

ANALYTICAL APPROACHES TO ESTIMATE ECONOMIC SECURITY OF THE REGION

In the conditions of continuing foreign policy instability, the problem of ensuring economic security at the national and regional levels is steadily increasing. The existing methodologies for assessing the security status of regional economies are static. Furthermore, they include a scattered list of indicators that are difficult to consistently interpret when conducting an analysis. Therefore, the authors proposed an indicative dynamic method for assessing changes in the security situation of the regional economy. As the initial data we have used indicators of the development of the Sverdlovsk region for the period from 2010 to 2017 inclusive. We have achieved the following results. Firstly, we have suggested the set of the indicators, which result in changes in the level of economic security of the region. Moreover, we have structured the main factors that have a formative and destructive impact on the economy of the region. Secondly, the conducted analysis has shown that the economic development of the Sverdlovsk region can be divided into two main phases: upward (2014) and downward (from 2014 to the present). This is a consequence of the instability of the regional economy to external shocks due to weak diversification as well as low entrepreneurial activity. Thirdly, the growing threats to the economy of the Sverdlovsk region lead to a decrease in the welfare of the population. In 2015, the level of wages in Moscow was 2 times higher than in the Sverdlovsk region, however, by the end of 2017, the level of wages in Moscow was already 2,2 times higher than in the Sverdlovsk region. At the same time, in Moscow, St. Petersburg and Tyumen, the growth rate of income of the population was about 10–11 % for 2017, while, in the Sverdlovsk region the income growth for the same period was only 5 %. The obtained results can contribute to the development of the Sverdlovsk region strategic programs aimed at ensuring the sustainable socio-economic development of the region. The findings concerning the level of economic security in the Sverdlovsk region are not final. This means the need for further development of economic and mathematical models that will logically complement the methods proposed in this article for assessing the economic security of Russian regions.

Keywords: regional development, social and economic development, economic security, regional economy, regional development management, economic diversification, economic security threats, social and economic management of the region, alignment of social and economic development, welfare of the region's population

Introduction

Social and economic development is usually understood in the context of extended reproduction happening simultaneously with qualitative and structural positive changes in economy, in production forces, including the factors of economic growth, education, science, culture, level and quality of population's life, human capital assets [1–3].

Social and economic development in the region may be characterized by both self-reproduction of public systems and progressive orientation that comprises the development of public relationships progressing in different ways under specific historically developed conditions, taking into account technological paradigm of economy and society, actual system of distribution of wealth. Social and economic development closely correlates with economic security both at the national level and at the level of specific region. From the perspective of the Russian legislation, economic security is considered as a constituent part of the national security. In May, 2017 "Strategy of Economic Security"¹ was adopted, where it was determined:

- 1) economic security is such a condition of the national economy and its protection from threats, when economic sovereignty of the country is ensured;
- 2) one of the economic security's basic conditions is unity of economic space, ensuring ability to implement strategic national priorities of the Russian Federation.

¹ About the Strategy of economic security of the Russian Federation for the period till 2030. The Order of the President of the RF dated 13.05.2017 No. 208 Access from the information and legal system Consultant Plus. URL: http://www.consultant.ru/document/cons_doc_LAW_216629 (date of access: 07.11.2017).

The Strategy of economic security of the Russian Federation is aimed at ensuring counteraction to external and internal challenges, and reducing the level of threat for stable development of the national economy. Such threats may be connected with preservation of resource dependence of the national and some regional economies, with aging (moral, physical and technological) of production sphere, with insufficiently active diffusion of innovations in real and financial sectors of economy. Apart from that, impermissibility of reducing quality of population's life is indicated in the national strategy of economic security, that institutionally determines close relationship of socio-economic development and economic security, at any level, including regional.

