ANALYSIS OF SOCIAL-ECONOMIC SECURITY OF ADMINISTRATIVE AREAS IN LATVIAN MUNICIPALITIES[1]

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Abstract. The paper is devoted to the empiric assessment of social-economic security of administrative areas in Latvian municipalities. A generalized integral index of social-economic development of the territory of municipalities has been elaborated. This index was used to carry out the assessment of the level of social-economic security of Latvian municipalities in 2011 and in 2015 in order to identify priorities for the strategy of social-economic security.

Keywords: social-economic security, areas of Latvian municipalities.

1. Introduction

Social-economic security provides not only a country's sustainable economic development, but also its sense of protection from internal and external threats. Municipalities implementing their autonomous functions are a prime warrant for providing people with social-economic security. Therefore, it is particularly important to establish an adequate model of social-economic security which allows describing the state of economy at macro and meso levels, carrying out analysis and forecast, and as a result identifying the best possible priorities for the strategy of social-economic security in Latvian municipalities. State administration bodies also need the established model of social-economic security in order to support the decision making process in the sphere of macroeconomic policy and development of measures for regulating market economy.

The methodological basis of the research are works of both western scientists and researchers from different countries in Central and Eastern Europe (Huber 2010; Balitskiy 2014; Rehm, Schlesinger 2010; Baublys 2015; Białoskórski 2012; Hacker 2012; Buzan 2007; Shadova 2015; Tvaronavičienė 2012; Uberman, Žiković 2014; Senchagov 2002; Tambovcev 1995; Munteanu, Tamošiūnienė 2015; Tumalavičius 2016; Nikolayevskyy 2014; Jordan et al. 2009; Koehler et al. 2012; Makstutis 2006; Taureck 2006).

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Security is a concept that has several levels. In a philosophical retrospective it is considered at least at two levels: at a micro-level or personal security and at a macro-level or social and state security. Since the second half of the 19th century, personal security, social and state securities have not been considered separately, they are interrelated and interdependent. If there are any objective or subjective reasons that pose a threat at a macro-level, they will also pose a threat at a micro-level. At the same time, underestimation of the importance of security at a micro-level may act as a catalyst for the weakening of security at a macro-level. Meanwhile, the study into economic security only at a macro-level is a kind of average value. From this perspective, outcomes of a municipality's economic activity are often neglected on the overall background of other territories in Latvia, and it becomes virtually impossible to identify any "bottlenecks" in their work. This explains the need for analysis of economic security at both the country's level and municipal level – at a meso-level. Another reason for the need for considering a regional factor within the issue of economic security is a high degree of development disparity between administrative areas in Latvia's municipalities.

As this phenomenon possesses a lot of multifaceted and multilevel features, there is no generally accepted definition of social-economic security in the world. However, it is possible to identify a few features that describe a bigger picture of what this phenomenon means.

First, social-economic security is a complex and dynamic concept. This complexity appears, on the one hand, because of a lot of economic, social, and financial processes this concept includes. On the other hand, the complexity is determined by the globalization processes and fast rates of economic processes and phenomena at both national and global levels (Jolly and Basu Ray 2007; Kulaghin 2010).

Second, social-economic security should be interpreted as:
– a significant factor of national security that provides resources and a dynamic balance for other components of this system;
– one of the indicators of national, regional, and global security that is the purpose of every person, community, national state, etc.;
– a priority task of governments, regional, and international organizations that strive to provide and guarantee global security of an individual;
– a state of a national economy understood as a source and foundation for elimination of poverty, starvation, social and economic inequality between both individuals and regions within one country.

Third, social-economic security means protection of vitally important interests of a society, country, and citizens, as well as national values and way of living from external and internal threats.

Fourth, social-economic security is a fundamental human right. It is the condition when risks and threats are under control in order to protect individuals and communities.

Fifth, social-economic security is a resource necessary for everyday life of individuals and communities in order to achieve their personal or collective aspirations.

Sixth, social-economic security is the result of interaction between external and internal factors that promote the processes of production, distribution, and consumption of goods and services produced by a national economy.

Seventh, government and non-government organizations play an important role in the achievement of social-economic security at national as well as regional and global levels.

