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MUNICIPALITIES: OPPORTUNITIES TO IMPROVE FINANCIAL SECURITY

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Abstract

Among the elements that make up the financial security of the state, a special place belongs to the financial security of municipalities, as the foundation of general financial security. In connection with the foregoing, the purpose of the article is to determine the methodology for assessing the financial security of municipalities. The article substantiates the main stages of assessing the financial security of municipalities, including collecting baseline information, grouping and calculating statistical indicators, bringing them into a comparable form, calculating the integrated indicators of financial security for each municipality, assessing the financial security of municipalities and the distribution of municipalities by levels of financial security. It has been concluded that using the proposed methodology allows the following: comparing the levels of financial security of various

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municipalities in the region, identifying lags in specific groups of indicators for each municipality and calculating financial security at the regional level as a whole.

Keywords

Financial Security – Municipalities – Budget Security – Public Administration – Investments

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Introduction

Measures on the sustainable development of municipalities are now being formed as an independent direction of Russian economic policy. The current trend is aimed at increasing the independence of municipalities, primarily their financial independence. However, in connection to this, municipalities face a large number of arising threats.

Therefore, the relevance of the research is substantiated by the need for a systematic methodological approach to evaluating the financial security of municipalities.

The problems of ensuring financial security at the municipal level have been earlier investigated by scientists¹ but are not yet studied sufficiently enough. Works of both Russian and foreign scientists have been devoted to the problems of economic security in general and to financial security in particular². However, methodology for evaluation of the

¹ A. P. Bondar, "State support of financial security of enterprises in the sphere of housing construction", Scientific bulletin: finances, banks, investments Vol: 1 num 14 (2012): 13-15; A. P. Bondar, "Providing economic security of regions in Ukraine", Scientific bulletin: finances, banks, investments Vol: 4 num 23 (2013): 94-99; M. Yu. Kussy, "Financial risks and financial security of the enterprise", Scientific Bulletin: Finance, Banks, Investments Vol: 4 num 23 (2013): 35-40; Yu. N. Vorobyov, "Theoretical-methodological bases of financial methods of regulation and stimulation of the economy of the country and its regions", Scientific Bulletin: Finance, Banks, Investments Vol: 3 num 36 (2016): 5-16; E. I. Vorobyova, "Enhancing the role of public finances in the financial system of the Russian Federation", Scientific Bulletin: Finance, Banks, Investments Vol: 1 num 34 (2016): 21-26; D. D. Burkaltseva; Yu. N. Vorobyov; O. G. Blazhevich; E. E. Frolova y A. A. Puhart, "Financial and economic security of business as a primary element in the economic system: Calculation of the integrated indicator of economic security", Revista Espacios, Vol: 38 num 3 (2017a); D. D. Burkaltseva; L. M. Borsch; O. G. Blazhevich; E. E. Frolova e I. V. Labonin, "Financial and economic security of business as a primary element in the economic system", Revista Espacios Vol: 38 num 33 (2017b) y V. V. Pshenichnikov y A. V. Babkin, "Digital money as a product of the development of information and telecommunication technologies", Quality Management, Transport and Information Security, Information Technologies (2017): 259-265.