Review of literature and sources

Social and economic development should involve different alternatives of economic progress, search of growth points, including their intra-regional components, and consideration of environmental factors and opportunities specific for each separate region. In addition, social and economic development is determined by similarly-named dynamic, which has temporary, institutional and spatial and territorial aspects. Each such aspect shall serve as an object of individual analysis within management of the region's social and economic development.

Herewith, the very term "development" is often used in various combinations ("economic development", "social and economic development", "development of the region"), but somehow or other, any progressive change, primarily, in economic sphere, is meant by all these definitions. Quantitative change is connected with economic growth, while qualitative one is linked with structural changes; taken together they make integral development of the region [4]. It may be shown as a scheme (Figure 1).

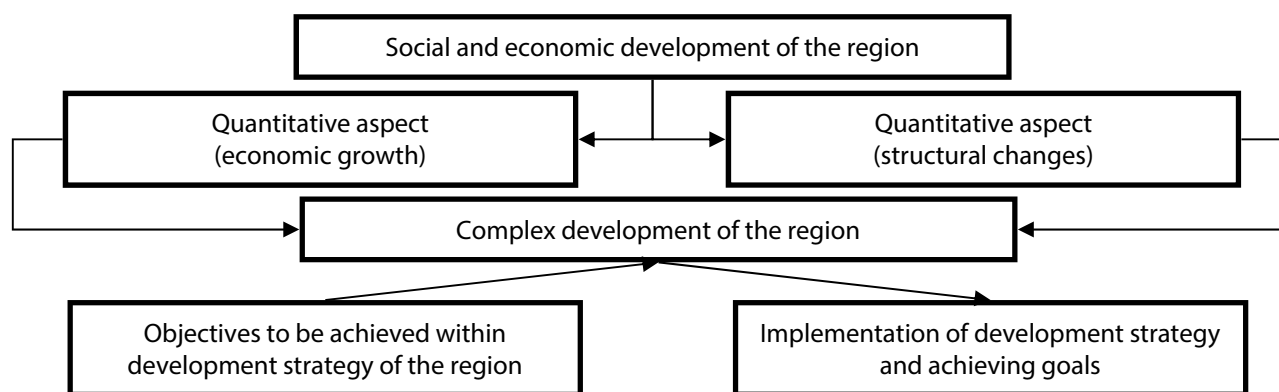


Fig. 1. Components included in the definition "social and economic development of the region" [4]

In other words, social and economic development should be targeted in the manner determined by regional management [5]. Totality of social and economic goals including increase in production, population's income, changes of society structure etc. are usually considered as purposes. These indicators are formed as targets within development strategy of the region. Such complex understanding (if you take into account all the existing factors of social, cultural economic characteristics inherent in the given region) distinguishes actual development from merely trivial and regular changes, which are usually characterized by simple increase in some parameters.

Consequently, ensuring of the region's economic security should be the very goal that is put in the regional development strategy. Activities aimed at ensuring economic security, reaching the state of protection (since this is the key concept in economic security [7, p. 49]), are carried out at different levels of government control (from federal to local). Provisions of the Federal Law "On Security"² establish that activities connected with ensuring national economic security are carried out by the institutions of federal (the President of the Russian Federation, Executive Office of the Government of the Russian Federation) and regional (including local) level of government. Federal authorities form a strategic framework for ensuring security; in turn, regional bodies work only in those areas in which they have the right to act and control in accordance with the applicable institutional and legal regulations.

Regional economic security is considered as a component of national economic security. For example, in investigations of the academician L. I. Abalkin it is shown that economic security is closely

² On Security. Federal Law dated 28.12.2010 No. 390-Ф3. Version as of 05.10.2015 No. 285-Ф3. Access from the information and legal system Consultant Plus. URL: http://www.consultant.ru/document/cons_doc_LAW_108546/ (date of access: 07.11.2017).

related to the quality of the national economy's growth, which, in turn, is determined by dynamics of growth and development of regional economies (that is, economic growth is a derivative from the level of the country's economic security). Besides, L.I. Abalkin focused on the fact that economic security creates conditions for normal satisfaction of social needs that might be achieved due to high quality of management at the micro and macroeconomic level [6].

