Ukrainian regions: Chernihiv, Sumy, Kharkiv, Luhansk, and Donetsk oblasts. For 2016: the same Russian regions, plus the Republic of Crimea and city of Sevastopol; in brackets, without Crimea and Sevastopol; the same Ukrainian regions, plus Kherson oblast; in brackets, without Kherson oblast.<sup>3</sup> The data for Azerbaijan and Mongolia are given in the national context.

in all the regions, from 5.5% in Krasnodar krai to 36.8% in Dagestan and 78.9% in the Chechen Republic. In addition to the North Caucasus, an increase in population was observed in (1) export-oriented Russian regions economically attractive to migrants: Tyumen (without the autonomous districts), Chelyabinsk, and Belgorod oblasts; (2) regions with large urban agglomerations as their centers (Leningrad and Novosibirsk oblasts); and (3) republics in the country's east: Tyva, Altai, and Buryatia. In the latter case, high natural population increase, not migration, played a key role.

In the same period, the population of the border regions of neighboring states increased by 7.3 mln people, to 179 mln, with 90% of this increase falling to border provinces of China and Mongolia. In this segment, the depopulating Russian regions of Siberia

(Zabaikalskii krai) and the Far East are bordered by Mongolian *aimags* and Chinese provinces with their traditionally stable population growth rates. Significant are also the differences in dynamics between the depopulating Volga regions (Volgograd, Samara, Saratov, and Orenburg oblasts) and the oil-and-gas regions of West and North Kazakhstan (Atyrau, West Kazakhstan, and Aktyubinsk oblasts), where a considerable population increase is observed. The Chernihiv policy of the Kazakhstan government was to resettle both *Oralmans* (repatriates) and residents of the country's southern regions with excessive labor supply to its northern and western parts.

Population decrease is characteristic of Russia's western neighbors. For example, the population decrease in Latgale was twice as rapid as in Latvia on the average. A similar pattern is observed in Belarus,



**Fig. 1.** Components of changes in population size of regions of Russia's borderland in 2015. Figure constructed by A.A. Medvedev.

where in 2000–2014 the population of three oblasts bordering with Russia decreased by 10% (the country's average makes up 5.3%), as well as in Ukraine (12.5 and 7.9%, respectively). These processes are the result of not only the demographic crisis, which is experienced by many post-Soviet countries, but also of the growing marginality of the economies of border regions [15].

Therefore, the demographic challenges to Russia's borderland are depopulation, supplanting of the population of peripheral border territories by migrants, and the inequality of the demographic potential of bordering regions. Many of the border regions of Russia and neighboring countries lose population at higher rates than a country's average. A common trend is observed both at the national level and in border regions when the population gathers in economically favorable cities and regions of respective states: from rural localities to small cities, from small cities to large centers and their suburbs with a developed labor market, and from economically depressed regions to developed ones. Note that individual segments of the borderland (Russian–Chinese, Russian–Kazakhstan) see a growing gap in the demographic potential of the neighboring territories. Under such conditions, cross-border interactions inevitably become asymmetrical: the highest benefits go to the economically strongest side.

#### VALUE AND EXTENT OF COHESION OF ECONOMIES

The character of economic cooperation in every borderland segment considerably depends on the features of the border regions, the volume and structure of their economy, the standard of living, and the economic value for the respective state.

In 2013, the aggregate GRP of the regions on both sides of Russia's border, calculated from the PPP of the national currencies, was USD 2 810.3 bn. A country with such a GDP could be eighth in economy rating after Russia and Brazil. The colossal economic potential of Russia's borderland hypothetically opens great opportunities for cooperation; a substantial obstacle, however, is the spatial nonuniformity of development and the marginality of many border regions with respect to the country's main economic centers. As a result, most border regions on both sides have rather low per capita GRP indicators with respect to the countries' averages (Fig. 2). The exception is resource regions that produce the most liquid raw materials, primarily oil and gas: Finnmark in Norway, Atyrau in Kazakhstan, etc. High per capita GRP indicators are also observed in some old industrial regions (e.g., until recently, Donetsk, Luhansk, and Kharkiv oblasts in Ukraine) and in regions situated near political and economic capitals (Leningrad oblast) [13].

Many of these regions substantially surpass the average per capita GRP indicators of their countries.

The economic marginality and noticeable gradients in the level of development are particularly visible on the old borders in the European part of the country inherited from the Soviet Union. Despite the relatively small contribution of the border regions of the neighboring EU countries to their national economies (within 10–15% of the GDP), their living standards and economic effectiveness significantly surpass the respective indicators for Russia (in some areas, by five to seven times).

Leningrad oblast lags behind the neighboring regions of Finland, which are not among the most developed areas of the latter country (Fig. 3a). The differences in the per capita GRP between the Republic of Karelia and Murmansk oblast, on the one hand, and the border regions of Norway and Finland, on the other, reach three times or more. The gap in GRP at the border between Pskov oblast and its Baltic neighbors (Estonia and Latvia) is almost as large [12].

In the Siberian and Far Eastern areas of the Russian border, the gradients for some indicators favor Russia so far. Zabaikalskii krai surpasses Mongolian aimags in per capita GRP approximately by two times. The differences between Amur oblast and Khabarovsk and Primorskii kraes, on the one hand, and the two neighboring Chinese provinces, on the other, are 1.5–2 times in favor of the Russian regions (Fig. 3b). However, the depressed and poorly developed, by local standards, Chinese provinces are rapidly catching up with Russia's Far Eastern regions by per capita GRP and already substantially surpass them in industrial and agricultural production per capita [3].

