THE USV ANNALS OF ECONOMICS AND PUBLIC ADMINISTRATION | VOLUME 22, ISSUE 1(35), 2022

MEASURING REGIONAL DEVELOPMENT BY STATISTICAL METHODS

Elisabeta R. ROŞCA
University "Stefan cel Mare" of Suceava, Romania
staectur11@yahoo.com

Received 25 March 2022; Accepted 10 June 2022

Abstract:
The work has as aim the highlighting of the importance of statistics as a science that provides the ensemble of methods and techniques for the study and analysis of regional development. For this, is trying a specific argumentation of the role of statistics in the quantification the different aspects of regional development, starting from the comparative assessment of the levels of macroeconomic aggregate of results of the Member States of the European Union, whose conclusions can be a good premise for the structuring of the territory on regions of development, a concept specific to regional science.

Study of the specialized literature led to several important conclusions, including: in contouring and development of the regional science an important role had sciences as: statistics, econometrics, mathematics, sociology, politology and others, which gives regional science an interdisciplinary character; within the regional science, the regional economy is highlighted due to the wide range of addressed problems, at the three levels of knowledge: economic theory, method and practical applicability; among the methods of analysis used by the regional economy, the statistical methods have an essential importance in knowing the level, qualitative-structural dimensions, dynamics, correlations and interregional and intraregional dependencies among variables a.s.o.; statistics has an essential role in the substantiation of the regional development strategies, in the regional planning, in monitoring the results of the regional development policies a.s.o.; current evolution of regional science is achieved, not without the contribution of statistics, in directions such as: regional planning, regional forecast, urban economy, rural economy, land use planning, sustainable spatial development a.s.o.

The work presents a comparative analysis of some key-indicators of the regional development, by regions of development in Romania, in 2015 and 2019.

Key words: regional science, regional economy, regional development, statistical levels of regional development, statistical analysis

JEL classification: C10, R11, R58

INTRODUCTION

Now it is commonplace to discuss about developed and developing countries when we approach the global economy, but what these concepts mean and how we can measure them? On an individual level, most of the time the wealth is measured by the minimum income level per capita, but across the economy there are a series of indicators used in international analysis that highlights the differences among countries and they are included here: gross domestic product per capita, unemployment rate, life expectancy, contribution of agriculture to the creation of gross domestic product, energy consumption per capita, inflation rate, degree of urbanization, degree of inclusion in education and others. So, in 2019 the highest levels of GDP/capita were registered by countries such as: Luxembourg (about 115 thousand USD), Ireland (about 81 thousand USD), Denmark (about 60 thousand USD), the Netherlands and Sweden (about 52 thousand USD), Austria (about 50 thousand USD) and others. In the same year, the GDP/capita in Romania exceeded 12 thousand USD (World Bank, 2021). In 2019, the GDP growth rate in the EU-27 was 1.6% compared to the previous year, with higher levels in Member States such as: Ireland (5.6%), Malta (5.5%), Estonia (5.0%), Poland (4.7%), Hungary (4.6%), Lithuania (4.3%), Romania (4.1%) a.s.o. (NIS, 2021), Member States where GDP/capita registered in 2019: in Malta about 30 thousand USD, in Estonia about 24 thousand USD, in Poland about 16 thousand USD, in Hungary about 17 thousand USD, in Lithuania about 20 thousand USD a.s.o. (World Bank, 2021). The inflation rate in the EU, on

annual average, in 2019 was 1.5%, higher levels than the average registering in Romania (3.9%), Hungary (3.4%), Slovakia (2.8 %), Latvia and the Netherlands (2.7%), the Czech Republic (2.6%), Bulgaria (2.5%) a.s.o. and below average levels registering Portugal (0.3%), Greece and Cyprus (0.5%), Italy (0.6%), Denmark (0.7), Spain and Croatia (0.8%), Ireland (0.9%) a.s.o. (NIS, 2021).

From these succinct *statistics* it deduces the fact that in certain time intervals and in certain countries a more accentuated economic growth can be registered, which led, along the time, to the shaping of the concept of *regional development*. Notional, this is associated to *regional science*, as a science that elaborates the methods and techniques for rigorous and systematic analysis of the processes in which space, distance, location play an important role (Nicolae and Constantin, 1998). Knowledge of the level, quantitative-structural dimension, regional economic development dynamics, interdependence (factorial) relations among variables a.s.o. are achived using quantitative, statistical and econometric methods.

REGIONAL SCIENCE REFLECTED IN THE SPECIALTY LITERATURE

Constituted on a solid basis of quantitative methods, the regional science offers models for the analysis of regional development and its impact of any nature: economic, social, cultural. At the regional level, the relationships among the components of the economic system and their behavior are easier to study, compared to the macroeconomic level, they highlighing the domain of investigation of the regional economy, as one of the basic disciplines within regional science. (Roşca, 2013).

Analysis of regional development in Romania, as it results from the study of specialized literature, highlights some characteristics and used methods, among which we can mention: they are frequently used statistical methods for the comparative analysis of the indicators of development by region and those developed at the national level, based on the typology of the regions of development, as we find at: Zaman and Goschin (2006), Zaman, Goschin and Roşca (2012), Bădiţă and Cristache, (2003) a.s.o.; they are used the methods of analysis of the territorial series, elaborated by regional statistics, as a branch of social and economical statistics, as we find at Biji, Lilea and Vătui (2006), Biji, Lilea and Vătui (2008), Roşca (2017); it is used the method of the synthetic statistical indices in the analysis of regional disparities, addressed by Goschin and Pârlog (2006), Goschin, Constantin, Roman and Ileanu (2008); the use of statistical indicators for the analysis of sustainable regional development, as we find at Brânză (2017) a.s.o.