The scientific theses of L.I. Abalkin were, in particular, developed in papers of V.K. Senchagov and F.N. Borisevich. V.K. Senchagov complements the concept of economic security with an institutional and political context. Therefore, his work shows that economic security is a sustainable growth and normal satisfaction of social needs, which are ensured through effective political management of social and economic processes. In other words, economic security is ensured by ability of government institutions to create such mechanisms for regulating socio-economic processes that achieve economic development goals and maintain social and political stability in the country, which in fact guarantees protection of national interests in the sphere of economy [7].

In his investigation F.N. Borisevich indicates that economic security is a dynamic characteristic of management. Economic security is ensured by progressing legal capacity of business entities, which reduces the level of external threats and simultaneously ensures a good quality of the population's life [8].

Summarizing discussed above points of view, we can draw conclusion that scientific literature has several interpretations of economic security:

- state of economy, which ensures sustainable development;
- condition of state (government) institutions, which provides protection of the state's national interests, including the economic sphere;
- safety of economic relations from both external and internal threats;
- adaptability of economy, its ability to function to the utmost even with negative impact of environmental factors.

Important aspects of ensuring regional economic security are also considered in foreign studies, which differentially consider the sources of formation and directions for using the security's potential:

- role of the region's economic security in ensuring competitive ability of the region [9, 10];
- negative impact of globalization on development of the region [11];
- the region's resource endowment that gives it opportunities for accelerated social and economic development [12];
- efficient resource management [13];
- systematic economic development of the region for making decisions in the sphere of ensuring economic security [14].

Based on the aforementioned theses, the authors find it necessary to note that the region's economic security (as a component of national security and as an object of management) is a dynamically instable analysis parameter, as it is determined by influence of various factors. But at the same time, basic tendencies and common patterns in changing particular indicators of the region's economic security allow evaluating resistance of regional social and economic systems to the effect of external shocks. Readiness and determination of the region's heads to implementing necessary social and economic reforms, ensuring countermeasures to negative impact of various internal and external factors should be considered to be the most significant.

Data and methods

It is reasonable to differentiate the set of evaluation methods for economic security into three basic groups and distinguish three evaluation methods: scoring (rating grade), coefficient and integrative.

Key descriptive characteristics of the models are given in research papers [15–20]. The main disadvantage of these methods is that, as a rule, they are aimed at assessing a specific set of social and economic indicators and ignore the political and technological context. Therefore, it will be correct to consider the region as a large social and economic controlled system, the security of which depends on the management quality. In turn, quality of the regional management (including in the context of ensuring its economic security) should be understood as the ability of management to effectively use existing social and technological potential to ensure economic growth, its diversification, and dynamic sustainability during the periods of crisis or stagnation in the global or national economy. We propose