Analyzing the definitions of social-economic security, we can state that the existing definitions do not include a level differentiation, although it is obvious that the content of the concept of social-economic security at macro, meso, and micro levels will be different. The author of the research believes that it would be useful to introduce a level differentiation of the concept "social-economic security" on the basis of the fact that goals, objectives, and, most significantly, indices or factors of this indicator will be different for subjects at different levels.

Therefore, on the basis of the aim of the research, the author defines social-economic security of municipal administrative areas as a complex category which is based on the ability of a municipal government to establish mechanisms for implementation of its autonomous functions and activities, to ensure social-economic security on the basis of a sustainable growth of its indicators, as well as to contribute to a maximum satisfaction of the infrastructure needs of residents and entrepreneurs on its territory.

In modern research there are three main approaches to social-economic security (Lavrinenko et al. 2016). The *first* approach is characterized by the construction of an integral indicator (Osberg, Sharpe 2005). These indices may be obtained from several data sources, although they are sensitive to measures applied and how they are weighed. Unfortunately, the theory provides limited recommendations on how to weigh these differential measures partially because of the scarcity of the research, interaction and relative influence of various economic risks. Taking the "named risk" (Osberg, Sharpe 2005), this approach also identifies the list of economic risks at a definite point of time (it also considers that this list is the same for different subgroups) instead of admitting the change of risk combinations related to household finances as a threat to economic security during the period under study (or in different groups).

The *second* approach involves the assessment of adequacy of resources or sufficiency of assets (e.g. Lusardi et al. 2011). The level of resources or wealth obviously plays an important role for the economic insecurity. This approach possesses the advantages of simplicity and dependence on one source of data. These indices, although they are better understood as measures of the level of resources or buffer capacity but not as a measure of conscientious security or a lack of security. In particular, the adequacy of measure does not consider the possibility that an individual will undergo a reverse and will have to rest upon wealth or resources. This possibility may vary both with time and between individuals. Implemented lack of security requires matching inadequate buffers and real experience of economic losses.

The *third* approach suggests using the overall household income, including retirement pension benefits of household members, planned medical expenses of a household, debt expenses of a household, and the amount of financial savings and liquidation property (Hacker et al. 2013).

Social-economic security is a concept that should be considered at several levels, and it includes a number of indicators which characterize certain conditions. However, the nature of the concept is so complex that it makes it difficult for an individual to fully grasp it. Therefore, in order to assess the level of social-economic security of a territory, there is a need for creating an integral indicator in the form of a scalar which makes it possible to carry out a comparative assessment and rating of territories at a meso level using all available primary statistical indicators from the reports on 119 administrative units in Latvia in 2014, as well as the data of the Regional Development Indicators Module http://raim.gov.lv/.

2. Methodology for construction of an integral indicator

Social-economic security is a complex social-economic category; therefore, primary statistical indicators for the regions under study may be presented in the following way:

$$X = \begin{bmatrix} x_{11}, x_{12}, \ldots, x_{1n} \\ \ldots\ldots\ldots\ldots\ldots \\ x_{i1}, x_{i2}, \ldots, x_{in} \\ \ldots\ldots\ldots\ldots\ldots \\ x_{m1}, x_{m2}, \ldots, x_{mn} \end{bmatrix} \qquad (1)$$

where:

m – is a number of regions, n is a number of indicators which characterise the standard of living.

Therefore, a multivariate analysis can be applied for this kind of data (Kosiedovskis, Lavrinenko 2014).

Considering various units for measuring primary indicators, it is necessary to unify the data. The authors carry out the unification on the basis of the linear scaling principle, as a result of which the area of possible values is determined by the interval [0;10] by formula (Lavrinenko, Lavrinoviča 2013):

$$x'_{ij} = \frac{x_{ij} - x_{\min j}}{x_{\max j} - x_{\min j}} \cdot 10 \qquad (2)$$

$$x'_{ij} = \frac{x_{\max j} - x_{ij}}{x_{\max j} - x_{\min j}} \cdot 10 \qquad (3)$$

– by indicators-destimulants, where: x'_{ij} — a unified value of the indicator "j" for a municipal territory "i", $x_{\min}$ and $x_{\max}$ – the lowest (the worst) and the largest (the best) values of the initial indicator in the period under study.