In the new Russian borderland, the situation is different. Most regions bordering with Russia here contribute a great deal to their national economies. This primarily concerns Kazakhstan, where the share of the border areas in the GDP is nearly 40% (as of 2014), Ukraine (24.3%), Belarus (27.5%), Estonia (21.3%), and Georgia (about 30%). At the borders with these countries, socioeconomic gradients are less visible, but here, too, they are not always in favor of Russia.

In 2015, after devaluation of the ruble and fall in oil prices, the gap in many borderland segments increased. For example, in 2015, at the Russian–Kazakhstan border, only Tyumen oblast (without autonomous okrugs) still surpassed North Kazakhstan oblast in per capita GRP (by 1.6 times). The rest yielded in the per capita GRP level to their thinly populated Kazakhstan neighbors by 1.3–1.8 times. The Russian–Belarusian borderland were characterized by less noticeable differences, where per capita GRP indicators in 2015 were comparable, slightly in favor of the Belarusian oblasts (Fig. 3c). Opposite gradients developed at the Russian–Ukrainian border, as well as in the Caucasus. Even the least economically developed regions of the

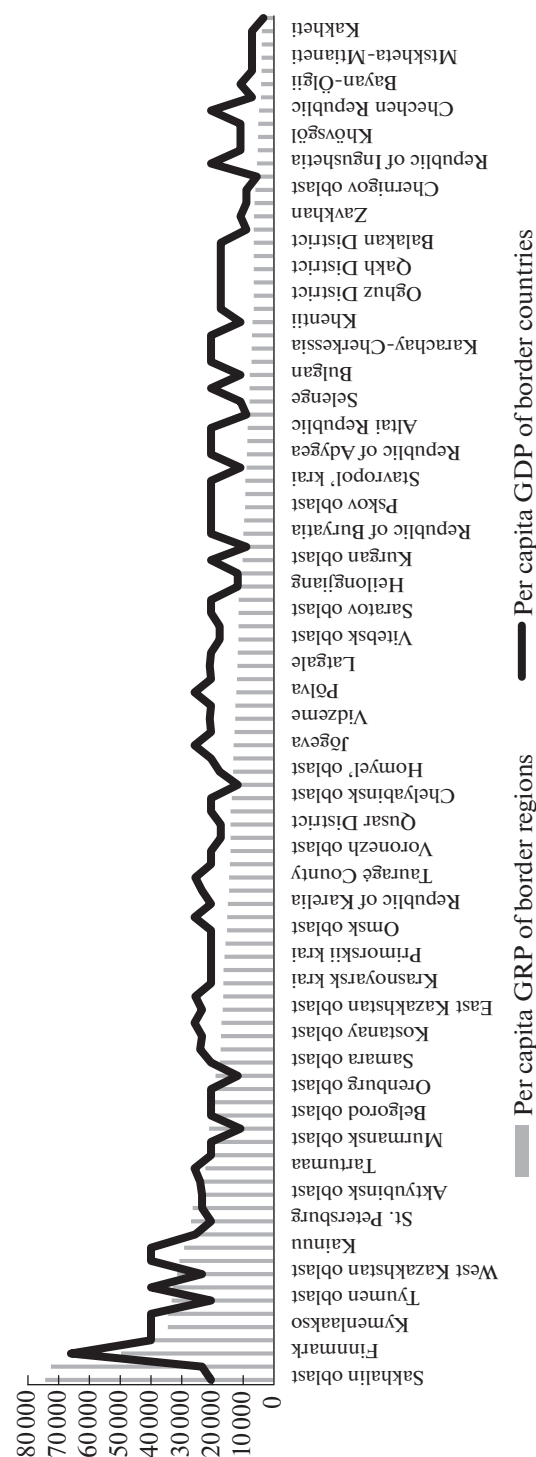
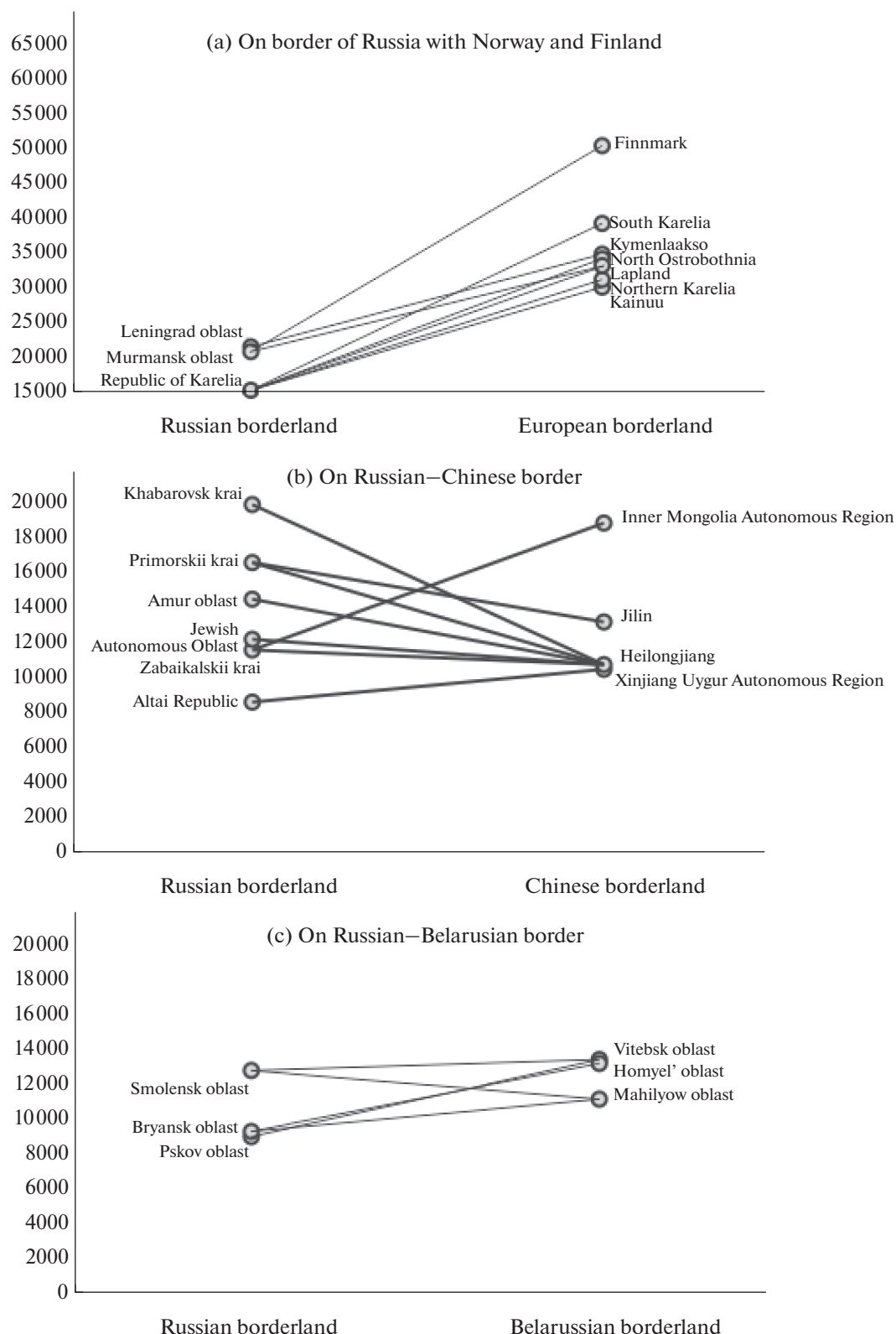