Development of regional science was realized by the enlargement of the investigation area, within it appearing and developing disciplines with a relative new content, such as: regional planning, approached by Soubrier (2000), Sijmons (1990), Getz (1986) regional forecasting, urban economics, approached by Bertinelli and Black (2004), Helsley (2004), rural economics, addressed by Wood and Thomas (2009), Iorio and Corsale (2010), land use planning, approached by van Lier (1998), Barton (2009), sustainable development of the territory a.s.o.

Regional economics, like a discipline of the regional science, today approaches a wide number of issues, namely: localization of the economic objectives, territorial balance, economic development of regions, territolial mobility of production factors, approached by Gianmarco and Thisse (2002), efficiency of the spatial structures, approached by Zenou and Smith (1995), the applying of economic-mathematical methods of analysis and decision for including territorial aspects in traditional economic theories, grounding of the regional strategies and policies a.s.o. (Constantin, 1998). Regional economy is using the ensemble of standard methods of the general economic theory, namely: input-output methods, models of economic growth, used by Carlberg (1981), Nijkamp, Rietveld and Snickars (1987), multicriteria evaluation and analysis models, used by Munda (2006), Geneletti and van Duren (2008) a.s.o. Economies of regions and the national economies registered meaningful differences related to the degree of openness of regional economies, higher than that of the national economies in which they are located, aspects that appear at de Lombaerde (2009), González and Ortega (2011), the labor force and capital have a greater degree of mobility among the regions of a country, being exempt from legislative restrictions,

issues that appear at McCormick (1997), Beugelsdijk and van Schaik (2005), the constraints related to legislation, politics, language a.s.o. have a weaker action at interregional level than in the case of the international migration of the production factors, aspects that appear at Montalvo and Reynal-Querol (2005), Stockdale (2006), the system of interdependence relations among the regions is much more developed than the system of international relations, with consequences on the regional analysis methods. In connection with the last aspect, it is necessary to specify that the regional economy studies both the interregional and intraregional relations, which are established among local economies, as can be found also at Bröcker (1988), Carlberg (1981), Rietveld (1991), but it is obligatory the distinction between the regional economy, that deals with the problems of the regions and the economy of localities (urban, rural), which treats the economic and social development of the localities based on the elements that compose the locality as a system and its functions.

Regional economy also addresses regional policies, as ways of practical realization of regional development through balanced economic growth, equity in development, reduction of unemployment, development of regional sub-markets, land use and zoning a.s.o. Conceptually, regional policy is often associated with the notion of spatial planning, but the notion of regional development is also used in the official EU and OECD documents, considering it comprehensive for all regional policy coordinates.

In the context of the regional development, local development is individualized as an activity of diversification and growth of economic and social activities in the territory, by the mobilizing and coordinating of the existing resources, whether or not it is the result of the intervention of the public authority.

Regional economic development finds its place in national economic strategies on medium and long term, aiming to achieve some objectives that ensure a certain interregional equity, in terms of efficiency and eliminate some negative effects.

COMPARATIVE ANALYSIS OF THE REGIONAL DEVELOPMENT IN ROMANIA

In order to facilitate the collection, development and publication of some harmonized regional statistics, the EU introduced the Common Nomenclature of Territorial Units of Statistics - NUTS, at the beginning of 1970s (Roşca, 2013). Legal basis is the Regulation (EC) no. 1059/2003 of the European Parliament and of the Council of 26 May 2003, with subsequent amendments (2005, 2008, 2013, 2017) determined by the accession of new states to the EU. Most recent changes, those from 2017, referred to: the establishment of a legal recognition of the typologies of territories for the purpose of European statistics; the establishing of the basic definitions and statistical criteria for the various typologies of territories; the ensuring the transparent and harmonized application and use of the typologies of territories at EU level and in the Member States; the clarification of the delegation of competences to the Commission. The last update of the annexes took place in August 2019 and it referred to the adoption of the changes from the administrative-territorial divisions of some Member States, applicable for the transmission of data to Eurostat from January 1, 2021 (European Parliament, 2021). The introduction of NUTS was determined by the reality that regional statistics are the basis of the European statistical system and the base of the regional indicators defining. Ensuring the comparability of regional statistics is done by the comparable dimensioning of the territory regarding the population, being necessary to specify also its political, administrative and institutional situation.

NUTS is a hierarchical nomenclature, which subdivides each Member State in three levels: NUTS 1, NUTS 2 and NUTS 3, with the possibility for each Member State to extend the hierarchical levels of detailing, by subdividing the NUTS 3 level.

Based on the Law no. 315/2004 on regional development in Romania, published in the Official Monitor No. 577/29. VI. 2004, a structure of territorial statistical units was created, which includes a regional level NUTS 3 (41 districts and the municipality of Bucharest), aggregated in 8 regions of development - territorial units without legal personality - which correspond to the level

NUTS 2. Level NUTS 1 is ensured by the division of the territory into four development macro-regions (Official Monitor No. 577, 2004).

Using this structure, a comparative analysis of the development level was performed based on some key-indicators by regions of development, in 2015 and 2019 (Roşca, 2021). Studied derived indicators were established as follows: level of FDI/capita was calculated as a ratio between the FDI balance on December 31 and the resident population on July 1; level of SMEs/1000 inhabitants was calculated as a ratio between the number of active enterprises with the number of employees between 0-249 persons and the resident population on July 1; degree of urbanization was established as a ratio between the urban resident population and the total resident population on July 1; degree of inclusion in education of the school population was calculated as a ratio between the school population and the resident population up to the age of 24, on July 1 (Anghelache et al., 2007; Korka and Tuşa, 2004). Differences among the regions were visualized by the graphical method (Jaba, 1998; Badias et al., 1997).