Table 1. Primary statistical indices of the integral indicator of social-economic security in Latvia's territories.

Municipality's sphere of activity	Indices
F1. General economic	1. Total income of a municipality 2. Total expense of a municipality 3. Number of economically active commercial communities per 1,000 inhabitants 4. Number of economically active self-emplyed individuals per 1,000 inhabitants 5. Number of economically active farm households per 1,000 inhabitants
F2. Investment	1. EU fund per 1,000 inhabitants 2. Total sum of direct foreign investment 3. Number of projects per 1,000 inhabitants
F3. Industrial	1. Income tax (a municipality's share) 2. Number of income tax payers at a place of a company registration 3. Collected sum of income tax per 1 inhabitant at a place of a company registered address 4. Advertisement tax 5. Tax on trade in public places 6. Number of registered companies 7. Number of liquidated companies
F4. Educational	1. A municipality's expense on education 2. Number of pre-school educational institutions 3. Number of general education institutions 4. Number of programmes implemented at vocational schools
F5. Infrastructure	1. A municipality's expense on public maintenance of a territory 2. Immovable property tax 3. General density of motorways
F6. Ecological	1. A municipality's expense on environment protection
F7. Cutural and recreational	1. A municipality's expense on leisure, culture, and religion 2. Revenue from selling tickets 3. Tax on gambling
F8. Employment	1. Level of unemployment 2. Number of employers 3. Number of income tax payers at an employee's declared address 4. Collected sum of income tax per 1 inhabitant at an employee's declared address 5. Share of long-term unemployed persons of the total number of unemployed persons
F9. Law enforcement	1. A municipality's expense on ensuring public order 2. Number of crimes per 1,000 inhabitants 3. Number of serious crimes per 1,000 inhabitants
F10. Insuring of social protection and healthcare	1. A municipality's expense on social sphere 2. Number of households receiving housing benefits 3. Number of benefits on guaranteed level of income 4. Number of persons with a low income status (% out of total number of inhabitants) 5. Share of inhabitants who receive social services (% out of total number of inhabitants) 6. A municipality's expense on medicine

Source: compiled on the basis on the data on 119 administrative units in Latvia in 2014
and the data of the Regional Development Indicators Module http://raim.gov.lv/

The calculation of the indicator of social-economic security was carried out on the basis of the method of sums of the factors that characterise a municipality's spheres of activity which in turn were calculated as a sum of unified statistical indicators included in every sphere:

$$X_i = \sum_{j=1}^{5} F1_{ij} + \sum_{j=1}^{3} F2_{ij} + ... + \sum_{j=1}^{6} F10_{ij} \qquad (4)$$

where:

$i = \overline{1,119}$, X_i – a complex assessment of social-economic security for region i; F'_{ij} – the value of a factor of social-economic security characterizing every sphere of activity of a municipality, where there factors are calculated as a sum of statistical indicators that characterize them.

It is convenient to determine a list of prerogatives[2] of social-economic security for every municipality on the basis of the ranked by a degree of decreasing of problematicity and significance of the indices included in the calculation of the indicator. It is also necessary to take into account the lowest ranking values of these indices.

It is also possible to determine the prerogatives of social-economic security according to factors F1, F2, …, F10 of social-economic security.