² N. Simchenko; S. Tsohla y A. Murava-Sereda, "Institutional Practices of Economic Experiments in the Field of Money Circulation in Crimea (1783-1917)", Indian Journal of Science and Technology Vol: 8 S. 10 (2015); Z. Varnaliy; S. Onishchenko y A., Masliy, "Threat prevention mechanisms of Ukraine's economic security", Economic Annals-XXI Vol: 159 num 5-6 (2016): 20-24; D. D. Burkaltseva; O. S. Sivash; O. V. Boychenko; L. V. Savchenko; T. N. Bugaeva y S. A. Zotova, "Realization of Investment Processes in the Agricultural Sector of the Digital Economy", European Research Studies Journal Vol: XX num 4B (2017c): 366-379; N. M. Dudin; D. D. Burkaltseva; S. Yu. Tsohla; I. N. Voronin; A. A. Yanovskaya y O. A. Guk, "Peculiarities of Sustainable Tourism Development in the Russian Federation". Journal of Environmental Management and Tourism Vol: 8 num 24 (2017): 1571-1578; O. M. Korobeynikova; D. A. Korobeynikov; L. V. Popova; O. V. Savina y R. Sh. Kamilova, "The current state of the payment infrastructure and development of payment systems in Russia and the Volgograd region", Revista Espacios Vol: 38 num 62 (2017); O. S. Sivash; D. D. Burkaltseva y D. S. Ushakov, "Activization of Investment Process in the Agrarian Sector", International Journal of Ecology and Development Vol: 32 num 4 (2017): 169-182; S. Yu. Tsohla; N. A. Simchenko; E. Polishchuk; E. Romanyuk e I. Podsmashnaya, "Institutions of Social Partnership in Providing Youth Employment in the Labor Market of the Republic of Crimea", Journal of Applied Economic Sciences XII Vol: 8 num 54 (2017): 2368-2376; N. G. Vovchenko; M. B. Gontmache; E. N. Tishchenko y T. V. Epifanova, "Electronic currency: the potential risks to national security and methods to minimize them", European Research Studies Journal Vol: 20 num 1 (2017): 36-48 y O. G. Blazhevich; D. D. Burkaltseva; V. V. Shalneva; A. V. Betskov; H. S. Kilyashkanov; A.

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financial security of municipalities hasn't been proposed. Therefore, it is necessary to develop theoretical foundations and methods for building a system for ensuring the financial security of municipalities.

Literature Review

The purpose of this work is to study the theoretical foundations of financial security of municipalities, as well as to develop methods for evaluation of financial security of municipalities. Financial security of a region is a constituent part of financial security of the state and it has nearly identical components but in a small scale. Modern economists haven't studied sufficiently the essence of the financial security³. More emphasis is placed either on the level of the state, or on the level of the enterprise. If we draw a parallel between the financial security of the state and the region, the following definition can be given: the financial security of the region is the most important part of the region's economic security, which reflects the condition and readiness of the region's financial system for timely, reliable and independent financial provision of economic needs, as well as its ability to withstand internal and external financial threats in changing conditions.

Proposed Methodology

General description

In order to quantify the level of financial security of the region, it is necessary to develop a system of indicators that will characterize its financial activity to the maximum.

It should be noted that at the moment there is no single, generally accepted methodology for evaluating the financial security of municipalities.

It is necessary to emphasize the following:

P. Bondar y S. A. Zotova, "Assessment of financial security in the chemical industry of the Republic of Crimea", *Journal of Pharmaceutical Sciences and Research* Vol: 10 num 6 (2018): 1377-1385.

³ N. L. Kuzmina y L. L. Tonyшева, "Conceptual Logical Model of Managing the Development of Local Food Markets in the Context of Intermunicipal Socioeconomic Differentiation", *Journal of Advanced Research in Law and Economics IX* Vol: 4 num 34 (2018): 1324-1330. DOI: [https://doi.org/10.14505/jarle.v9.4\(34\).19](https://doi.org/10.14505/jarle.v9.4(34).19); S. G. Solovev, "On the Issue of the Limits of Discretion of the Deputies in Assessing the Annual Report of the Head of the Municipality", *Journal of Advanced Research in Law and Economics IX* Vol: 4 num 34 (2018): 1489-1493. DOI: [https://doi.org/10.14505/jarle.v9.4\(34\).36](https://doi.org/10.14505/jarle.v9.4(34).36); I. A. Isaev; A. V. Kornev; S. V. Lipen y S. S. Zenin, "Magic and Power (Technological Foundations)", *Amazonia Investiga*, Vol: 8 num 20 (2019): 693-705; D. Kuteynikov; P. Izhaev; V. Lebedev y S. Zenin, "Transformation of Public Relations in The Conditions of Technological Revolutions: Technology and Innovation", *International Journal of Recent Technology and Engineering* Vol: 8 num 2 (2019): 3964-3971; I. I. Malikova; D. V. Gorelov; V. V. Plotniko y E. I. Danilina, "Creating a Municipal Information System of a City using GIS Technology", *International Journal of Engineering and Advanced Technology* Vol: 8 num 5 (2019): 430-434; K. N. Yusupov; V. M. Timiryanova; D. V. Popov y N. V. Trofimova, "Evaluating the impact of border in managing a municipal unit by using hierarchical analysis methods", *Espacios* Vol: 40 num 20 (2019) y S. Zenin; D. Kuteynikov; O. Izhaev e I. Yapryntsev, "Applying Technologies of Distributed Registries and Blockchains in Popular Voting and Lawmaking: Key Methods and Main Problems", *Amazonia Investiga* Vol: 8 num 20 (2019): 330-339.