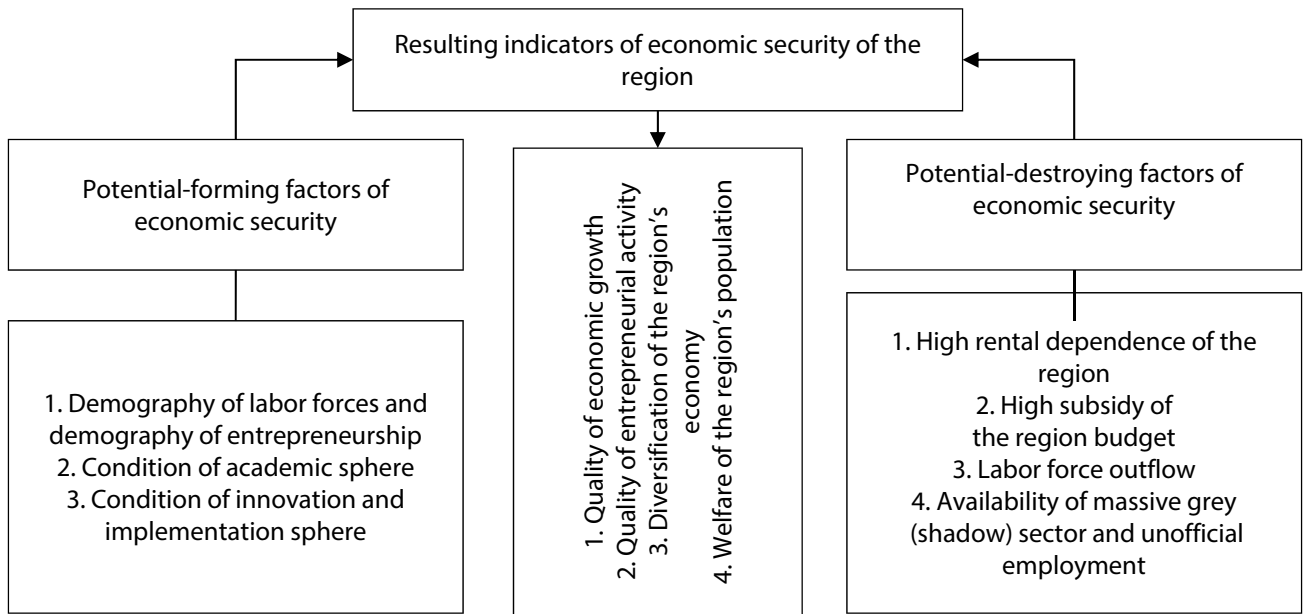


Fig. 2. Scheme of factors and indicators, determining economic security of the region (developed by the authors)

to consider all the factors that can influence (and influence) the level of the region's economic security (in the context of the region's management) as potential-forming and potential-destroying.

The influence of these factors (in other words, the ability of the regional government to use the first ones in an optimum manner and mitigate negative effect of the second) will represent a set of resulting indicators of the region's economic security (Figure 2).

The structuring of potential-forming and potential-destroying factors as well as resulting indicators of economic security proposed by us is based on content analysis of various Russian and foreign research papers, among which in our opinion, the research papers [21–25] are fundamental.

Model

Table 1 shows informal description of each resulting indicator of the region's economic security.

Table 1

Calculation methods of resulting economic security of the region*

Indicator	Formula for indicator calculation	Conventional signs in formula
Economic growth quality indicator (EGQI)	$i_1 = \sqrt{\frac{I_{in} I_{in}}{I_p I_e}}$	I_m, I_p, I_e — chain indexes of innovative production, cumulative production and investments in fixed assets
Entrepreneurial activity quality indicator (EAQI)	$i_2 = \frac{k_b}{k_l} m$	k_b, k_l — birth and liquidation coefficient of businesses; m — index of business support program budgeting
Economic diversification indicator (EDI)	$i_3 = \sqrt{\frac{\sum (d_1 - d_0)^2}{n}}$	d_0, d_1 — cost share of each sector in GRP at the beginning and end of period; n — number of economic sectors, forming GRP
Population welfare indicator (PWI)	$i_4 = \sqrt{\frac{d_w I_{lp}}{d_p I_{so}}}$	d_w, d_p — proportion of population with the highest income and proportion of population with the lowest income; I_{lp}, I_{so} — chain indexes of productivity of labor and social benefits using budget funds

* Developed by the authors.

Considering the fact that situation in the region's economy can't change fast enough, even under condition of high-intensity process of reform implementation, we suggest considering the period from the end of the last world crisis (2010) and till the beginning of 2018. Such coverage of a great selection of statistical data will allows us to analyze changes in the resulting indicators of economic security in the most effective and accurate way and estimate its current condition.