Level differences of GDP/capita among regions are illustrated in Figure no. 1.

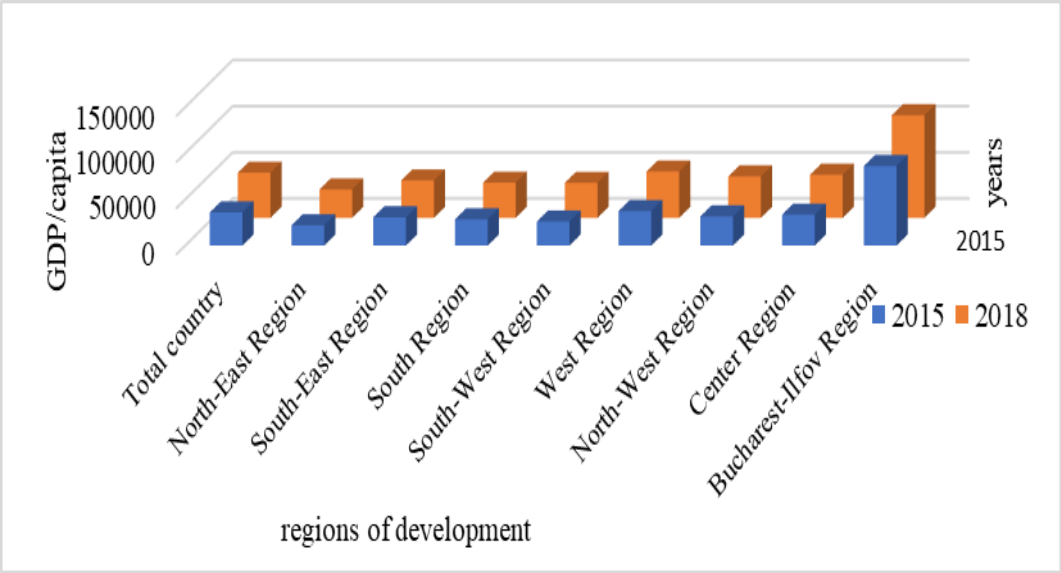

Figure no. 1. GDP/capita (current prices), in Romania, by regions of development. in 2015 and 2018

Source: own elaboration based on data taken from http://www.insse.ro

In 2015, GDP/capita in Romania had the value of 35915.7 Lei, higher than in the most regions of development, but lower than in the regions Bucharest-Ilfov (86153.7 Lei) and West (37334.3 Lei). Low values of the indicator were registered in the regions North-East (21922.1 Lei), South-West (26040.7 Lei) and South (28459.9 Lei). Comparative, in 2018, at a level of GDP/capita of 48864.9 Lei, they are maintained with higher levels than the country average the regions Bucharest-Ilfov (111159.5 Lei) and West (50144.4 Lei) and with the lowest levels the regions North-East (30762.6 Lei), South-West (37804.8 Lei) and South (38050.1 Lei).

In 2015, the unemployment rate in the country was 5.0% - a high level, which in 2019 decreased significantly to 2.9%. In 2019, in all regions of development the unemployment rate was lower than in the comparison period, which also results from the Figure no. 2.

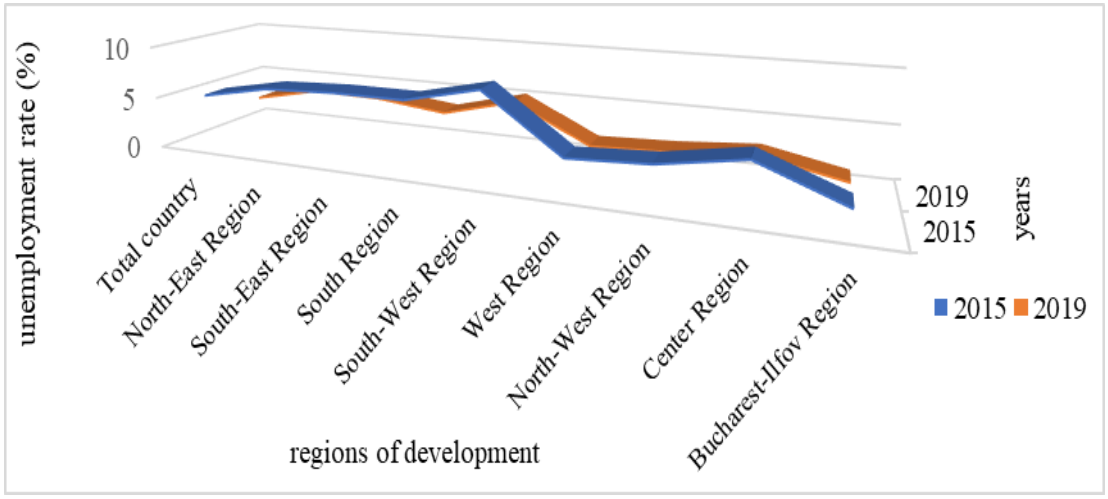

Figure no. 2. Unemployment rate (%) in Romania, by regions of development, in 2015 and 2019

Source: own elaboration based on data taken from http://www.insse.ro

In 2019, the level of the indicator was below the national average in the regions Bucharest-Ilfov (1.1%, down from 1.8%), West (1.7%, down from 3.0%), North-West (2%, down from 3.4%) and Center (2.6%, down from 4.7%). South-West Region had the rate of 5.2%, down from 8.2%.

