Regional Economic Analysis - Economic-Geographical Aspects

Dimitar Simeonov*

Department of Geography, Faculty of History, St Cyril and St Methodius University of Veliko Tarnovo, Bulgaria, Theodosii Tarnovsky str, Veliko Tarnovo, Bulgaria, 5000

Email: d.simeonov@ts.uni-vt.bg

Abstract

The economic analysis of each region in a country should take into account the specific interaction of natural, social and economic factors that ensure the uniqueness of a particular territory, its potential for self-development and interaction with other territories. The regional economic analysis should reveal the economic aspects of the spatial differentiation of the socio-economic development and the connections of the territories in the conditions of uneven distribution and limited mobility of the resources; the degree and type of availability of the production entities; trends in economic and social development; the mechanisms for solving inherited and permanently manifesting regional problems. This report is an attempt at an individual approach in the development of a rigorous algorithm for the full economic analysis of a region (cn the context of the regional analysis of the Bulgarian economy), for which a wide range of analysis methods has been applied.

Keywords: regional analysis; sustainable development; sustainable economy; comparative method.

1. Introduction

According to the Russian geographer Alaev, in order to characterize a territory as a region, there must be a certain interconnectedness of its constituent elements, which will ensure unity and integrity as an objective condition and a natural result of the development of the territory [1]. Therefore, from an economic-geographical point of view, the specific interaction of natural, social and economic factors should be taken into account in the economic analysis of the individual region.

----

* Corresponding author.

They ensure the uniqueness of the specific territory, its potential for self-development and interaction with other territories. The regional economic analysis itself is a system of special knowledge related to:

- the study of economic phenomena and processes that are formed under the influence of objective economic laws and factors of a subjective nature;
- scientific substantiation of the regional development plans and objective assessment of their implementation;
- identification of the factors influencing the development of the regional economy, as well as quantification of their action;
- identifying trends in regional development and identifying unused resources;
- summarizing best practices and making optimal management decisions.

The subject of the regional economic analysis are the economic phenomena and processes, taking place in their totality and in interaction. The differentiation of the very subject of the regional economic analysis should reveal: the economic aspects of the spatial differentiation of the socio-economic development and the connections of the territories in the conditions of uneven distribution and limited mobility of the resources; the degree and type of availability of the production entities; trends in economic and social development; the mechanisms for solving inherited and permanently manifesting regional problems.

The object of the regional economic analysis can be a region with different taxonomic rank (state, administrative-territorial unit – district or municipality in Bulgaria, or informal region – statistical regions); separate components of the economic, social and cultural system; various economic indicators; socio-economic standards for the quality of life of the population, competitiveness and many others.

Any scientifically based regional economic analysis should serve as a basis for developing a prognosis or program for further development, which is subject to the principles of sustainable development and sustainable economy. Sustainable development and a sustainable economy are those that can withstand the progress of humanity without destroying the systems that support them and at the same time offer a better life for present and future generations [2]. Through the application of the individual economic-geographical aspects of the regional economic analysis there is an opportunity to solve a wide range of tasks such as:

- assessment of the results of the activities for the implementation of the regional plans, the achieved level of economic development;
- determining the efficiency of using all types of resources for economic activities;
- determining the place of the region in the economic structure of the country in terms of various aspects of the reproductive process;
- control over the implementation of plans, forecasts, management decisions; control over the efficiency of the use of the economic potential of the region, as well as the use of funds coming from the national budget, own budgets or from other sources;
- the use of multidimensional assessments of the effectiveness of regional development, taking into account the solution of various problems (social, economic, environmental, humanitarian);
- comprehensive and objective study of the possibilities for strategies for further economic development;

assessment of the effectiveness of the implemented regional policy and timely adoption of measures for its correction.