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- statistical data are used for the initial indicators in the evaluation of the financial security of municipalities;
- in assessing the financial security of municipalities, there is subjectivity of experts in the formation of a set of indicators, according to which the assessment of the financial security of municipalities will be carried out.

Algorithm

In general terms the assessment of the financial security of municipalities includes the following steps:

- a sample is made and justification is given according to a set of indicators that reflect the financial activities of municipalities;
- all the indicators are converted into a comparable form;
- an integral estimation of financial security for each municipality is calculated.

Flow chart

The main steps in assessing the financial security of municipalities are shown in Figure 1.

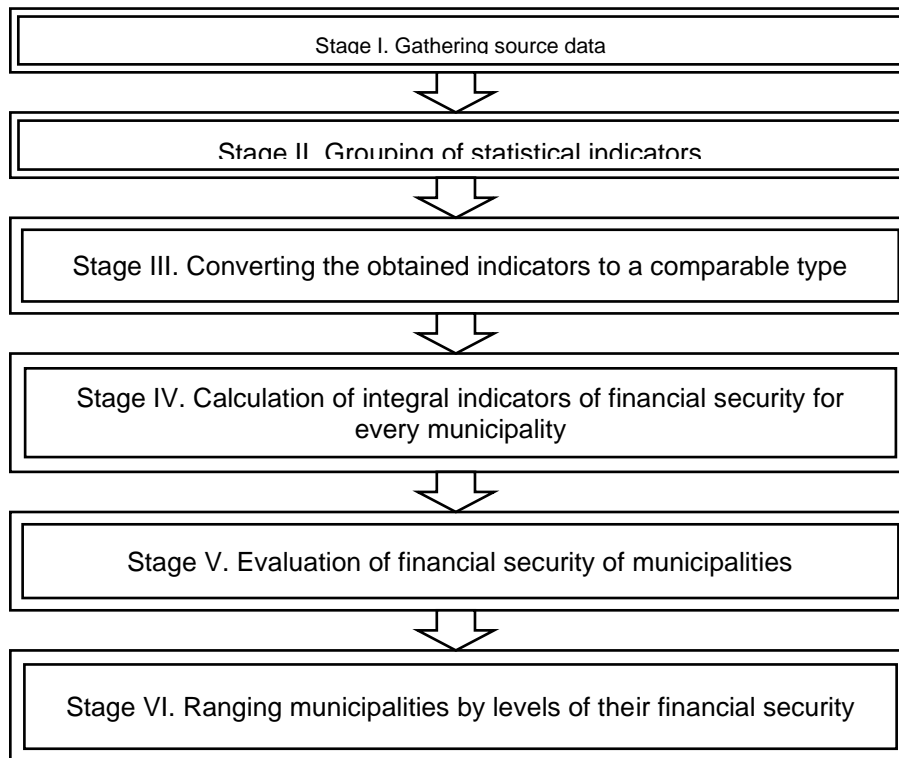


Figure 1
 Stages of evaluation of financial security of municipalities
 Source: compiled by the authors on the basis of Dolzhikova⁴.