In the Figure no. 3 is illustrated the level of the foreign direct investment in Romania, in the two years.

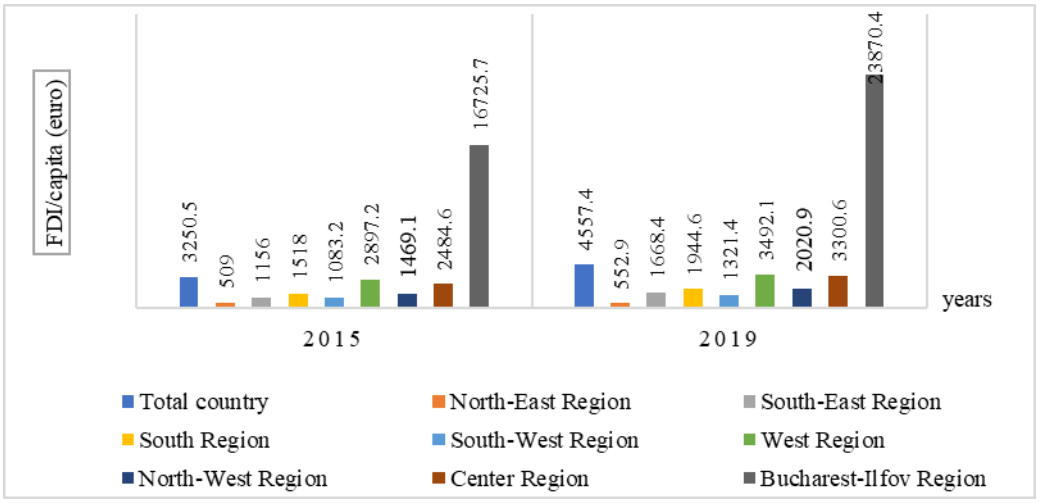

Figure no. 3. FDI/capita (euro) in Romania, by regions of development, in 2015 and 2019

Source: own elaboration based on data taken from http://www.bnr.ro

It is observed the increase of the indicator both at country level (with 40.2%) and also by regions of development. Regions with the dynamics higher than the average in the country are South-East (increase with 44.3%), Bucharest-Ilfov (42.7%); a similar dynamic registered also the regions North-West (37.6%) and Center (32.8%); a slower growth registered the regions South (28.1%), South-West (22.0%), West (20.5%) and North-East (8.6%).

Number of SMEs/1000 inhabitants has been increasing, both on country (from 26 to 30) and by regions of development, in 2019 compared to 2015. Higher levels than the one calculated on total country registered the regions Bucharest-Ilfov (56 SMEs/1000 inhabitants in 2015, with increase to 61 SMEs/inhabitants in 2019-it is observed the distance also in the Figure no. 4) and North-West (29, with increase to 34); Region West recorded the same levels as those on total country; values below the levels on country, but increasing in 2019 are found in the regions: Center (25, increasing to 30), South-East (23, increasing to 27), South (18, increasing to 23), South-West (18, increasing to 22) and North-East (17, increasing to 20).

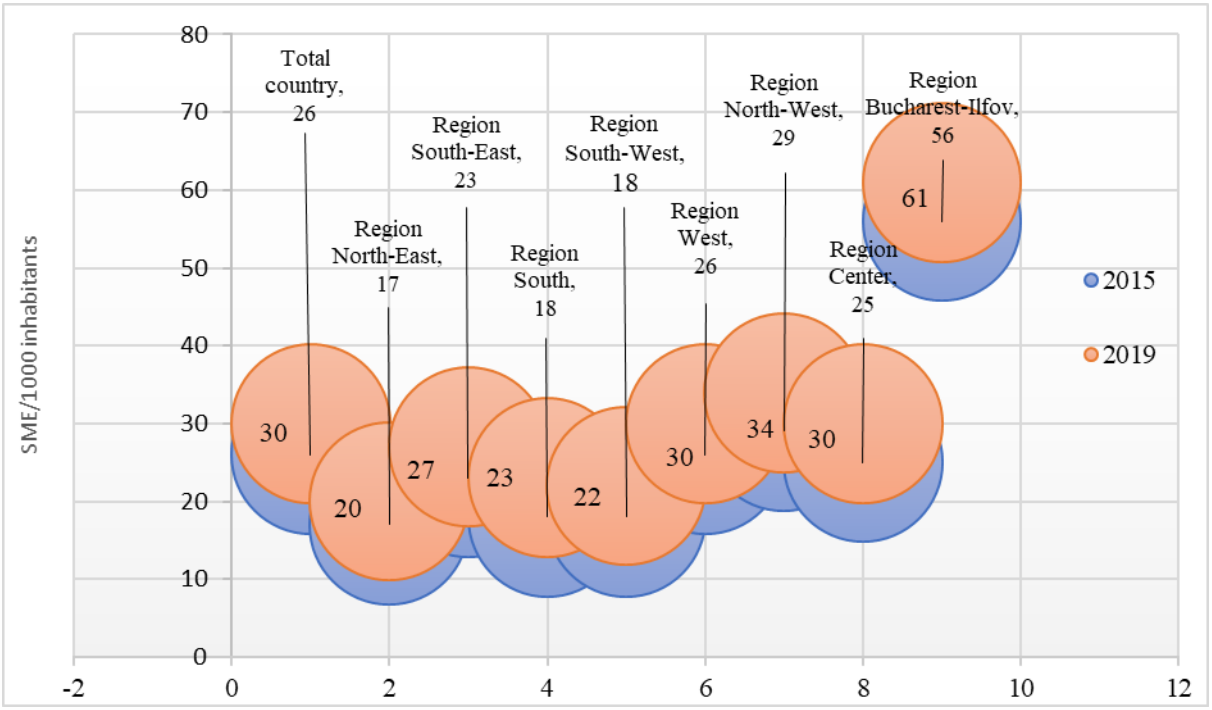

Figure no. 4. SMEs/1000 inhabitants (number) in Romania, by regions of development, in 2015 and 2019

Source: own elaboration based on data taken from http://www.insse.ro

The comparative evolution of the rural population is observed in Figure no. 5.