The information base needed to study the situation and determine the prospects for regional development consists of a system of indicators covering all aspects of its economic activity. An important condition for disclosing the condition of the economy is the correct choice of statistics and the type of results used by expert studies. There are currently quite a number of statistical sources divided into several groups:

1. Statistical compilations and publications for operational statistical information of the National Statistical Institute (NSI). A special interactive panel is available for each area in the country. Each provides up-to-date sections with data on: demographic statistics (8 indicators); labor market (9 indicators); healthcare (3 indicators); education (3 indicators); investments (2 indicators); non-financial enterprises (7 indicators); transport (4 indicators); research and development and innovations (2 indicators); information society (2 indicators); housing stock (2 indicators) and tourism (2 indicators).

2. The source of information on certain issues is also the information from the statistical reports of ministries and departments. It provides an opportunity to conduct diverse socio-economic surveys for individual territorial levels and provides opportunities for analysis and diagnosis of regional economy.

3. Internet sites of national, regional and municipal administrations, which often provide relatively detailed data both on the economy of the country as a whole and on individual statistical regions, districts and municipalities. The composition of the indicators for the condition and dynamics of the regional economies used by the administrations does not always coincide with the national ones. Sometimes the data may differ for the same indicators, which is a consequence of the use of different methodologies for their calculation (eg unemployment rate).

4. Internet sites of non-profit companies and organizations with different forms of ownership and size. The information published on these sites provides an opportunity to assess the impact of these companies and organizations on the local economy, to accurately locate the collected statistics, as well as to detail the links of the regional economy with the economy of other constituent units in Bulgaria or abroad. .

5. The results of the studies of research institutions, various industry associations, chambers of commerce, foreign policy, scientific and trade missions, etc. The marketing reviews of the mentioned groups are of growing scientific interest. The developments for "Socio-economic analysis of the regions in the Republic of Bulgaria" (2019) of the National Center for Territorial Development were widely recognized and used by geographers.

The availability of a large amount of heterogeneous information on the state of the economy (general and by region) raises the problem of the comparability of statistics published in different sources. Despite some shortcomings (including objective ones, such as the lack of long time series for monitoring), the information published by the National Statistical Institute is of a regular nature and is quite detailed for the statistical region, district and municipality levels. Therefore, it is advisable to use NSI statistical publications in socio-economic regional surveys. Other sources of economic statistics may provide primarily specialized or clarifying

information. Their use in the analysis of economic regional development requires a mandatory comparison of the specifics of the formation and calculation of their base by all analytical structures.

2. Methodology and framework of analysis

Each economic regional analysis is based on a systematic approach and regional planning, characterized by a large number of external and internal links [3]. The objectives and conditions of operation are determined for the object of study. The regional site is a specific territory, which as a system is the set of different economic entities engaged in economic activity. It consists of three interrelated elements: resources, production process and finished products (work performed, services provided). By analogy with the companies at the entrance of the region there are flows of resources (materials and labor), and at the exit – material flows of finished products (work performed, services provided). In the process of the production activity of the subjects of the regional economy the resources at the entrance of the system become a new finished product.

The task of systematic analysis is to examine the various factors that make it possible to ensure a higher level of profitability of economic entities, a higher level and quality of life for the population and others. The systematic approach requires the development and application of a system of synthetic and analytical indicators that will allow to assess the efficiency of the economy of both the individual region and its components. All indicators can be combined in blocks (depending on the selected direction and object) in the following structures:

A) Summary indicators that characterize the activity of the holding and include: gross domestic product; gross regional product; gross value added (total and regional); the degree of satisfaction of the needs of the population with products produced by national or regional companies; the volume of imports of products and resources needed to meet the needs of the population; profits and income of companies serving as a basis for taxation, etc.

B) The analysis of the subject structure of the economy makes it possible to establish its main material components, their balance proportions and intra-system relations. In the material and intangible part the following subsystems can be distinguished: territory (spatial infrastructure); population (households); production infrastructure and non-production sphere. The detailed analysis of each component of the structure allows to determine the degree of development and the type of region.

C) The organization of production can be traced in the following areas:

- the scientific and technical level is characterized by the progressiveness and quality of the products, the used equipment, the degree of mechanization and automation of production, the technical and energy equipment of labor, the innovations of the technologically used processes, as well as the degree of wear of fixed assets;
- the level of organization of production and labor is derived through concentration, specialization, cooperation and combination of production, the duration of the production cycle, the rhythm of production. Indicators related to the provision of the necessary labor force also play an important role here;
- the economic efficiency of the increase of the organizational and technical level is determined by indicators for the use of the production resources – capital productivity, consumption of materials, labor productivity,

etc.;

- geographical location and natural conditions determine the development of certain sectors of the economy;
- economic conditions predetermine the possibility of supply of raw materials, fuel and electricity.