The principle of determining the prerogatives of social-economic security of municipal territories is schematically presented on Figure 1.
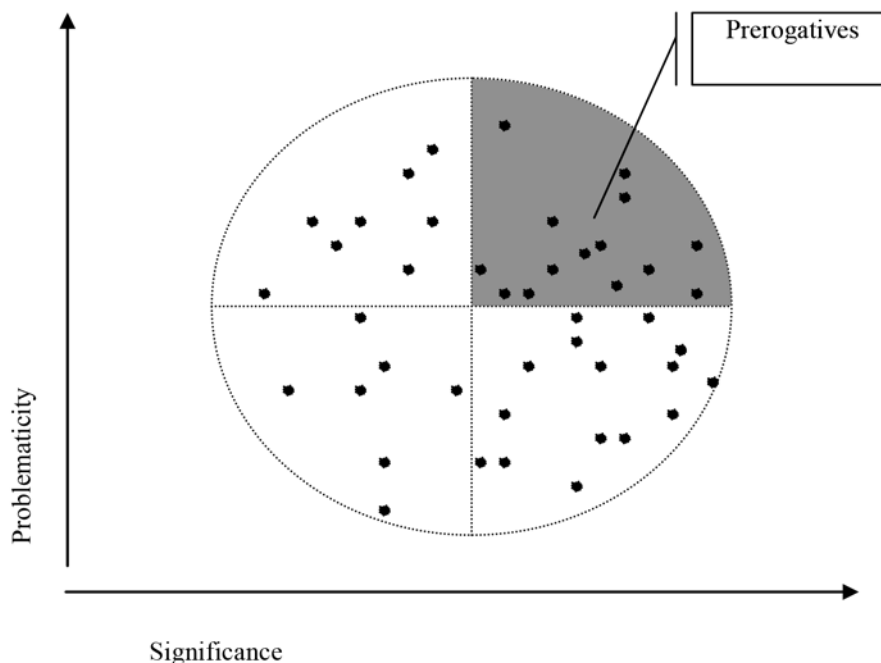

Fig. 1. Area of prerogative factors of social-economic security

Source: elaborated by the authors on the basis of the Aivazian, S. A. (2005).
Development and Analysis of Quality of Life Integral Indicators in Samara Oblast. p.12

Boundary values of problematicity and significance of indicators that define the area of prerogatives may be specified expertly. For example, factors that fall into a certain class of problematicity and have certain rank values can be considered as problematic factors. Factors that have a derivative value which in magnitude exceeds

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[2] "prerogative" originated from Latin "praerogativus", i.e. "chosen to ask first"; in this paper the word is used to denote those indices included in an integral indicator whose values need to be improved in the first place.

a certain expertly-specified boundary value can be considered as significant (Lavrinenko 2010).

Quantitatively identified levels of problematicity and significance of factors of social-economic security allow using other methods of identifying prerogatives and directions of a regional policy. For example, scalarization methods may be applied in order to identify prerogatives. In particular, a weighted total of values of problematicity and significance of a factor, or a distance from the factor to the point that has a maximum possible value of problematicity and significance (in the dimension" significance-problematicity) may be used as a function identifying a prerogative of a factor.

Such a mechanism for identifying prerogatives allows not only to make a list of prerogatives but also to create an ordered system of prerogatives and directions for the improvement of social-economic security of a territory.

In order to identify problem aspects of social-economic security of a territory, it is necessary, on the one hand, to draw on the analysis of the dynamics of indicators, on the other hand, on the analysis of the state of a region in relation to other regions with a similar level of social-economic security. Therefore, it is possible to suppose that a negative dynamics of an indicator in relation to its past value, and a simultaneous deterioration of a region's state according to a certain indicator in relation to relatively similar regions, indicate the existence of a so-called "problem" area. It allows using the dynamics of indicators for identifying prerogatives in the factors of social-economic security from the viewpoint of the necessity of influencing it by municipal or government policy (Aivazian 2005).

In other words, the deterioration of a territory's condition according to an indicator in relation to its values in the past and in relation to relatively similar territories means a high degree of prerogative for this indicator from the viewpoint of the need and possibility for its change. However, a sustainable improvement of an indicator's value in relation to the past values of an indicator of similar territories, in general, means simply the need for maintaining the current trend.

According to the abovementioned statement, indicators are divided into four problem groups (see Table 2) according to the following algorithm (Lavrinenko 2015). Indicators whose values deteriorated as compared to the values in the previous periods and values in the ratings for other territories fall into the first group (first problem class). Indicators whose values deteriorated as compared to other territories, but improved or remained at the same level as compared to the values in the previous periods fall into the second group (second problem class). Indicators whose values deteriorated as compared to their previous values, but improved or remained at the same level as compared to the rating for other territories fall into the third group (third problem class). Indicators whose values improved as compared to both their previous values and the rating for other territories fall into the *fourth group* (fourth problem class).

The first group contains the most problem indicators, i.e. the indicators whose values should be "improved" in the first place. The fourth group is the least problem from the viewpoint of the values of indicators.