Results obtained

The economy of Sverdlovsk oblast has been selected by us as a target of research. There are two reasons for choosing this regional social and economic system. Firstly, this is an important industrial and production region, whereof subsidy is not extremely high. Secondly, rental segment in the economy of Sverdlovsk oblast is not significant.

In other words, the influence of two out of four potential-destroying factors is somewhat reduced. Accordingly, we can suggest a hypothesis that Sverdlovsk oblast should demonstrate a steady upward trend in economic security. According to the results of 2015, Sverdlovsk oblast was among top ten regions (9th place) in social and economic development, but in 2016 and 2017 the region's position slightly decreased (11th place). Herewith it should be noted that quality of life in Sverdlovsk oblast has a positive trend in the ranking (14th place in 2015, 12th place in 2016, 11th place in 2017).

In order to confirm or refute the suggested hypothesis on dynamics and tendencies of social and economic development of Sverdlovsk oblast, we carried out calculations of the resulting indicators (Figure 3) based on generally available statistical data, evaluation and change of which will be analyzed below.

So, the obtained analytical data demonstrate that resulting indicators of the economic security of Sverdlovsk oblast, which we have identified, have unstable multidirectional dynamics.

Firstly, the indicator of the quality of economic growth had low values till 2013, but in 2013 it showed rapid growth, which is likely connected with development of previously accumulated entrepreneurial and social potential, as well as with availability of diversification trend in the regional economy during the previous periods. Besides, it should be noted that during the crisis period of 2008–2010, as well as immediately after it, the regions, including the Sverdlovsk Region, received substantial federal support. But already in 2014, it demonstrated instability of economic growth, despite implementation of state and local strategic programs to counter sanctions and implementation of the import substitution process.

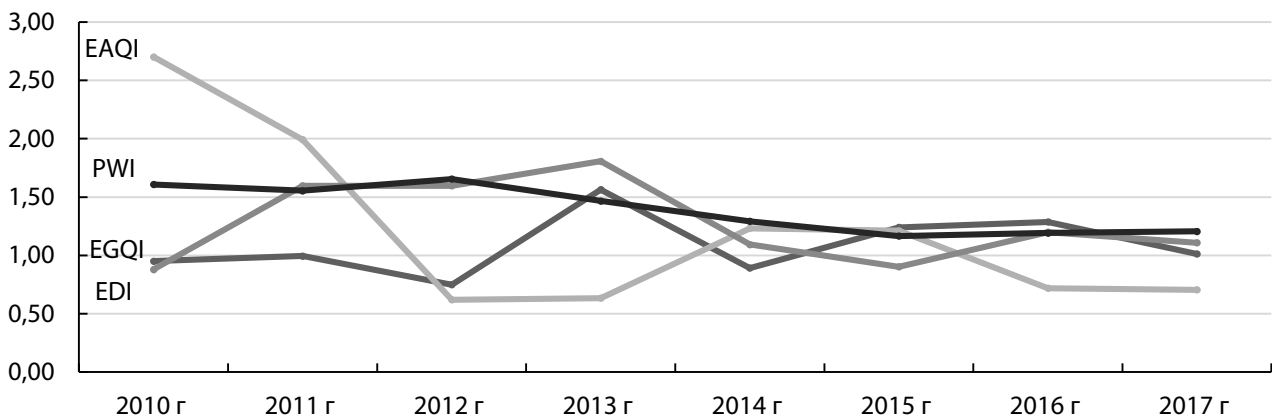


Fig. 3. Dynamics of resulting indicators of economic security of Sverdlovsk oblast (calculated by the authors)