D) It studies the resource (natural resource) potential: the presence of mineral deposits, sources of heat and electricity, arable land, etc.

E) The infrastructure is divided into: production, institutional and social. The purpose of this block is to establish the existence and degree of development of these three separate infrastructure components. This block is closely connected with blocks A and B, when it is necessary to solve the problem of the optimal territorial location of enterprises. They are guided by two principles: construction close to the consumer or construction close to the source of raw materials. Their optimal localization is solved through the accumulated knowledge of localization theories and methods of linear programming.

F) Disclosure of the demographic situation (for the number, structures and composition of the population) is a necessary condition for prognosing, planning the production of goods and services, developing a network of educational institutions, health facilities, determining the overall potential of the working age population, the dynamics and composition of labor resources and much more. Employment is considered one of the serious economic problems, and unemployment levels are one of the most common indicators of socio-economic development.

G) The production capacity of the companies carrying out economic activity on the territories is essential and is considered as a source of employment for the population. An obligatory component of this block is the analysis of the presence of economic entities (macro- or micro-enterprises), their technical condition and the degree of workload. Projects for the deployment of economic facilities, which include the construction of new ones and the reconstruction of existing ones with different forms of ownership, should be discussed here.

H) The object in this block is the assortment list of goods and services, as well as the tax policy. The volume of products produced in kind and their quality are of great importance, as they meet the daily needs of the population. The prospects for changes in tax policy are influenced by the structure of tax revenues: the more it diversifies both by type of tax and by sector of the economy, the higher the stability of tax payments. The assessment of tax policy is important from two points of view. First, it characterizes the objectivity of the emerging balance of financial flows (the full use of tax potential determines the degree of dependence of local budgets on subsidies to the national budget). Second, the possibility of increasing tax collection in the future depends on the use of tax potential – the more fully it is used, the less likely it is to increase tax collection. Depending on the budget interaction, stable donor regions (Sofia) and recipient regions (the predominant number of municipalities in Bulgaria) are distinguished.

I) An important result of economic activity is an increase in the quality of life of the population. Everyone strives for a place where the standard of living is higher and living conditions are better. When making interregional comparisons of the living standard of the population, different indicators are used: the amount of

the average monetary income of the population; amount of accrued average monthly salaries; purchasing power of the population; amount of the average pension; average price per square meter of living space and much more. Comparisons about the standard of living of the population are one of the most common tasks in socio-economic geography. In recent years, the integral index of human development has been used.

3. Analysis and results

Regional economic research uses a large number of methods of analysis, which are divided into universal and special (developed to reveal regional differentiations). In their elaboration and practical implementation, a complex methodological toolkit of quantitative and qualitative methods is used, software is provided for many economic-mathematical and statistical models, well known in economic theory and practice [4]. Among the universal methods is the use of absolute, relative and average values; methods of analytical groups, index method, balance method, application of comparison.

Comparative method – it is basic assessment method and an integral element of almost every method in regional economic analysis. Comparison is an analytical technique that allows to identify the relationship between economic phenomena, their dynamics, the degree of efficiency achieved. The essence of this method is to compare homogeneous objects to find similarities or differences between them. When making comparisons, a number of requirements need to be met:

- the indicators must be comparable;
- the compared indicators must be calculated according to a uniform methodology;
- the comparison of indicators must be carried out for the same period of time.