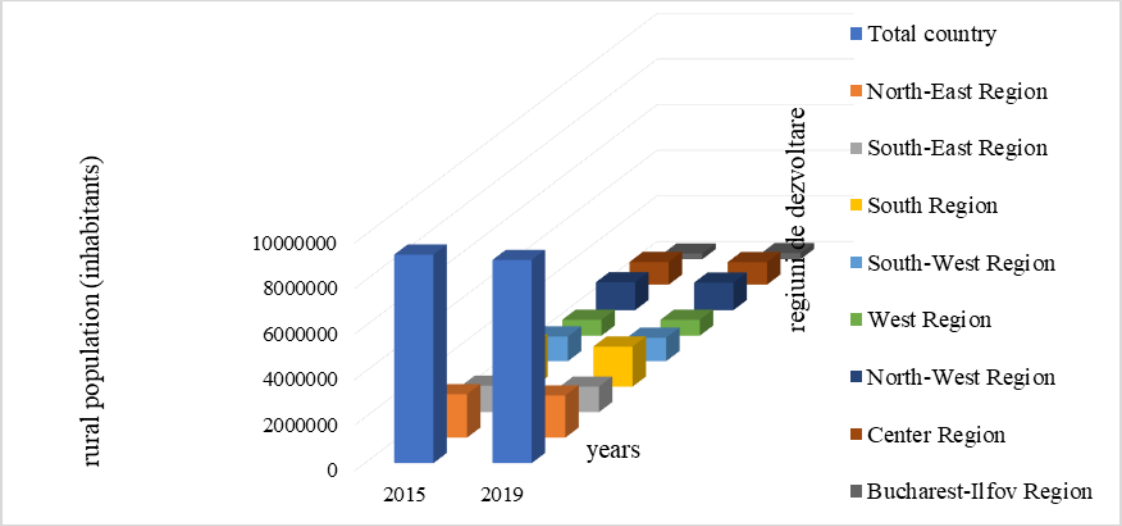

Figure no. 5. Rural population (inhabitants) in Romania, by regions of development, in 2015 and 2019

Source: own elaboration based on data taken from http://www.insse.ro

Number of inhabitants from rural space on total country decreased with -2.5% in 2019 compared to 2015. Higher decreases than the one of the country level were registered in the regions: South-West (with -4.8%), South (with -4.5%), South-East (with-3.7%), North-East (with -2.9%); lower decreases than the level on country were registered in the regions North-West (with -1.2%) and Center (with -0.6%); they were registered also increases of the rural population in the regions Bucharest-Ilfov (with 9.0%) and West (with 0.1%).

The graph from the Figure no. 6 presents the evolution of the degree of urbanization comparatively for the two years.

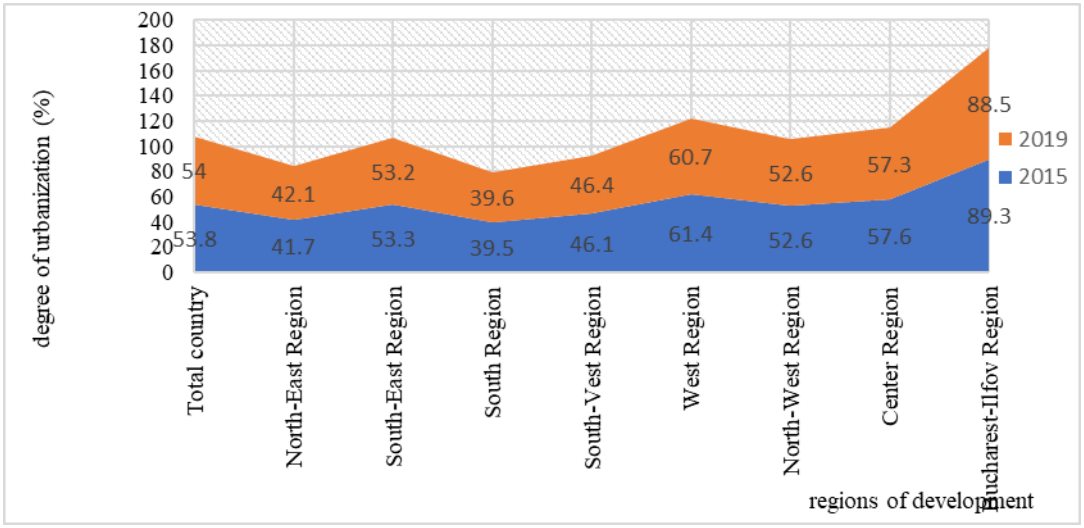

Figure no. 6. Degree of urbanization (%) in Romania, by regions of development, in 2015 and 2019

Source: own elaboration based on data taken from http://www.insse.ro

Degree of urbanization on the total country was in slightly increasing (54.0% compared to 53.8%) in 2019 compared to 2015. Higher values than this level was registered in the regions Bucharest-Ilfov (89.3% in 2015, decreasing to 88.5% in 2019), West (61.4%, decreasing to 60.7%) and Center (57.6%, compared to 57.3%). In the regions North-East, South and South-West the indicator was rising, as results from the diagram.