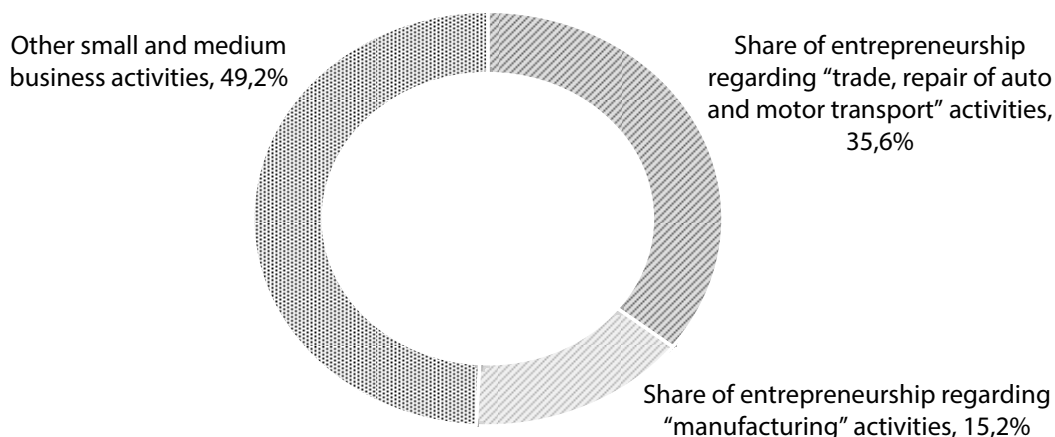


Fig. 4. Structure of activities in the segment of small and medium businesses of Sverdlovsk oblast according to the results of 2017 (Prepared by the authors using the source: Official statistics. Sverdlovskstatistics. URL: http://sverdl.gks.ru/wps/wcm/connect/rosstat_ts/sverdl/ru/statistics/sverdlStat/enterprises/ (date of access: 27.04.2018))

It should be noted that according to the results of 2017, volume of investments in fixed assets of the business entities of Sverdlovsk oblast was about 338 billion rubles (in fact, the same amount was obtained in 2016). But at the same time, the main increase in investment was observed in the field of mining (increase in 2.1 times in comparison with 2016) and in the agricultural sphere (twofold increase in comparison with 2016). Such important areas as construction and high-tech segment showed increase in growth of investments in fixed assets by the end of 2017 by no more than 30 % and 17 %, respectively (to the level of 2016).

Secondly, the indicator of entrepreneurial activity quality has two pronounced low phases (from 2010 to 2013 and from 2015 till the present time). It should be noted that in 2010–2012 in Sverdlovsk oblast, large-scale programs for supporting small and medium-sized businesses were implemented, which probably ensured increase in this index in 2014, but foreign economic instability and internal volatility of the economy cancelled out the obtained positive effect. Over the past eight years, the quality of entrepreneurial activity in Sverdlovsk oblast has decreased almost in four times, which, of course, negatively affected the quality of economic growth.

Principle economic activity of small and medium businesses of Sverdlovsk oblast is wholesale and retail trade; repair of cars and motorcycles (Figure 4).

Service sector (no more than 10 % of the total number of small and medium businesses), as well as research and development sector (less than 1 %) are under-represented in the segment of small and medium business of Sverdlovsk oblast. Of course, such structure of the small and medium business segment in the region cannot have a positive impact on the quality of economic growth in Sverdlovsk oblast. And, probably, the main problem is not lack of regional support for small and medium business segment, but significant influence of informal institutions (gray economy and informal employment). During the periods of macroeconomic instability, informal institutions can have a particularly strong influence on social-economic and social-political processes.

Thirdly, the indicator of economic diversification which had high values in 2011–2013, showed a significant reduction in the last four years. Social and economic reforms implemented earlier by the region's management as well as entrepreneurship's support had a positive effect on structural changes in the regional economy.

After 2014–2015 the economy of Sverdlovsk oblast almost became sector-specific with predominance of manufacturing (heavy machine-building and ferrous metallurgy) (Figure 5).