It is customary to use the following types of benchmarking:

- Horizontal analysis, which examines changes over time. This includes determining the absolute and (or) relative deviation of the actual value of the indicator from the baseline (planned, last year, etc. – eg in the topics of agriculture).
- Vertical analysis – allows to identify structural deviations in the indicators based on the calculation of the ratio of the parts in the total amount and the ratio of the parts of the whole to each other (eg in demographic indicators).
- Trend analysis – includes identification of trends in the development of the indicator under consideration, using basic and chain growth rates and growth over several years (eg in energy).
- One-dimensional analysis is a comparison of several economic entities on one indicator (eg in terms of productivity or lignite yield ratio).
- Multivariate analysis – comparison of the performance of constituent entities (eg in the chemical industry) for a wide range of indicators (rating (s)).

Balance sheet method – includes compiling sectoral and regional balance sheets. The method of balance allows to choose the optimal ratio between the industries with market specialization and the economic activities that

complement the territorial complex, ie. those that meet both the needs of the leading industries and the needs of the population and the services sector. The essence of this method is that in the analysis and assessment of the resource potential of the regions a system of calculations is used. It provides an opportunity to connect, balance the needs of the economy of the regions in different types of products with the possibilities for their production and import, as well as with the possibilities for their satisfaction in different types of resources (material, labor, financial).

Heuristic methods. These methods are related to informal ways of solving economic problems and are used mainly to predict the condition of the site in conditions of partial or complete uncertainty, when the main source of information is the institution or past experience of specialists. In practice, the most commonly used option is the "brainstorming" method. This is an expert study on the proposed solution to a problem. The answers can be any. Finding a solution can involve a group or a large team. An atmosphere is created when, without responsibility for the proposed opinion and without hesitation, each participant offers his point of view. In the end, the organizers choose the best solution.

Among the *special methods* for regional economic analysis are:

System analysis. Leading direction of the methodology of scientific knowledge and social practice, which is based on the consideration of objects as systems; orients the research towards revealing the integrity of an object, identifying different types of connections in it and uniting them in a single theoretical picture. The method of systematization includes the separation of objects or phenomena (based on the objectives of the study) and the selected criteria of aggregates, characterized by a certain community and characteristics. The main methods for systematization are:

Identification – a method that establishes the coincidence of one object with another.

Grouping – a method for summarizing objects based on common characteristics. The summary is preceded by the division of the whole into separate parts, the identification of those parts which are characterized by common features, and their grouping together according to the common characteristics.

Classification – subdivision of a set into subsets according to certain quantitative criteria.

The method of economic geographic research, which is divided into three: *regional method* – studies the ways of formation and development of the territories, studies the socio-economic development. As a main indicator for measuring regional economic growth can be considered the indicator "gross regional product" - as an absolute value and as an average indicator per capita in the region [5]; *sectoral method* – traces the ways of formation and functioning of economic sectors in geographical terms, reveals the location of social production in a sectoral context (eg for the formation and functioning of labor resources; employment of the population by type of economic activity, etc.); *local method* – it localizes the production of a separate town, village; the development and location of the activities in their primary cells are studied.

Cartographic method. This is a specific and essentially own geographical research method used in regional

economic research. It is known that the map is the main source of knowledge, a source of information for the location of economic activities in each territory. With its help the characteristics of this location are visualized. By using diverse maps, charts, map diagrams and cartograms, the data is perceived much better. Not only the specifics of the location of the industries and enterprises of the socio-economic complex are remembered, but also the levels of economic development of the individual parts are outlined through the quantitative indicators.

Zoning method - this method is used in the development of promising schemes for population distribution.

The method of economic and mathematical modeling provides opportunities for modeling the territorial proportions in the regional economy; modeling by types of economic activities; modeling the formation of economic complexes. By using modern electronic means, this method allows with minimal effort and time to process a huge and diverse statistical material and various initial data.

The methods of multivariate statistical analysis are closely related to this method (as well as to the method of systematization). One of the most common methods for analyzing multivariate information is factor (cluster) analysis. It consists in the transition to a small number of hidden variables (factors) and in the classification of objects according to these factors. The research on socio-economic geography of Bulgaria currently uses the method of the main clusters and the method of regular classification of objects of regional analysis.

The method of taxoning is the process of dividing into territory comparable or hierarchically subordinate taxa. Taxa are equal or hierarchically subordinated territorial units – administrative districts, municipalities, town halls. In fact, the process of zoning at each level is essentially taxoning.