Tab. 2. Matrix of the indicator problematicity

		Position in relation to other regions	
		Deteriorates	**Improves**
A region's position in relation to its own indicators in the past (dynamics)	**Deteriorates**	*First class of problematicity*	*Second class of problematicity*
	Improves	*Third class of problematicity*	*Fourth class of problematicity*

Source: Aivazian, S. A. (2005). Development and Analysis of
Quality of Life Integral Indicators in Samara Oblast. p.12

The simplest criterion for identifying the place in the problematicity matrix is the change in the value of the indicator during a certain period of time.

3. Results

In order to carry out a dynamic analysis of social-economic security of administrative areas in Latvia's municipalities, the results for 2011, which are shown on Figure 2 are taken as basic indicators. They are provisionally divided into quintiles. Territories with the best indicators of social-economic security are coloured white (quintile 5), territories with the worst indicators – black (quintile 1).

A cartographic reflection of the data visually shows the main problem area, which is a south-eastern part of Latvia. The largest city of the *south-eastern* part of the country – Daugavpils boasts and falls into quintile 4, whilst the majority of municipality's areas surrounding it fall into the worst quintile 1.

North-western Latvia is much more successful in terms of social-economic security. Majority territories here fall into quintile 4, and the largest city in this part of the country – Ventspils falls into quintile 5, the most successful quintile.

Indicators of social-economic security are a little lower in *south-western* Latvia. The largest city in this part of the country Liepaja falls into quintile 4, and it stands out on the background of other territories surrounding it.
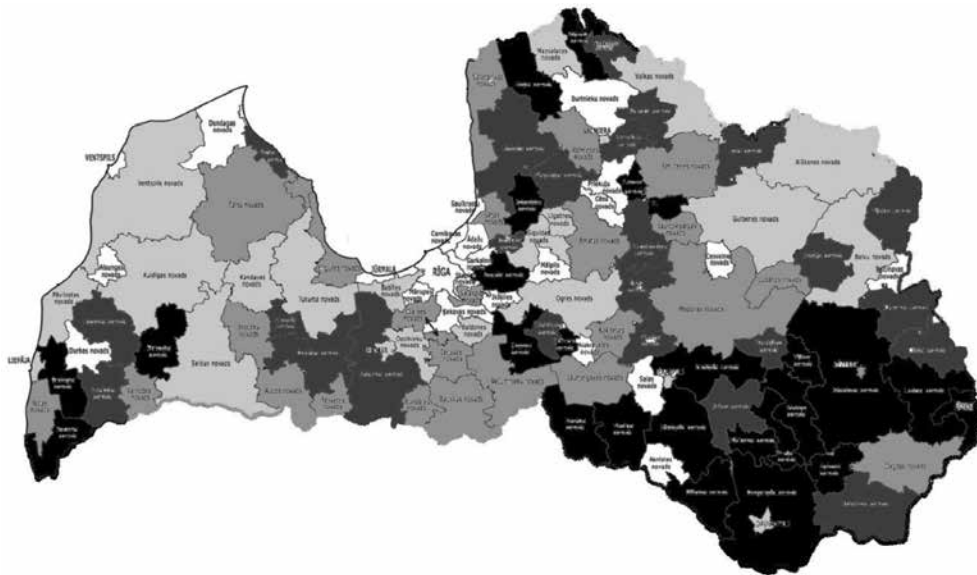

Fig. 2. Social-economic security of Latvia's municipal territories according to the data for 2011

Source: developed by the authors

The capital city and municipalities surrounding it demonstrate the highest level of social-economic security according to the data for 2011.