Metallurgy is in the first place because some large plants are located in the area: Sinarsky Pipe, Pervouralsky Novotrubny, several plants operating in the sphere of non-ferrous metallurgy. In machine-building industry, first of all, it is "Uralmash" situated in Ekaterinburg. This suggests that metallurgy as an industry is quite important for Sverdlovsk oblast, thus, any fluctuations in the metal market can cause significant changes in the region's economy that is not sufficiently diversified. It was shown above that the main part of investments in fixed assets is carried out in the sphere of mining. This means that, despite the region's low rent dependence, sectors and spheres of the economy that are not associated with the extraction of mineral resources do not have sufficient investment attractiveness.

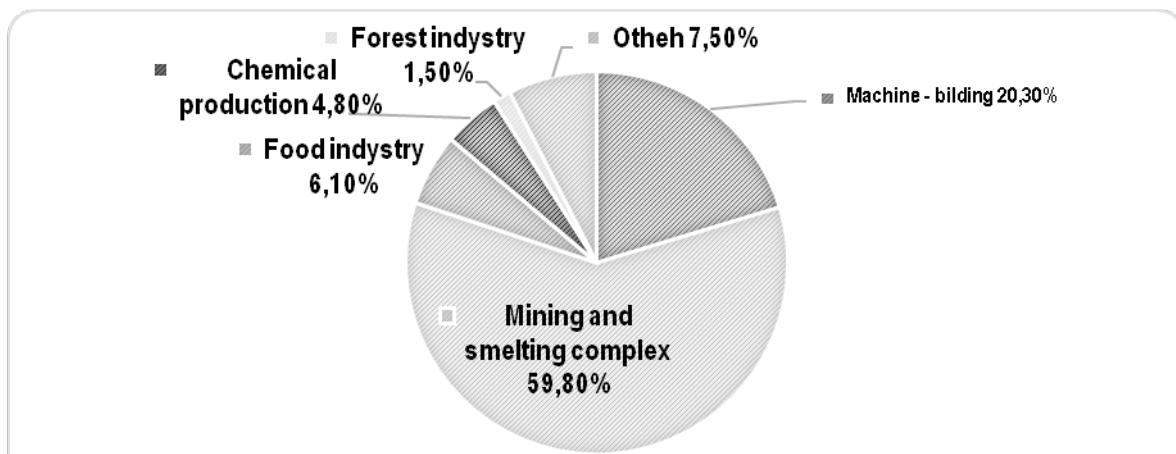


Fig. 5. Industrial structure of Sverdlovsk oblast in 2017 (Prepared by the authors using the source: Official statistics. Federal State Statistics Service. URL: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/# (date of access: 27.04.2018))

But insufficient investment attractiveness and poor economy diversification of Sverdlovsk oblast are the reasons of not only instability and low quality of its growth but also significant reduction of population's welfare.

Fourthly, indicator of population's welfare has a stable downward dynamics during the reviewed period. Obviously, it is caused by the impact of two potential-destructing factors (instability of the regional economy to external shock leads to outflow of labor forces, including in grey (shadow) sector as well as it reduces labor productivity and increases social load on the region's budget). Table 2 shows changes of the main social indexes of Sverdlovsk oblast.

Table 2

Dynamics of the main social indexes of Sverdlovsk oblast in 2015–2017*

Index	Values by years			Growth in %	
	2015	2016	2017	2016 against 2015	2017 against 2016
Demographic rates					
Population, thou. persons	4324	4329	4330	0,11	0,02
Rate of natural increase, persons per 1000	1	3	2	98,33	–25,28
Net migration rate, persons per 1000	4	2	–1	–60,70	–175,2
Population of Yekaterinburg, thou. persons	1412	1428	1444	1,11	1,15
Proportion of Yekaterinburg citizens in population, %	32,7	33,0	33,4	1,00	1,13
Average life expectancy, years	69,76	69,83	70,02	0,10	0,27
Population welfare					
Average monthly salary, thou. RUB	29,5	30,7	32,3	4,07	5,40
for comparison: average monthly salary in Yekaterinburg, thou. RUB	40,8	41,5	43,9	1,72	5,78
for comparison: salary in St. Petersburg, thou. RUB	40,5	41,3	45,4	1,98	9,93
for comparison: salary in Tyumen oblast, thou. RUB	44,6	45,6	50,1	2,24	9,87
for comparison: salary in Moscow, thou. RUB	61,2	64,3	71,4	5,07	10,99
Level of unemployment according to ILO estimates, %	6,1	6,5	6,2	6,56	–4,62

* Prepared by the authors using the source: Official statistics. Federal State Statistics Service. URL: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/# (date of access: 27.04.2018).