Along with universal indicators, *generalized integrated* assessments are increasingly used in economic regional analysis. Integral grades are used for a number of reasons. First, specific indicators that characterize certain phenomena do not allow to get a complete picture of the state of affairs. For example, two regions with the same level of GDP per capita may be radically different in other economic parameters. One of them may have a diversified economic structure with a high share of high-tech industries, developed infrastructure, favorable natural and climatic conditions for life and agriculture, and the other region may have a unilaterally developed economic structure (eg energy production) and lagging behind other economic activities. Second, integrated assessments make it possible to better understand the socio-economic processes and the reasons for their occurrence. Only after analyzing the adopted set of private indicators, we can identify the reasons for the growth or decline of GDP, industrial production, living standards and more.

Integral assessments are used by scientists, businesses, state and local administrations to solve a wide range of problems. The main ones are: prognosing the socio-economic development; competitiveness assessment; assessment of investment attractiveness; typology – the division of regions into groups formed on the basis of one or a combination of several essential features.

The basis for solving the last three of the listed tasks is related to the calculation of integrated indicators, which is done in three stages:

- the set of private indicators from which the integrated indicator will be built is determined;

- are transformed into measurably comparable private indicators due to their frequent incomparability between them. This is due to the fact that in the calculation of integrated indicators specific indicators are used, which differ in different units of measurement;

- the method of aggregation (joining) is chosen. The composition of the set of private indicators depends on the objectives of the study. The criteria for selection of indicators can be their reliability, the ability to reflect interregional differences, their priorities for solving the assigned tasks.

The value and meaning of the integrated indicator largely depends on the choice of method for transforming specific indicators. The main ways of transformation are:

1. The method of evaluation, which consists in the fact that we have an order of magnitude of the value of the indicator. The best value of the indicator is assigned to rank 1, the next - rank 2, etc. (eg unemployment rate, mortality rate). The advantage of this method is its easy applicability. Ranking indicators allow tracking both the movements of subjects relative to each other over time and the dynamics of ranking. A serious disadvantage of this method is that it does not adequately reflect the differences, because the differences from each other are only one rank (one place). They can have almost the same and several times different values of the indicators.

2. The method of normalization of indicators – calculating the ratio of the value of the indicator to its standard value. The result value can be selected as a standard value of the indicator as:

- the average value of the indicator for the group of respondents (eg by districts or municipalities);

- "Threshold" or maximum value of the indicator. The comparison of the actual values of the regional indicators with the maximum admissible values allows to establish to what extent they meet the standards accepted in the world practice;

- the average for a certain number of periods (years or months) value of this indicator. The ratio of the indicator for the current period to its average value, calculated for a number of previous periods exceeding 1, shows an improvement in the situation. If this ratio is less than 1, then we can talk about worsening the situation. When analyzing regional development, an integrated indicator often has to be calculated, taking into account indicators, one of which must be maximized and the other minimized. In such cases, the indicators aimed at maximization are taken as a rule, and the indicators aimed at minimizing are subject to the following correction: 1 – the value of the indicator, which must be minimized. For example, when conducting an analysis of labor market efficiency, the unemployment rate of 5% is included in the overall estimate as follows: 1 - 0.05 = 0.95 (1% of unemployment). This procedure somewhat complicates the application of this method.

3. The maximum-minimum method (the method of relative differences). The essence of the method is to equate the maximum and minimum values for all specific indicators. This is achieved as follows: from all values, the maximum and minimum possible values are selected and then how much the actual values of the individual indicators differ from their minimum values is calculated.

4. Standardization of indicators – a method according to which the researcher arbitrarily determines the degree

of variation between the values of the indicators to be taken into account. The calculations can be performed both with preliminary standardization of the indicator and without it, taking the logarithm of the values of the indicator. The advantage of standardizing indicators is the ability to adequately take the differences between indicators in terms of the range of maximum and minimum values. A serious shortcoming of this method of transforming indicators is its subjectivity, as the decision on the degree to which the scale of interregional differences is taken into account is determined completely arbitrarily.