Analysis of the degree of inclusion in education of the school population, based on the Figure no. 7, highlights that the indicator increased on the total country, from 69.2% in 2015 to 69.4% in 2019.

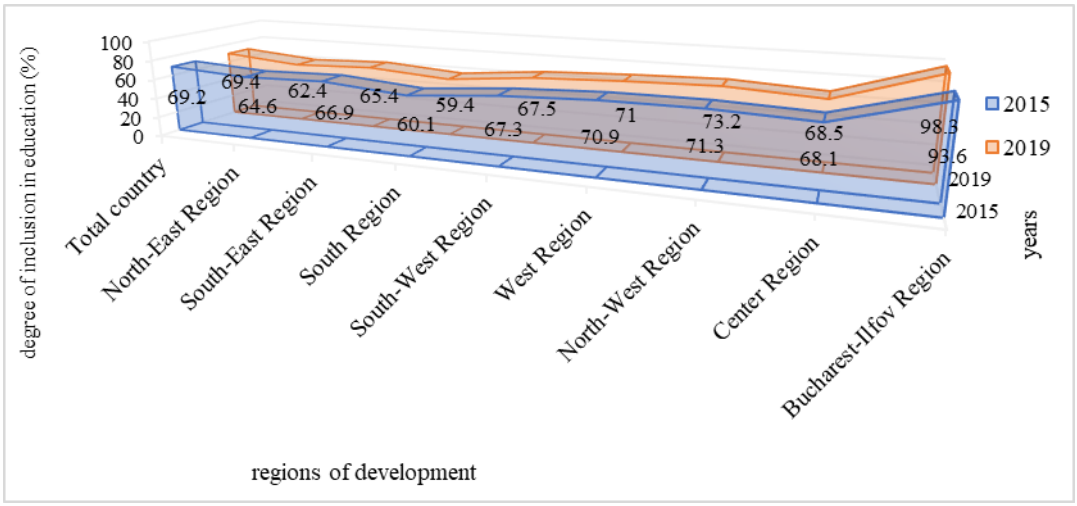

Figure no. 7. Degree of inclusion in education of the school population in Romania, by regions of development, in 2015 and 2019

Source: own elaboration based on data taken from http://www.insse.ro

Degree of inclusion in education is higher than the level on country in the regions Bucharest-Ilfov (increasing, from 93.6% to 98.3%), North-West (increasing, from 71.3% to 73.2%) and West (from 70.9% to 71.0%). In the other regions the indicator was below the values on country, in slightly increasing in the regions South-West (from 67.3% to 67.5%) and Center (from 68.1% to 68.5%) or in decreasing in the regions North-East (from 64.6% to 62.4%), South-East (from 66.9% to 65.4%) and South (from 60.1% to 59.4%).

A synthesis of the position of each region of development in relation with the others was obtained through their multicriteria hierarchy using the criteria which aimed the maximizing of values, namely: FDI/inhabitant, SMEs/1000 inhabitants, degree of urbanization and degree of

inclusion in education of the school population. As method of hierarchy was used the average rank method, calculated as a geometric mean of the ranks on each variable (Isaic-Maniu et al., 2004; Baron et al., 1996). Final average ranks and those of the other variables by regions of development in 2015 and 2019 are found in the Table no. 1.

Table no. 1. Multicriteria hierarchy of the regions of development from Romania, in 2015 and 2019

Region of development	Final average rank		Rank by GDP per capita		Rank by unemployment rate		Rank by rural population	
	2015	2019	2015	2018	2015	2019	2015	2019
North-East	7,48 (8)	7,48 (8)	8	8	5	7	8	8
South-East	5,18 (6)	5,18 (5)	5	5	6	6	5	5
South	4,43 (5)	6,62 (7)	6	7	7	5	7	7
South-West	6,19 (7)	6,19 (6)	7	4	8	8	4	4
West	2,45 (2)	2,45 (2)	2	2	2	2	2	2
North-West	3,16 (3)	2,99 (3)	4	6	3	3	6	6
Center	3,46 (4)	3,46 (4)	3	3	4	4	3	3
Bucharest-Ilfov	1,0 (1)	1,0 (1)	1	1	1	1	1	1

It is observed the fact that, synthesizing the information from the four key-indicators of regional development, it comes to the conclusion that Bucharest-Ilfov Region registers a concentration of economic growth, occupying the first place, both as a result of multicriteria hierarchy and after the indicators GDP/capita (current prices), unemployment rate (%) and rural population (inhabitants), both in 2015 and 2019. West Region has the second rank in the multicriteria hierarchy, the North-West Region has the third rank and the Central Region has the fourth rank, with better development resources, but also determined by the proximity of Western European markets, by low dependence on the primary sector activities (agriculture, forestry, extractive industry a.s.o.), the three regions occupying in 2019 the positions 2, 4 and 3 based on the FDI/inhabitant level. In the regions South (rank 5 in 2015, decreasing to rank 7 in 2019) and South-West (rank 7 in 2015, increasing to rank 6 in 2019) the development is dependent on agriculture, which explains their positions compared to the other regions (Roşca, 2013). South-East Region occupies the rank 6, increasing to the rank 5 in 2019, having a better position regarding of the degree of urbanization (rank 4), GDP/capita (rank 5) and a lower rural population (rank 5). North-East Region occupies constantly the ranks 8, excepting the rank for the unemployment rate (5 in 2015, decreasing to the rank 7, in 2019). Development level of this region is influenced by the dependence on agriculture, as well as by the mountainous character of a part from its territory. An indicator that allows the comparison of interregional development is the relative interregional disparity, calculated as a ratio between GDP/capita in the region with the highest level and the region with the lowest level. In 2015, the calculated disparity between the regions Bucharest-Ilfov and North-East was of 3.9 and it decreased to 3.6 in 2019, being calculated between the same regions.