In order to carry out a dynamic analysis of social-economic security of administrative areas in Latvia's municipalities, the results for 2015, which are shown on Figure 3 are taken as comparison indicators.
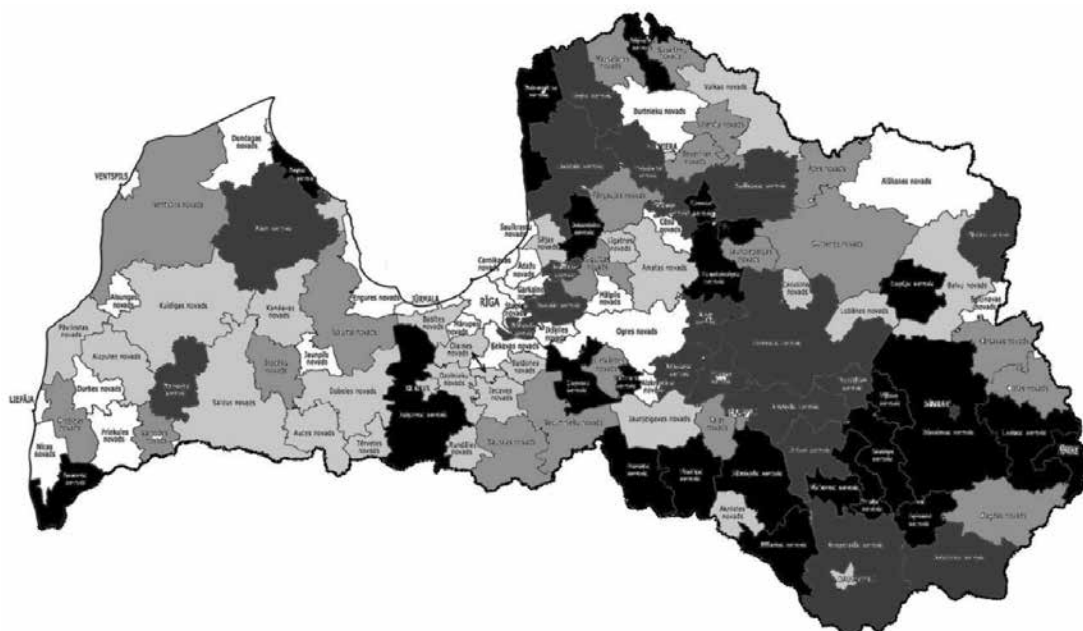
Fig. 3. Social-economic security of Latvia's municipal territories according to the data for 2015

Source: developed by the authors

When comparing the two maps, it is evident that the situation in the most problem south-eastern Latvia improved a little during 5 years. Part of the municipal territories in the south-east moved from quintile 1 to quintile 2. The largest city in this part of Latvia – Daugavpils didn't change its position.

The north-western part of Latvia worsened its indicators a little. Two largest regions in this part of the country – Ventspils and Talsi went 1 stage down in the rating. The largest city in the north-west – Ventspils stayed in the most successful quintile 5.

The *south-western* part of the country dramatically improved the indicators of social-economic security, and the largest city of this region – Liepaja fell into quintile 5, the best quintile.

Central part of Latvia, the capital, and territories surrounding it did not change in relation to the level of social-economic security.

However, it should be pointed out that the quintile distribution provides only the general idea of the dynamics of the process, and it works well for a cartographic representation of the data. For a deeper understanding of the dynamics of change in the level of social-economic security of territories in Latvia's municipalities for the period 2011–2015, it is better to use the matrix of the indicator problematicity which allows classifying territories according to their problematicity.
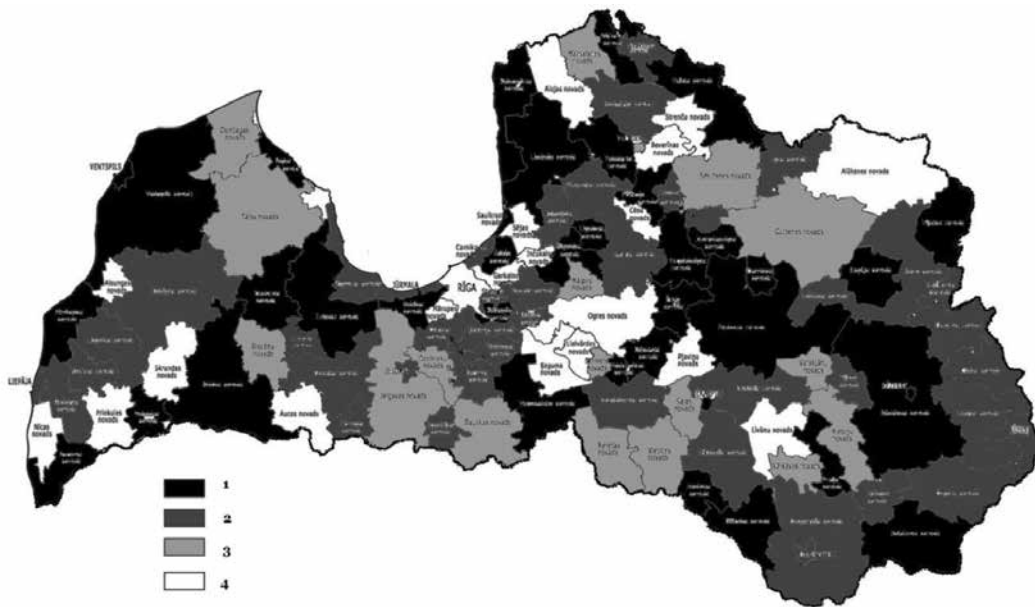
Fig. 4. Social-economic security of territories in Latvia's municipalities according to problematicity class (2011 – 2015)