4. Conclusion

As it stands out, regional economic analysis is a complex process. It includes a number of stages, each of which involves the use of many different techniques and methods, united by the principles of systems methodology. At the stage of creating the initial database, scientifically organized collection of information is carried out with the help of statistical observation. The original database can be expressed:

- in the form of statistical reports characterizing the volume and structure of the economy in various aspects (production indicators, financial indicators, etc.);
- special statistical surveys provided by the National Statistical Institute (family budget surveys, price level surveys, official censuses, etc.);
- indicators for the volume and structure of the gross national and regional product, etc.
- the average value of the indicator for the group of respondents (eg by districts or municipalities);

At the stage of analysis and assessment of the state of the farm a number of methodological problems are solved, related to determining the state of the separate territorial system with the help of statistical methods and research techniques. Here the concepts of other sciences can be used, such as economic theory, law, political science, sociology, ecology, demography.

Special, most often multidimensional mathematical-statistical and non-parametric methods are used to identify the object of study. At this stage, a description is given in terms of the level of socio-economic development (backward, depressed, borderline, etc.). The specific geographical localization in the economic space of the country is also assessed. This makes it possible to determine to which group of entities a certain region belongs, to show the contribution of the region to the creation of the gross domestic product, etc.

At the stage of comparative evaluation of the site, the problem of the "norm" or "normal state" of the site arises. This is due to the complexity of choosing a basis for comparing different parameters, as well as the constantly changing priorities and capabilities of the state and society. There are different approaches to determining "normal" indicators. First of all, the survey parameters can be compared with the average values of the same parameters for the country, group of subjects (eg the average value for the country, the average value for the district, etc.). It may be good to make comparisons with the leading region as a whole.

Each region within the national or economic space has its own specialization, which is the concentration on its territory of specific types of industries that meet their products not only their own needs but also the needs of

other regions and even provide exports to other countries. It should be borne in mind that the specialization of the region does not cover all aspects of its participation in the territorial division of labor. The specialization of the region and the interregional relations are different, although interdependent aspects of the territorial division of labor. It is therefore possible to determine the branches of specialization on the basis of production and export indicators of products from the region. The level of specialization can be determined using a number of coefficients. The specialization of the regional complex is primarily due to the ability to efficiently produce mass products, ie products that, being cheap, would have a significant share in the national balance. The reduction of production costs is due to the use of favorable natural and economic conditions. The main (profiling) activities of specialization, which give the greatest regional efficiency, play a particularly important formative role [6]. Regional specialization can be calculated in three ways: by leading share of employees; by using the coefficient of specialization; in the leading industrial activity.

The analysis of the number of employees by type of economic activity is due to a number of reasons. The main processes of the division of labor are expressed in the change in the structure of employment by type of economic activity. This makes it possible to make comparisons with international research, as well as to compare the dynamics of the structure of economic activities by year and between regions, without resorting to price indices and deflation. Different indicators are used to quantify the level of regional specialization, the most common being the localization coefficient (concentration). It is calculated on the basis of comparing the structure of the region's economy with a similar structure of the country's economy as a whole. The localization coefficient is the ratio of the specific weight (share) of an industry in the region's economy to the specific weight of this industry in the country's economy. Calculations are made for gross market output, fixed assets, number of industrial and production staff.

References

[1] Alaev, E. B. (1983) Socio-economic geography: conceptual and terminological dictionary. M., p.48-50

[2] Geneshki, M., (2002) Regional Economics. S., Trakia-M, p. 23.

[3] Vasileva, L.,Velkovska, G., Manolova, A., (2001) Regional Planning and Forecasting: Regional Economic Policy; Local Self-Government and Finance, Sofia, Trakia-M, first edition, p. 13

[4] Stoencheva, Tsv. (2006) Regional economy. S., University Publishing House "Economy", pp. 81-99

[5] Tonkova, St. (2002) Localization choice (Theoretical models and approaches for implementation). Veliko Tarnovo, Abagar Publishing House, p. 268

[6] Stoencheva, Tsv., (2010) Regional efficiency – features and opportunities for growth. - In: "Economic Alternatives", UNWE, no. 3, pp. 50-51