Fig. 2. Relation of per capita GRP in border regions of Russia and its neighbors and average indicators of each country, 2013 (USD by PPP).



**Fig. 3.** Gradients of PPP-adjusted per capita GRP indicators between border regions of Russian Federation and its neighboring countries, 2013, USD.

North Caucasus surpass the neighboring regions of Georgia by 1.5–2.5 times in terms of per capita GRP and by 5–7 times in the industrial production.

The key trend in the vast zone of border regions is a large-scale decrease in the industrial production, which has led to simplification of its sectoral structure, as well as to growth in the share of services on both sides of the border. This trend primarily affected post-Soviet countries; at the same time, it was evidence of the traditional means of survival under the socioeconomic and political transformations and the collapse of production ties rather than of innovative postindustrial development. Such a tilt to services, which manifests itself as hypertrophy of traditional sectors of the tertiary industry, primarily retail, was observed in many regions in southwestern Russia and in the South and North Caucasus.

In the western area of the border, the industrial structure of the economy was primarily preserved in Belarusian border regions, the industry of which is oriented toward the Russian market, and Kursk and Belgorod oblasts, which combine raw-material orientation (iron ore mining and the production of iron-ore concentrate) with processing industries—ferrous metallurgy, the food industry, and power engineering [13]. Noteworthy are qualitative shifts in the economies of Leningrad and Kaliningrad oblasts caused by the appearance of new enterprises.

Despite the disintegrating processes, which have significantly strengthened over the recent post-Soviet years, the new Russian borderland still has the highest potential to develop cross-border production ties inherited from the Soviet period. For example, of special importance for the Russian–Kazakhstan border is cooperation in oil and gas transportation and processing, electric power and coal supplies [15]. Until recently, almost 50% of raw materials for petroleum refining processes came from Russia [11]. In the Russian–Belarusian and Russian–Ukrainian segments of the border, cooperation in agricultural and heavy machinery industry is historically the best developed [1]. However, after the crisis of 2014, such opportunities on the Russian–Ukrainian border ceased.

The Russian–Chinese borderland was characterized by oppositely directed processes: a decline in industrial production in the Russian Far East and its growth in China's northeastern provinces [7]. Industry in these Chinese regions produces from 40 to 56% of their GRP. Today they surpass their Russian neighbors by two to three times in industrial production. Note that their industrialization continues, which will increase the gradients.

A characteristic feature of the entire Russian borderland is the relatively small number of agrarian and agrarian–service regions. At present, only the border regions of Mongolia and South Caucasian countries and some districts of republics of the Russian North Caucasus and Southern Siberia may qualify as such.

At the same time, the agrarian or agrarian–service character of the borderland economy often does not mean a high level of agricultural production and a noticeable participation of the regions in the interregional exchange of products.