⁴ I. V. Dolzhikova, "Provision of financial security of the region", Bulletin of Tula State University. Economic and legal sciences Vol: 4 num 1 (2013): 181-190.
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Results Analysis

Stage I. On the basis of the diagram in Figure 1, the formation of a system for assessing the financial security of municipalities begins with the creation of databases containing statistical indicators that should most fully characterize the financial activities of the municipality.

Stage II. At the second stage, these indicators should be grouped according to a particular characteristic of financial security, which will allow obtaining integral indicators for each group and make more precise conclusions and proposals.

In Figure 2 a system of indicators, which, in our opinion, most fully characterize the financial activities of municipalities, is presented.

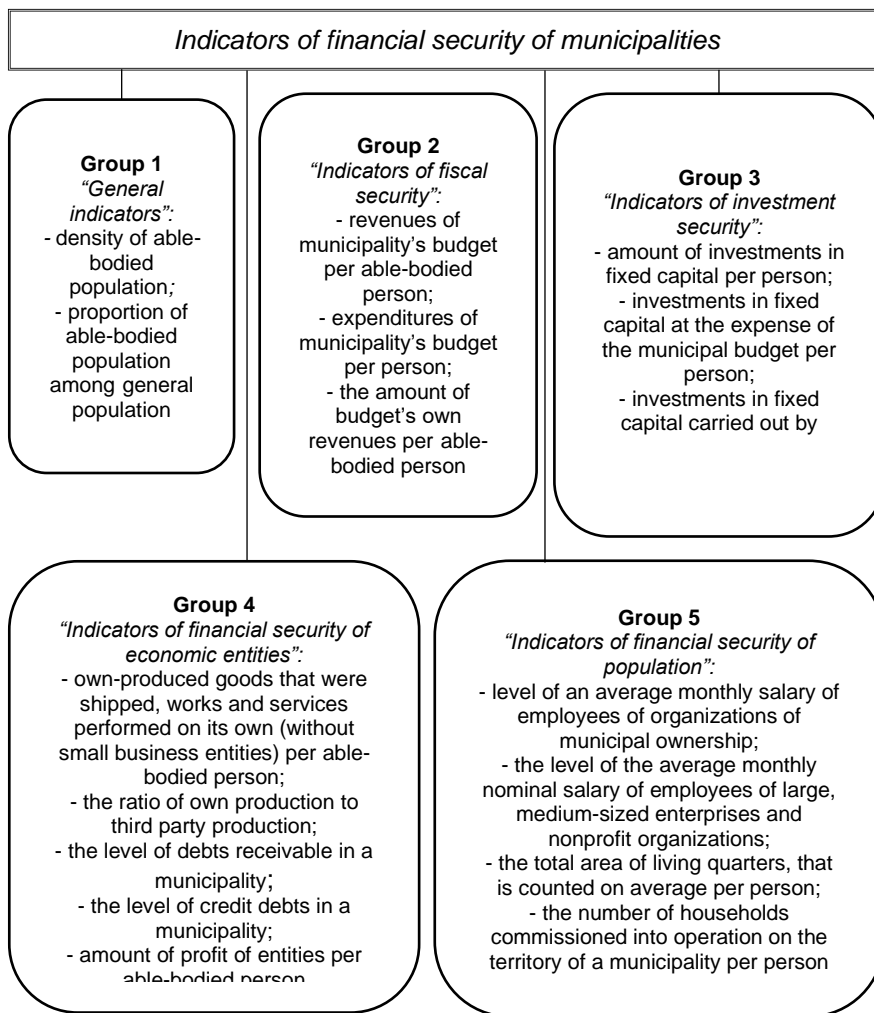


Figure 2

System of indicators for evaluation of financial security of municipalities.

Source: compiled by authors on the basis of Dolzhikova⁵

⁵ I. V. Dolzhikova, “Provision of financial security of the region”, Bulletin of Tula State University. Economic and legal sciences Vol: 4 num 1 (2013): 181-190.

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The first group consists of general indicators of the financial security of municipalities, which include the density of the able-bodied population and the proportion of the able-bodied population among general population.