Source: developed by the authors

Latvia's municipalities which improved their level of social-economic security in relation to their own indicators, as well as in relation to the indicators of other municipalities are marked with the white colour (problematicity class 4) on Figure 4. There are 16% of such territories in Latvia.

Territories which improved their own indicators of social-economic security, although their indicators worsened or remained the same in relation to other Latvia's municipalities are marked with the light-grey colour (problematicity class 3) on Figure 4. There are 15% of such territories in Latvia.

Municipal territories whose indicator of social-economic security worsened in relation to their own indicator at the beginning of the period, but improved or remained the same in relation to other territories during the same period are marked with the dark-grey colour (problematicity class 2) on Figure 4. 36% of the total number of municipalities has this problematicity class.
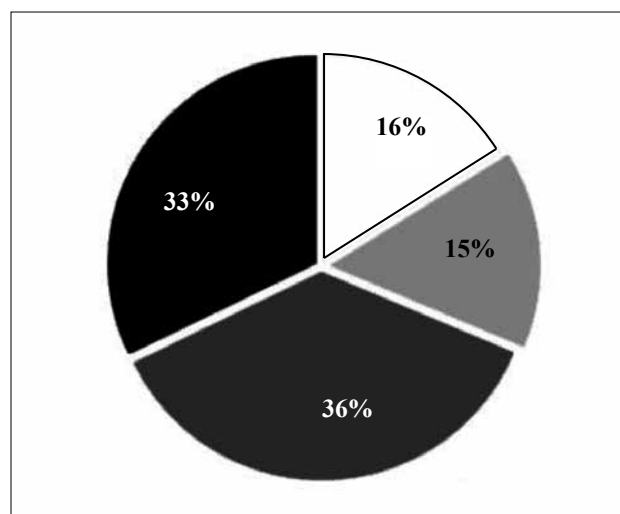

Fig. 5. Distribution of Latvia's municipal territories according to the problematicity class

Source: developed by the authors on the basis of the data in the period 2011-2015

Territories of Latvian's municipalities which during the period under study worsened their indicators of social-economic security in relation to their own indicators, as well as in relation to other territories' indicators are marked with the black colour (problematicity class 1). These territories comprise one third of the country's territory.

Figure 5 very vividly shows that two thirds of Latvia's territory demonstrated a negative dynamics of social-economic security during the period 2011–2015. At the same time Figure 4 shows that the distribution of the problematicity classes does not depend on the location of one or another of Latvia's historic regions (Latgale, Vidzeme, Zemgale, Kurzeme). Therefore, on the basis of the data, it is difficult to identify the most backward of Latvia's regions or the most secure region in terms of social-economic security.

Nethertheless, a cartographic analysis distinguishes Latgale as a place of intercrossing of two zones of problematicity – the extended problem territories beginning and ending by the country's boundaries. Under a closer examination, it is possible to notice (see Fig. 6) that there is a zone of problematicity which includes Daugavpils city, Daugavpils, Aglona, Kraslava, Dagda, Zilupe, Ludza, Cibla, Karsava, Balvi, Baltinava, Vilaka, Rezekne region, and Rezekne city in the south-east of the country, along the borders with Belarus and Russia. The zone ends at the border with Estonia and consists mainly of the municipalities that fall into the 2nd class of problematicity.