Considering the low rate of investment in the economy of most regions in both Russia and neighboring countries, one can hardly expect noticeable structural changes in their economy in the near future. In Russian border regions, the shifts are usually due to large investment projects. The largest investments are primarily observed in export-oriented extractive regions—Astrakhan and Tyumen oblasts (without autonomous okrugs), regions of new industrialization (Leningrad oblast), and territories covered by large-scale investment programs (Amur oblast and Khabarovsk and Krasnodar krais).

In the border regions of neighboring countries, the highest absolute and per capita indicators of investments (over USD 5000 per person annually) are primarily due to the active development of manufacturing (all regions of northeastern and western China) and the oil and gas complex (Atyrau and North Kazakhstan oblasts of Kazakhstan).

The situation at Russia's borders with EU countries and China confirms the suggestion that the larger the gap in demographic and socioeconomic indicators between neighboring countries and regions, the higher the likelihood of unequal economic relations. Cross-border interactions between Russian regions and their Norwegian, Finnish, Polish, and, to a lesser extent, Baltic neighbors are based on the “poor region—rich region” pattern [25, 26]. In the exports of Russian border subjects to EU countries, raw materials and products with low value added dominate; in imports, on the contrary, manufactured goods with high value added. In Karelia's exports, about 40% consists of round timber and lumber—products with low value added, which are supplied primarily to Finland [12]. Exports to China from Russian border regions almost exclusively consist of raw-material goods—round timber and lumber. Almost half of the exports are forestry goods, 90% being round timber [8]. As a result, the consumer markets of some Russian regions, the foreign economic ties of which are primarily oriented at a neighboring country, have proved strongly dependent on the goods imported from it. Such a situation has formed in the borderland with China [2]. In 2016, the main share (62.1%) in Chinese imports to border regions was consumer goods, machinery, and equipment, while half of the exports from Russia's border regions were mineral fuel and raw materials [16]. There are still only a few examples of industrial cooperation and ties on this part of the border. Its development is hindered, among other things, by institutional differences and legislative discrepancies.

## INEQUALITY IN THE STANDARD OF LIVING AND THE SITUATION IN THE LABOR MARKET

The asynchrony of economic processes in the border regions of Russia and neighboring countries to a significant extent determines the local population's standard of living. We can judge the living standard of Russia's border regions from data about its monetary incomes, unemployment, self-employment, purchasing power, and availability of personal motor transport.

On the one hand, socioeconomic contrasts are a factor of the population's cross-border mobility, favoring business and other initiatives at the expense of border rent and partly mitigating the existing differences. On the other hand, inequality in the standard of living and sharp social gradients cause mass frustration among border communities, who compare the situations in their own and neighboring districts [5].

Russian regions surpass their neighbors in many social indicators in the border segments with Mongolia, China, Kazakhstan, and Georgia. The Russian–Ukrainian and Russia–EU borderlands are more differentiated in the standard of living. As a rule, the border regions of Norway and Finland outdo their Russian neighbors, while Baltic regions lag. The quality of life, which primarily depends on the social security system, availability of infrastructure, quality of the environment, and services, is objectively lower in Russian border regions than in Finland [18]. In 2014, the average per capita incomes in Karelia and Leningrad and Murmansk oblast in conversion to PPP<sup>1</sup> were 3.5 times lower than in Finnmark (Norway) and almost 1.5 times lower than in neighboring Lapland (Finland) (Fig. 4). The social situation in Karelia and Murmansk oblast is aggravated by their remoteness from the main national markets, low development of the territory, and narrow industrial specialization.

The social indicators of the Baltic segment significantly vary. The most substantial differences are observed between the regions of Lithuania and Kaliningrad oblast and between Latvia and Pskov oblast (Fig. 5). The problem of employment is rather critical in almost all border regions of Lithuania, Latvia, Estonia, and Poland. For example, in 2013, in the Warmian-Masurian Voivodeship of Poland and the county of Marijampolė of Lithuania, the level of unemployment reached 21.6 and 17.2%, respectively, exceeding the country's average by 1.5–2 times [9]. In most border regions of Estonia (especially in Võrumaa), the level of unemployment is higher than in neighboring Pskov oblast. In income level, Estonian border *maakonds* are comparable with Leningrad oblast but noticeably surpass Pskov oblast [17]. However, all

social indicators in this oblast are higher than in the neighboring Latvian territories (Latgale and Vidzeme).

The regions of the Russian–Belarusian borderland overall are similar in the standard of living. In the Russian–Ukrainian borderland, Russian regions lead: the income level and car-to-population ratio is twice as high here. In 2016, the average monthly PPP-adjusted nominal salary across Russia was almost 1.5 times higher than in Ukraine (USD 931 and 696, respectively). The lower level of well-being in the Ukrainian oblasts also determines the lower (compared to the Russian border oblasts) retail turnover and smaller amounts of paid services to the population.

It is difficult to unambiguously judge the socioeconomic situation in the Caucasian segment of the border because official data only partially reflect the standard of living. Welfare here strongly depends on household plots and shadow forms of business activity [27]. Official statistical data record significant differences in personal incomes: the Russian regions surpass by their neighbors in Georgia by three to five times and in Abkhazia, South Ossetia, and Azerbaijan by two to three times.