The density of the able-bodied population is an indicator calculated by dividing the total able-bodied population of a municipal formation by its area. This indicator reflects the provision of the municipal entity with labor resources. The more the latter is, the higher the efficiency of the work of the municipality is, which creates the prerequisites for economic growth. In addition, if there are a lot of able-bodied people on a certain territory, this testifies about the availability of jobs there, which means that it is more economically efficient than other territories of the region.

The proportion of the able-bodied population in its total amount is the indicator calculated by dividing the able-bodied population by its total amount in a municipality. If the previous indicator reflects the concentration of labor resources in certain areas, then this indicator reflects the proportion of the working population and the population in the unemployable age group. This ratio is very important to consider, as the more able-bodied population the municipality has, the higher the solvency of the population and the higher the economic efficiency of the municipality's work are. In addition, today, the acute issue is whether the able-bodied population will be able to ensure the pay-out of pension payments, as the number of pensioners per worker increases every year. Therefore, it is necessary to analyze and improve the values of these demographic indicators in each municipality.

The second group of indicators reflecting fiscal security include: municipal budget revenue per able-bodied person, municipal budget expenditures per person, and the amount of its own budget revenues per able-bodied person.

Revenue of the budget of a municipality per able-bodied person is an indicator calculated by dividing the actually received budget revenues of a municipality for a certain year by the able-bodied population of the same period. Proceeding from the fact that the most important item of budget revenues are tax revenues, which are formed mainly of the income of the working population, as well as from a part of the profits of enterprises, labor resources also participate in getting it, this means that the able-bodied population stands in the denominator of this indicator. The higher the value of this indicator is, the higher the economic efficiency of the municipality is. However, it is necessary to take into account the fact that the positive dynamics of this indicator will be its growth only due to an increase in budget revenues, but not due to a decrease in the able-bodied population.

Expenses of the budget of a municipality per person are an indicator calculated by dividing the budget expenditures by the total population of the municipality. The denominator covers the entire population of the municipality, since budget expenditures affect both able-bodied and unemployable population. This indicator reflects the extent to which the population is provided with budgetary funds, and the higher the value of this indicator is, the higher the social security of people living on this territory is.

The amount of municipality's own revenues of the budget per able-bodied person is an indicator calculated by the ratio of own budget revenues to the able-bodied population of the municipality. Municipality's own revenues of the budget include: part of the tax on

personal income, land tax, individual property tax, uniform tax on imputed income, part of unified agricultural tax, state tax, sales tax⁶, nontax revenues (leasing of municipal property, etc.).

Municipality's own revenues are those revenues that remain after deduction of grants, subsidies, subventions and other interbudgetary transfers sent to the municipality.

Since at this stage of the development of Russian economy there is a tendency to increase the independence of the regions, which should be conditioned by economic and financial independence, each municipal entity should seek to increase its own budget revenues.

The indicators of investment safety that form the third group of financial security indicators include the volume of investments in fixed capital per person, investments in fixed capital from the municipal budget per person, investments in fixed capital by organizations located on the territory of the municipality per person.

The volume of investments in fixed capital per person is the indicator calculated by dividing the total volume of investments in fixed capital by the population of the municipality. "Investments in fixed capital should be understood as a set of expenditures aimed at the acquisition, creation and reproduction of fixed assets, i.e. costs for new construction, reconstruction (including expansion and modernization) of facilities that lead to an increase in their initial cost, for the acquisition of machinery, equipment, vehicles, production and household equipment, etc"⁷.

The increase of investments in fixed capital indicates modernization, expansion, business development of enterprises, which leads to an increase in the efficiency of their activities and improves the socio-economic environment of the municipality.

Investments in fixed capital at the expense of the municipal budget per person are an indicator calculated by dividing the total amount of investment in fixed capital carried out by municipalities by the number of people. This indicator reflects the investment activity of local budgets.