CONCLUSIONS

Analysis of the presented statistical data leads to the following conclusions: in 2019, the level of GDP/capita in Romania exceeded 12 thousand USD, with a GDP growth rate of 4.1%, compared to 2018, comparable with countries such as: Poland (4.7%), Hungary (4.6%), Lithuania (4.3%) a.s.o. and higher than in the EU 27 (1.6%). Inflation rate in 2019, in annual average, in Romania was 3.9%, higher than in the EU (1.5%), comparable with Member States such as: Hungary (3.4%), Slovakia (2.8%), Latvia and the Netherlands (2.7%), Czech Republic (2.6%), Bulgaria (2.5%) a.s.o. The two indicators locate and consolidate the economic position of Romania in Central and Eastern Europe.

Study of the specialty literature highlights that, if the theorists defined the concepts and outlined the object of study of the regional science with its various disciplines dealing with the

study of territory, inventory of resources, economic diagnosis, politicians are those who elaborate the strategies and they implement the regional development policies, basing their decisions on the results of statistical research. No matter how they are called the spatial planning policies in the EU Member States and whether they correspond in whole or in part to Community guidelines, their role is that of tools of achieving balanced economic growth, of reducing unemployment, of developing regional submarkets, of using regional resources a.s.o.

At EU level, the need of use some unitary criteria by the Member States in the division of territory on regions determined Eurostat to develop a set of standard criteria under the form of the Nomenclature of Territorial Units for Statistics - NUTS. By the Law no. 315/2004 on the regional development in Romania, published in the Official Monitor No. 577/29. VI. 2004, it was realized a structure of territorial statistical units which includes, at the level NUTS 2, 8 regions of development.

Statistical indicators analyzed by the ranks method for the 8 regions do not indicate spectacular increases in 2019 compared to 2015, most regions remaining at the same rank: Bucharest-Ilfov (1), West (2), North-West (3), Center (4), North-East (8), some moving to a higher rank: South-East (from 6 to 5), South-West (from 7 to 6), as the decreases were also identified: South Region (from 5 to 7). The use of the graphical method allowed the comparative visualization of the level of indicators taken into study, by regions of development and compared to the level by country, as well as in the dynamics, in the two considered years.

BIBLIOGRAPHY

1. Anghelache, C., Isaic-Maniu, Al., Mitruţ, C., Voineagu, V. and Dumbravă, M., (2007), *Analiză macroeconomică. Sinteze şi studii de caz*, Economica Publishing House, Bucharest, pp. 155-157
2. Badia, J., Bastida, R. and Haït, R.J., (1997), *Statistique sans mathématique*, Ellipses, Édition Marketing S.A., Paris, pp. 74-82
3. Baron, T., Biji, E., Tövissi, L., Wagner, P., Isaic-Maniu, Al., Korka, M. and Porojan, D., *Statistică teoretică şi economică*, EDP R.A., Bucharest, 1996, pp. 258-259
4. Barton, H., (2009), *Land use planning and health and well-being*, Land Use Policy, Vol. 26 (265), pp. S115-S123, Doi.org/10.1016/j.landusepol.2009.09.008
5. Bădiţă, M. and Cristache, E.S., (2003), *Disparităţi regionale ale populaţiei ocupate în România*, in the volume Teorie şi practică în dezvoltarea regională, Economica Publishing House, Bucharest, pp. 109-112
6. Beugelsdijk, S. and van Schaik, T., (2005), *Social capital and growth in European regions: an empirical test*, European Journal of Political Economy, Vol. 21 (2), pp. 301-324, Doi.org/10.1016/j.ejpoleco.2004.07.004
7. Bertinelli, L. and Black, D., (2004), *Urbanization and growth*, Journal of Urban Economics, Vol. 56 (1), pp. 80-96, Doi.org/10.1016/j.jue.2004.03.003
8. Biji, M.E., Lilea, E. and Vătui, M., (2008), *Analiza statistică a variaţiei regionale a mortalităţii infantile în România, în anul 2006*, in the volume Statistica: disciplină ştiinţifică şi metodă de cercetare în variate domenii, Economica Publishing House, Bucharest, pp. 117-120
9. Biji, M.E., Lilea, E. and Vătui, M., (2006), *Probleme teoretice şi metodologice ale analizei statistice a fenomenelor economice şi sociale în profil regional*, in the volume Dezvoltarea regională în contextul integrării în Uniunea Europeană, Economica Publishing House, Bucharest, 2006, pp. 183-188
10. Biji, M.E., Lilea, E., Roşca, R.E. and Vătui, M., (2010), *Statistică pentru economişti*, Economica Publishing House, Bucharest, pp. 435-437