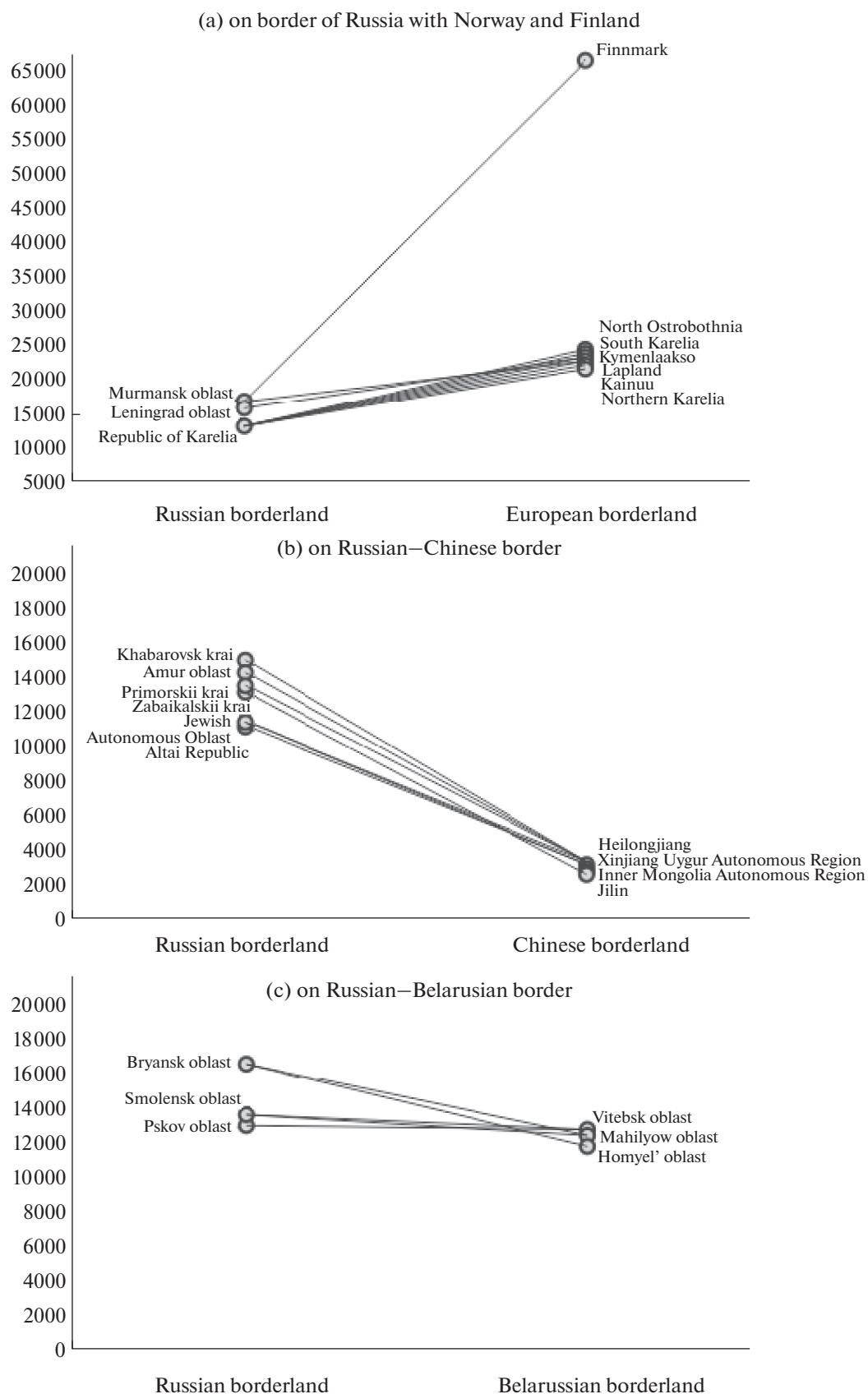
The gradients in the lengthy Russian–Kazakhstan borderland vary from segment to segment. They do not favor Russia only in the Astrakhan–Atyrau segment, where Atyrau oblast leads in both personal incomes and availability of cars. At the same time, Samara, Orenburg, Chelyabinsk, Kurgan, Tyumen, and Omsk oblasts surpass by 1.5–2 times the neighboring regions of Kazakhstan in the main social indicators. The smallest differences in standard of living are in the eastern sector, on the borders of Altai krai and the Republic of Altai with Pavlodar and East Kazakhstan oblasts. However, the gradients here reflect the difference between low and very low standards of living [15].

In Russia's eastern borderland, the contrasts on the border with China are the most noticeable. Amur oblast and Khabarovsk and Primorskii krais thus far surpass Jilin and Heilongjiang provinces and Inner Mongolia in personal incomes. This pattern in Russia's eastern regions persists owing to higher income growth rates than in the neighboring regions of China and Mongolia [3]. Russia's eastern regions also lead in the car-to-population ratio, especially compared to China. However, due to disproportions in the Russian labor market, unemployment in Russia's eastern regions is as a rule higher than in the neighboring regions of the Celestial Empire.

## CONCLUSIONS

A border is a unique complex formation that affects a country's territorial structure, including the relations between central and peripheral regions, the configuration of communications, and the identity of the popu-

<sup>1</sup> For Russian regions, the coefficient accounting for in-country polarization in the minimum standard of living was not considered.



**Fig. 4.** Gradients of PPP-adjusted per capita incomes between border regions of Russian Federation and neighboring countries, 2014, USD.