Investments in fixed capital carried out by organizations located on the territory of the municipality per person are an indicator reflecting the ratio of the amount of investment in fixed capital carried out by enterprises to the population size. Relying on this indicator, it is possible to estimate the extent to which enterprises develop on the territory of a municipality. The fourth group of indicators of financial security includes indicators related to the activities of business entities, such as the volume of goods shipped, works performed and services performed by their own forces (excluding small businesses) per able-bodied person, the ratio of own production to third-party production, the level of accounts receivable in the municipality, the level of accounts payable in the municipality, the amount of profit of organizations per able-bodied person.

⁶ S. N. Maksimov, *Economic security of Russia: system and legal research* (Moscow: Publishing house IPSI, MODEC, 2008).

⁷ A. A. Maslennikov y D. E. Plisetskiy, "Economic Security of Russia", *Banking* num 12 (2014): 11-15.

The amount of goods shipped, works and services performed by own forces (without small business entities) per able-bodied person is an indicator calculated by dividing the results of own production by the able-bodied population. This indicator affects the financial independence of the municipality, as own production ensures the flow of revenues to the budget, promotes employment of the population and, on the whole, positively influences the economic development of the municipality.

The ratio of own production to third-party production is an indicator calculated by dividing the volume of own products, works performed, services provided by the goods brought in, the work and services involved in monetary terms for a certain period. This indicator reflects the production potential of the municipality.

The level of accounts receivable in the municipality is the indicator calculated by dividing accounts receivable of the municipality by the average accounts receivable in the region. The presence of accounts receivable is a positive fact, since it indicates the economic activity of the enterprises of the municipality, their flexible sales policy. However, the level of accounts receivable should not be too large, since there is a risk of its nonreturn. Therefore, accounts receivable should be approximately close to average performance.

The level of accounts payable in the municipality is the indicator calculated by dividing the municipality's accounts payable by the average accounts payable in the region. The presence of accounts payable allows enterprises to use the so-called "free" financial resources. However, to increase this indicator infinitely is impossible, since it is necessary to preserve solvency.

The amount of profit of organizations per able-bodied person is an indicator calculated by dividing the profit received by enterprises by the able-bodied population of the municipality.

The fifth group of indicators reflects the financial security of the population. This group includes the level of average monthly salary of employees of organizations of municipal ownership; the level of the average monthly nominal salary of employees of large, medium-sized enterprises and nonprofit organizations; the total area of living quarters accounted to person on average; the number of residential households commissioned into operation on the territory of the municipality per person.

The level of average monthly salary of organizations' employees of municipal ownership is an indicator calculated by dividing the average monthly salary of employees of the municipal form of ownership of a municipality by the average regional monthly salary of employees of municipal ownership.

The level of the average monthly nominal salary of employees of large, medium-sized enterprises and nonprofit organizations is an indicator calculated by dividing the average monthly nominal salary of employees of large, medium-sized enterprises and nonprofit organizations of the municipality by the same average regional indicator.

These indicators reflect the lagging or advancing salary in a particular municipality in comparison with other municipalities. If the municipality develops sustainably or at a faster pace, then the wages of employees will be correspondingly higher.

The total area of living quarters per capita on average is an indicator calculated by dividing the total area of living quarters by the population. This indicator reflects the provision of the population with housing in a particular municipality.

The number of households commissioned into operation on the territory of the municipality per person is an indicator calculated by dividing the total number of households put into operation on the territory of the municipality by the size of population. This indicator reflects the capacity of the municipality to provide housing for the population.

Having calculated the above indicators of the municipality's activity, it is possible to make initial conclusions on the evaluation of its financial security. However, to determine the level of financial security of a municipal formation more precisely, it is necessary to apply the integral method of assessing financial security.

Stage III. In the third stage, according to the integral method of calculating financial security, it is necessary to convert the calculated indicators into a comparable type. For this, it is necessary to compare the obtained numerical value of each indicator with its normative value, that is, to standardize it. Converting indicators of financial security of municipalities is carried out in the following order:

- for each i^{th} indicator, its normative value a_i^{nl} among the values obtained in different municipalities is fixed. In this paper, the normative values will be average-regional, as each municipality should seek to achieve average performance indicators in the region; exceeding these indicators will indicate a higher level of its financial security.