The second zone of problematcity begins at the south-east of Latvia, goes west and ends at the border with Estonia and the Riga Bay. This zone includes mainly municipalities that fall into the 1st class of problematicity: Kraslava, Rezekne, Madona, Cesvaine, Jaunpiebalga, Vecpiebalga, Priekule, Valmiera, Limbazi, and Salacgriva regions.
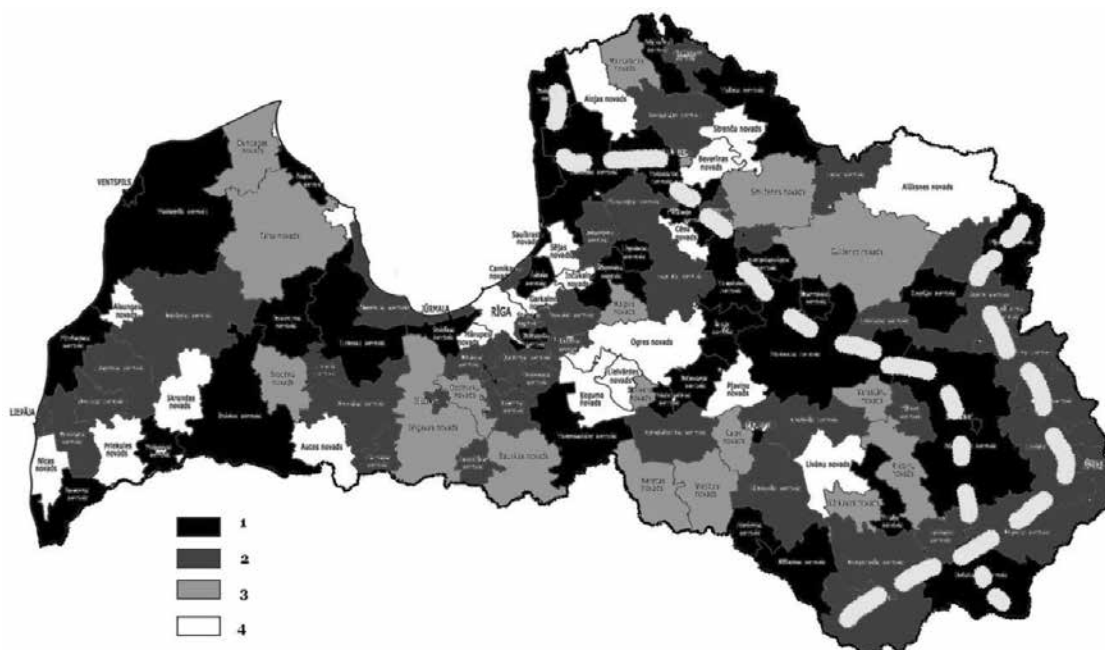

Fig. 6. Zones of problematicity of social-economic security of Latvia's municipal territories (the period 2011–2015)

Source: developed by the authors

Conclusions

Social-economic security is a basic need for an individual, or a household, as well as for various groups of people, society, and the country in general. Municipalities implementing their autonomous functions are a primary warrantor for the provision of social-economic security for their people.

Taking into consideration the negative balance of the growth of population in the country, as well as a free migration of people both across the country and the European Union, the competition among municipalities for the number of residents who declare their place of residence on one or another administrative territory has become stiff. In this situation the ability of a municipal government to create mechanisms for implementing its autonomous functions and spheres of activity, to provide social-economic stability on the basis of a stable growth of its indicators, as well as to contribute to a maximum satisfaction of infrastructure needs of people and entrepreneurs on its territory has become urgent. The research may become a methodological basis for it, as it provides an opportunity for a comparative analysis of the quality of work of both a municipality's political and executive authority in planning and implementing the budget.

As a result of the research, on the basis of the data from the period 2011–2015, every municipality was assigned its own problem class which was depicted in a cartographic form. This allowed identifying problem areas, as well as extended problem zones which run within the country's borders. Taking into consideration their close proximity to the European Union's borders, it should be concluded that these territories require the development of a special set of measures for the improvement of their level of social-economic security.

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