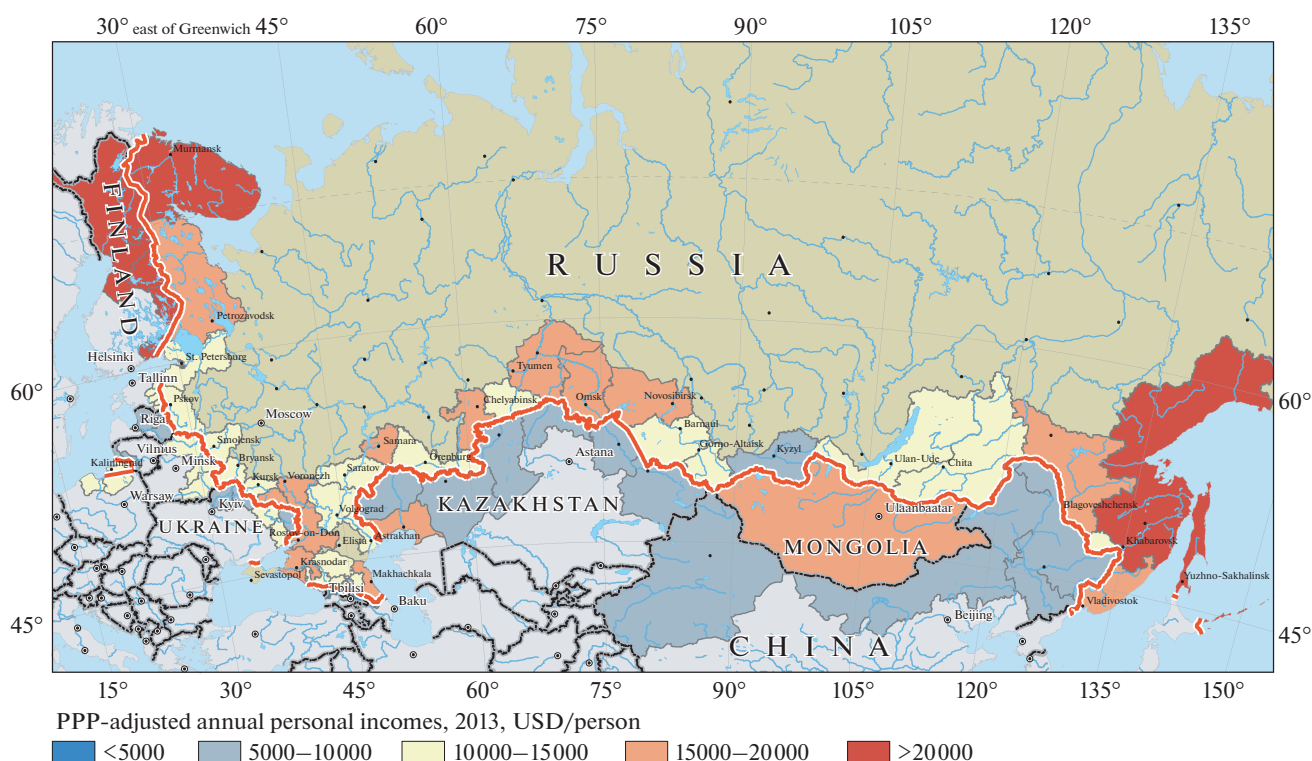


Fig. 5. PPP-adjusted household incomes, 2013. Figure constructed by A.A. Medvedev.

lation in border regions. Demographic and socioeconomic contrasts and, hence, difference in potential, which generates some cross-border flows, are primarily determined by differences in the settlement system and the territorial structure of the economy.

Virtually the entire borderland of Russia and neighboring countries, with some exceptions, is characterized by an unfriendly demographic situation: along with natural population decrease, border regions suffer migration outflow. An important consequence of such demographic processes is structural shifts in a borderland's ethnic composition. The most noticeable demographic changes have occurred at the Russian–Kazakhstan border as a result of aging, natural decrease, and outflow of the Russian population, on the one hand, and inflow of the Kazakh population in Kazakhstan's border regions owing to state targeted policy, on the other. This testifies to the gradual elimination of traces of the single post-Soviet space, which was characterized by a population mix. As a result, one of the key consequences of the existing demographic situation is a decreased social base of cross-border cooperation.

The socioeconomic situation in Russia's borderland is often marginal. In the post-Soviet borderland, there is a quite visible trend for border regions to turn away the borders toward the interior of their countries and growing marginality of border zones. In many borderland segments, substantial differences in eco-

nomic development level are observed. Such gradients are especially visible on the old borders in the European part of the country inherited from the Soviet Union. The most significant differences have developed on Russia's borders with Norway, Finland, and China. In the Norwegian and Finnish parts of the borderland, Russian regions lag behind their neighbors in almost all social and economic indicators; in the Chinese part, primarily in the size of the population and in agricultural and industrial production per capita.

Prospects of interaction with the border regions of Baltic countries are rather vague due to the cool relations between the countries involved, the intensive depopulation, and weak economic base on both sides of the border. In the Caucasian part of the borderland, bilateral interactions are minimal, which is explained by similar problems of development: excess labor, predominantly agricultural specialization, and low standard of living.

In the Belarusian and Kazakhstan segments of the border, due to the inherited production ties and the support of integration processes within the Eurasian Economic Union (EAEU), the regional economic structures are mostly comparable. However, cross-border interaction here remains within old cooperation ties, the development of new ones being hindered by the marginal character of the economies, the thin density of economic life, and state protectionism.