- the degree of deviation of the indicator for a particular municipality from the normative (average-regional) value is calculated:

$$x_{ij} = \frac{a_{ij}}{a_{ij}^{\text{nl}}}, \text{ if the direction of optimization of the indicator } \Rightarrow \text{max};$$

$$x_{ij} = \frac{a_{ij}^{\text{nl}}}{a_{ij}}, \text{ if the direction of optimization of the indicator } \Rightarrow \text{min};$$

Stage IV. The next step in assessing the financial security of municipalities is the calculation of integral indicators for each of the groups of indicators, as well as the calculation of the overall integral indicator of financial security for each municipality. Group integral indicators are calculated by obtaining the average of the arithmetic mean for each group. The total integral indicator is the arithmetic mean of the group integral indicators⁸.

⁸ D. D. Burkaltseva; O. S. Sivash; O. V. Boychenko; L. V. Savchenko; T. N. Bugaeva y S. A. Zotova, "Realization of Investment Processes in the Agricultural Sector of the Digital Economy", European Research Studies Journal, Vol: XX num 4B (2017c): 366-379 y N. G. Vovchenko; M. B. Gontmacher; E. N. Tishchenko y T. V. Epifanova, "Electronic currency: the potential risks to national security and methods to minimize them", European Research Studies Journal Vol: 20 num 1 (2017): 36-48.

Stage V. When assessing the financial security of municipalities using an integrated indicator, it should be remembered that the integral indicator reflects the dynamics of the development of financial security of municipalities. If the value exceeds 1, it means the municipality provides sufficient level of development of financial security, if the value is less than 1, then the development of financial security is at insufficient level.

Also, it is rational to calculate the average-regional level of financial security. To do this, we use the formula of the weighted average, since municipalities have differences in territory, population size, revenues received and, accordingly, have different level of influence on the financial security of the region. In this paper, the difference according to the region's population was taken as the basis. Thus, the average regional integral indicator of financial security will be calculated by multiplication of a common integral indicator of each municipality by the share of the population of this municipality in the total population of the region.

Stage VI. At the next stage, it is necessary to range municipalities according to their level of financial security. For this, we distinguish 4 levels of financial security:

- the first level includes municipalities with the best level of financial security;
- the second level includes municipalities with the sufficient level of financial security;
- the third level includes municipalities with the average level of financial security;
- the fourth level includes municipalities with the insufficient level of financial security.

In each selected group, the following parameters are calculated:

- upper boundary of the interval (x_i^u);
- lower boundary of the interval (x_i^l);
- interval width (a_i).

The upper boundary of the interval (x_i^u) is the maximum value in the group. The lower boundary of the interval (x_i^l) is the minimum value of the group.

If the variation of the attribute is manifested in comparatively narrow limits, and the distribution of units has fairly steady rate, then a grouping with equal intervals is constructed. For the equal-interval grouping, the width of the interval is determined by the formula:

$$a_i = \frac{X_{\max} - X_{\min}}{m} \quad (1)$$

where X_{\max} is the maximum value of index,

X_{\min} is the minimum value of index.

The boundaries of the intervals x_i^u and x_i^l are consistently defined on the basis of the calculated width of the interval (a_i).

The boundaries of intervals are defined by formulas: $x_i^l = x_{i-1}^u$, $x_i^u = x_i^l + a_i$.

The definition of boundaries begins with the first group. Its lower boundary is taken equal to the minimum value of the attribute in the aggregate, i.e. $x_1^l = x_{\min}$, and the upper boundary is defined as $x_1^u = x_1^l + a_i$. For the second group the lower boundary is taken equal to the upper boundary, that is $x_2^l = x_1^u$, and the upper boundary is defined as $x_2^u = x_2^l + a_i$ etc.

Conclusion

Thus, following the proposed methodology, it is possible to evaluate the levels of financial security of municipalities, compare them among themselves, identify lags in specific groups of indicators and calculate the average regional financial security.

The possibility of practical application of the methodology proposed on the example of assessing the financial security of municipalities of the Republic of Crimea should be considered in the future studies.

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