The population of Sverdlovsk oblast is not decreasing. However, its growth is insignificant and partly (except for 2016) is ensured by migration growth (usually coming from other depressive Ural regions, for example, Kurgan oblast). At the same time, population of the region's center, Ekaterinburg, is growing much faster; proportion of the population living in the regional center is approaching one third of the region's total population. It may be easily explained if we compare wages in the region and in the regional center. Actually, salary in Yekaterinburg is almost as good as average salary level in St. Petersburg, still remaining below the level of Tyumen oblast and, especially, Moscow. Considering proximity of Tyumen oblast, as well as of Khanty-Mansiysk and Yamalo-Nenets Autonomous Districts to the region, population from oblast's districts where incomes are low does not always move to Yekaterinburg itself. For some people, it is preferable to move to the eastern regions, where situation at the labor market is better and salary is higher.

It should be noted that real income of the population of Sverdlovsk oblast is decreasing (on average over the last three years reduction was already over 7 %), as well as purchasing power (on average over the last year purchasing power of monetary income of the population decreased by 1 %). Decline in the population welfare has affected construction industry as well as retail segment and public catering segment of Sverdlovsk oblast, namely³:

– according to the results of 2017, reduction in commissioning of residential buildings amounted to about 1 %;

– turnover of public catering segment in 2017 decreased on average by 5 % (to the level of 2016);

³ I. Perechneva, S. Zyakin By inertia to stagnation (May 2018). Expert.RU. URL: <http://expert.ru/ural/2018/10/po-inertsii-k-stagnatsii> (date of access: 21.05.2018).

— index of physical turnover of retail trade in 2017 was about 98 %.

Consequently, the analysis conducted has shown that level and condition of the economic security of Sverdlovsk oblast can't be recognized as optimal. Herewith, it becomes obvious that it is necessary to implement systemic economic and social reforms in order to achieve relatively stable and balanced to a certain degree growth of the regional economy.

Conclusion

To sum everything up, it is reasonable to structure the main conclusions we reached. Economic security is an object of government control; rules and regulations of such administration are determined by special legal documents. The region's economic security can be considered as a state of regional economy, in which there is a steady growth ensuring normal satisfaction of social needs.

The article has developed an indicative model for assessing the economic security of regions, taking into account quality of economic growth, quality of entrepreneurial activity, economic diversification and population welfare. Resulting indicators of economic security are determined by combination of the influence of potential-forming and potential-destroying factors. The first ones include demography of labor resources and entrepreneurship, development of scientific and educational, and innovative spheres of the region. Among the second ones, the most important are the factors of rent dependence and budget subsidies, factors of labor resources' outflow and a significant gray (shadow) sector, including the provision of informal employment.

Conducted assessment of the economic security of Sverdlovsk oblast has demonstrated that this region, which was developing relatively dynamically until 2014, in the last few years has shown downward social and economic trends. This is due to the fact that the region's economy is not sufficiently diversified; low rate of economic development is associated with low entrepreneurial activity, influence of shadow sector and informal employment. These and a number of other reasons (for example, underdeveloped innovation and implementation environment, reduced investment attractiveness of the region) also cause decrease in the level of population welfare. The region needs systemic social and economic reforms.

In their further publications on the research topic the authors plan to set forth the main aspects of institutional transformations, which will allow the economy of Sverdlovsk oblast to show a stable growth.

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