A difficult situation after the events of 2014 exists in the Russian–Ukrainian borderland: cross-border gradients have strengthened, while economic interactions have been minimized. On the borders with the unrecognized Donetsk People's Republic and Luhansk People's Republic, economic interactions are hindered by their vague political status and the suspended operations of many Ukrainian enterprises.

The key trend in the economic processes of the borderland is deindustrialization and the asynchrony of shifts in the sectoral structure, especially on the old borders. Such shifts are particularly noticeable on the Russian–Chinese border, where the neighboring Chinese provinces are intensively increasing their industrial potential against the backdrop of simplification in the structure of the economy and a large-scale decrease in industrial production in Russia's Far Eastern regions. On the western borders, the postindustrial transformation of the economy of European regions contrast with the reindustrialization of the Russian Northwest (the creation of special economic zones, the deployment of import-substitution enterprises in machinery and car industries, etc.).

Strong disproportions under relatively open borders generate redistribution of resources in favor of the stronger party, undermining confidence between neighbors and hindering equal cooperation. The most asymmetrical relations have developed between Russia's borderland and the neighboring EU countries and China. Local enterprises seldom invest in a neighboring country, including for the purpose of organizing a new business. Production, logistical, trade, and other cooperation ties with partners on the other side of the border are limited and are active only at some points and in certain corridors — cities situated on large traffic arteries. Most Russian border territories remain a periphery and neighbor peripheral and depressed regions of the bordering countries, which hinders interaction and cooperation.

#### ACKNOWLEDGMENTS

This study was performed as a project within the framework of the Program for Basic Research of the Presidium of the Russian Academy of Sciences no. 53 for 2018–2020 “Spatial Restructuring of Russia Taking into Account Geopolitical, Socioeconomic, and Geoecological Challenges.”

#### REFERENCES

1. Anisimov, A.M., Vardomskiy, L.B., Kolosov, V.A., Hertsen, A.A., Gritsenko, A.A., Zotova, M.V., and Sebentsov, A.B., Cross-border cooperation in the regions of Russia, Belarus and Ukraine: its status and future outlook, *Evrasiiskaya Ekon. Integr.*, 2013, no. 4 (21), pp. 76–96.
2. Baklanov, P.Ya. and Moshkov, A.V., Geographical differentiation of territorial structures of the economy in Pacific Russia, *Geogr. Nat. Resour.*, 2017, vol. 38, no. 1, pp. 1–11.
3. Baklanov, P.Ya., Novikov, A.N., and Ptitsyn, A.B., Structural and geographical analysis of cross-border three-member areas, *Dokl. Earth Sci.*, 2016, vol. 468, no. 1, pp. 493–495.
4. Vardomskiy, L.B., *Rossiiskoe porubezh'e v usloviyakh globalizatsii* (Russian Borderlands in Globalization Conditions), Moscow: Librokom, 2009.
5. Vendina, O.I., The city of Kaliningrad: planning the future and young people's needs, *Reg. Res. Russ.*, 2016, vol. 6, no. 2, pp. 156–165.
6. Gerasimenko, T.I., Ethnocultural cross-border regions as the basis for integration of neighboring states, a case study of Orenburg–Kazakhstan borderland, in *Voprosy geografii. Vyp. 141. Problemy regional'nogo razvitiya Rossii* (Problems of Geography, No. 141: Problems of Regional Development of Russia), Kotlyakov, V.M., Streletskii, V.N., Glezer, O.B., and Safronov, S.G., Eds., Moscow: Kodeks, 2016, pp. 453–471.
7. Goryachko, M.D., Potential of cross-border cooperation and development of the regions of the south of Far East and Siberia, in *Rossiiskoe pogranič'e: sotsial'no-politicheskie i infrastrukturnye problemy* (Russian Borderland: Sociopolitical and Infrastructure Problems), Moscow, 2016, pp. 55–73.
8. Gribova, S.N., Development of borderland regions of Russia: methodology and practice, *Extended Abstract of Doctoral (Econ.) Dissertation*, Ulan-Ude, 2011.
9. Zotova, M.V., Sebentsov, A.B., and Golovina, E.D., Kaliningrad oblast surrounded by the European Union: cross-border and socioeconomic contrasts, *Vestn. Zabaik. Gos. Univ.*, 2015, no. 3 (118), pp. 145–157.
10. Zykov, A.A. and Sevast'yanov, S.V., Cross-border cooperation, in *Vvedenie v issledovaniya granits* (Introduction into the Study of Borders), Vladivostok: Dal'nauka, 2016, pp. 122–145.
11. Karpenko, M.S., Dynamics and structure of foreign trade in the Russian–Kazakhstan border area: challenges of Eurasian integration, *Materialy 10-oi mezhdunarodnoi molodezhnoi Shkoly-konferentsii “Sovremennyye podkhody k izucheniyu ekologicheskikh problem v fizicheskoi i sotsial'no-ekonomicheskoi geografii”* (Proc. Tenth Int. Youth School–Conf. “Modern Approaches to the Study of Ecological Problems in Physical and Socioeconomic Geography”), Kursk, 2017, pp. 14–18.
12. Kolesnikov, N.G. and Tolstoguzov, O.V., Structural changes in the economy of the Northwest of Russia: the spatial aspect, *Balt. Reg.*, 2016, vol. 8, no. 2, pp. 30–47.
13. Kolosov, V.A., Zotova, M.V., and Sebentsov, A.B., Structural features of the economy and gradients of socioeconomic development of the border regions of Belarus, Russia, and Ukraine, *Reg. Res. Russ.*, 2014, vol. 4, no. 4, pp. 286–300.
14. Kolosov, V.A., Zotova, M.V., Vendina, O.I., and Sebentsov, A.B., Russian borderlands: modern challenges and approaches to research, in *Voprosy geografii. Vyp. 141. Problemy regional'nogo razvitiya Rossii* (Problems of Geography, No. 141: Problems of Regional Development of Russia), Kotlyakov, V.M.,

- Streletsii, V.N., Glezer, O.B., and Safronov, S.G., Eds., Moscow: Kodeks, 2016, pp. 234–256.
15. Kolossov, V., Torez, P., et Torez, J., Russie-Kazakhstan: quelle coopération transfrontalière? in *RUSSIE 2015. Regards de l'Observatoire Franco-Russe*, Paris: Le Cherche Midi, 2015, pp. 409–418.
  16. Kondratyuk, K.V., The current state of cross-border trade of the Far Eastern Federal District and China, *Molodoi Uchenyi*, 2016, no. 28, pp. 448–451.
  17. Manakov, A.G., Border factor in living of population of western districts of Pskov oblast, *Materialy XXXII ezhegodnoi sessii ekonomiko-geograficheskoi sekcii MARS "Sotsial'no-ekonomicheskie, geopoliticheskie i sotsiokul'turnye problemy razvitiya prigranichnykh raionov Rossii"* (Proc. XXXII Annual Session of Economical-Geographic Section of the International Academy of Regional Development and Cooperation "Socioeconomic, Geopolitical, and Sociocultural Problems in Development of Borderland Regions of Russia"), Moscow: Eslan, 2016, pp. 190–198.
  18. Morozova, T.V., Belaya, R.V., and Murina, S.G., Assessment of the life quality based on indicators of socioeconomic welfare of the population, *Tr. Karel'sk. Nauchn. Tsentr, Ross. Akad. Nauk*, 2013, no. 5, pp. 140–146.
  19. *Regiony Rossii: Statisticheskii sbornik* (Russian Regions: Statistical Handbook), Moscow: Rosstat, 2017.
  20. *Rossiisko-kazakhstanskii transgranichnyi region. Istoriya, geokologiya, ustoychivoe razvitiye* (Russian-Kazakhstan Cross-Border Region: History, Geoecology, and Sustainable Development), Chibilev, A.A., Ed., Yekaterinburg: Ural. Otd., Ross. Akad. Nauk, 2011.
  21. Sebentsov, A.B. and Zotova, M.V., Potential of economic and geographical position of Kaliningrad oblast: restrictions and implementation, *Balt. Reg.*, 2013, no. 4 (18), pp. 113–131.
  22. Tolstoguzov, O.V., Region in the globalization context: spatial and institutional aspects, *Tr. Karel'sk. Nauchn. Tsentr, Ross. Akad. Nauk*, 2012, no. 6, pp. 19–28.
  23. Dimitrov, M., Petrakos, G., Totev, S., and Tsiapa, M., Cross-border cooperation in Southeastern Europe, *East. Eur. Econ.*, 2003, vol. 41, no. 6, pp. 5–25.
  24. Eberhardt, P., The Oder-Neisse line as Poland's western border: As postulated and made a reality, *Geogr. Pol.*, 2015, vol. 88, no. 1, pp. 77–105.
  25. Golunov, S., EU–Russian border crossing: the dialogical perspective, *Geopolitics*, 2013, 18, no. 4, pp. 933–953.
  26. Kolosov, V.A., Klemeshev, A.P., Zotova, M.V., and Sebentsov, A.B., Russia–European Union borderlands: transboundary gradients, interactions, and current challenges, *Int. J. Econ. Soc. Is.*, 2015, vol. 5, suppl. 2, pp. 5–12.
  27. Kolosov, V.A., Vendina, O.I., Gritsenko, A.A., Glezer, O.B., Zotova, M.V., Sebentsov, A.B., and Panin, A.N., Economic and social reforms in the North Caucasus: goals, limitations, problems, and results, *Reg. Res. Russ.*, 2017, vol. 7, no. 3, pp. 259–270.
  28. Kolosov, V. and Scott, J.W., Karelia: A Finnish–Russian borderland on the edge of neighborhood, in *The EU–Russia Borderland. New Contexts for Regional Cooperation*, Eskelinen H., Liikanen I., and Scott J.W., Eds., London: Routledge, 2012, pp. 194–210.
  29. Martinez, O., *Border People: Life and Society in the U.S.–Mexico Borderlands*, Tucson: Univ. of Arizona Press, 1994.
  30. Newman, D., The lines that separate: boundaries and borders in political geography, in *A Companion to Political Geography*, Agnew, J. and Toal, G., Eds., Oxford: Blackwell, 2002, pp. 123–131.
  31. Stryjakiewicz, T., The changing role of border zones in the transforming economies of East-Central Europe: the case of Poland, *GeoJournal*, 1998, vol. 44, no. 3, pp. 203–213.

Translated by B. Alekseev