11. Brânză, G., (2017), *Sustainable Regional Development of Tourism in the European Union. Perspectives for Romanian Tourism*, in the volume Dezvoltarea turistică regională în Statele Membre ale Uniunii Europene, EDP R.A., Bucharest, pp. 50-54
12. Bröcker, J., (1988), *Interrregional trade and economic integration: A partial equilibrium analysis*, Regional Science and Urban Economics, Vol. 18 (2), p. 261, Doi.org/10.1016/0166-0462(85)90016-X
13. Carlberg, M., (1981), *A neoclassical model of interregional economic growth*, Regional Science and Urban Economics, Vol. 11 (2), p. 191, Doi.org/10.1016/0166-0462(81)90003-X
14, Constantin, L.D., (1998), *Economie regională*, Oscar Print Publishing House, Bucharest, pp. 9-12
15. de Lombaerde, A.A.P., (2009), *On the dynamic measurement of economic openness*, Journal of Policy Modeling, Vol. 31 (5), pp. 731-736, Doi.org/10.1016/j.jpolmod.2009.03.001
16. Geneletti, D. and van Duren, I., (2008), *Protected area zoning for conservation and use: A combination of spatial multicriteria and multiobjective evaluation*, Landscape and Urban Planning, Vol. 85 (2), pp. 97-110, Doi.org/10.1016/j.landurbplan.2007.10.004
17. Getz, D., (1986), *Models in tourism planning: Towards integration of theory and practice*, Tourism Management, Vol. 7 (1), p. 21, Doi.org/10.1016/0261-5177(86)90054-3
18. Gianmarco, I.P.O. and Thisse, F.J. (2002), *Integration, agglomeration and the political economics of factor mobility*, Journal of Public Economics, Vol. 83, No. 3, p. 429
19. González, L. and Ortega, F., (2011), *How do very open economies adjust to large immigration flows? Evidence from Spanish regions*, Labour Economics, Vol. 18 (1), pp. 57-70, Doi.org/10.1016/j.labeco.2010.06.001
20. Goschin, Z., Constantin, L.D., Roman, M. and Ileanu, B., (2008), *Evaluarea inegalităţilor teritoriale din România din perspectiva politicii de coeziune a Uniunii Europene*, in the volume Statistica: disciplină ştiinţifică şi metodă de cercetare în variate domenii, Economica Publishing House, Bucharest, pp. 121-125
21. Goschin, Z. and Pârlog, C., (2006), *Criterii de analiză şi indici sintetici pentru evidenţierea disparităţilor regionale*, in the volume Dezvoltarea regională în contextul integrării în Uniunea Europeană, Economica Publishing House, Bucharest, 2006, pp. 233-238
22. Helsley, W.R., (2004), *Urban political economies*, Handbook of Regional and Urban Economics, Vol. 4, p. 2381, Doi.org/10.1016/S1574-0080(04)80011-7
23. Isaic-Maniu, A., Mitruţ, C. and Voineagu, V., (2004), *Statistică*, Universitara Publishing House, Bucharest, pp. 395-397
24. Jaba, E., (2008), *Econometrie aplicată*, Publishing House of the University „Alexandru Ioan Cuza", Iaşi, pp. 251-273
25. Korka, M. and Tuşa, E., (2004), *Statistică pentru afaceri internaţionale / International Business Statistics*, Publishing House of ASE Bucharest, pp. 31-32, 41, 172-174
26. McCormick, B., (1997), *Regional unemployment and labour mobility in the UK*, European Economic Review, Vol. 41 (3-5), p. 581, Doi.org/10.1016/S0014-2921(97)00024-X
27. Montalvo, G.J. and Reynal-Querol, M., (2005), *Ethnic diversity and economic development*, Journal of Development Economics, Vol. 76 (2), pp. 293-323, Doi.org/10.1016/j.jdeveco.2004.01.002

28. Munda, G., (2006), *Social multi-criteria evaluation for urban sustainability policies*, Land Use Policy, Vol. 23 (1), pp. 86-94, Doi.org/10.1016/j.landusepol.2004.08.012
29. Nicolae, V. and Constantin, L.D., (1998), *Bazele economiei regionale şi urbane*, Oscar Print Publishing House, Bucharest, pp. 9-14
30. Nijkamp, P., Rietveld, P. and Snickars, F., (1987), *Regional and multiregional economic models: A survey*, Handbook of Regional and Urban Economics, Vol. I, p. 257, Doi.org/10.1016/S1574-0080(00)80010-3
31. Rietveld, P., (1991), *A note on interregional versus intraregional inequality*, Regional Science and Urban Economics, Vol. 21 (4), p. 627, Doi.org/10.1016/0166-0462(91)90024-H
32. Roşca, R.E., (2013), *Regional Development: Theory and Implementation*, "COGITO" Journal, Vol. V (2), pp. 14-21
33. Roşca, R.E., (2017), *Some Considerations regardind the Regional Tourism Statistical Informational System in Romania*, in the volume Dezvoltarea turistică regională în Statele Membre ale Uniunii Europene, EDP R.A., Bucharest, pp. 130-134
34. Roşca, R.E., (2021), *Sondaje şi anchete statistice. Teorie şi aplicaţii*, EDP, Bucharest, pp. 154-157
35. Sijmons, D., (1990), *Regional planning as a strategy*, Landscape and Urban Planning, Vol. 18 (3-4), p. 265, Doi.org/10.1016/0169-2046(90)90014-S
36. Soubrier, R., (2000), *Planification aménagement et loisir*, Presses de l'Université du Québec, Canada, pp.139-150
37. Stockdale, A., (2006), *Migration: Pre-requisite for rural economic regeneration?*, Journal of Rural Studies, Vol 22 (3), pp. 354-366, Doi.org/10.1016/j.jrurstud.2005.11.001
38. van Lier, N.H., (1998), *The role of land use planning in sustainable rural systems*, Landscape and Urban Planning, Vol. 41 (2), p. 83, Doi.org/10.1016/S0169-2046(97)00061-3
39. Wood, H.E. and Thomas, R., (2009), *Festivals and Tourism in Rural Economics*, International Perspectives of Festivals and Events, p. 149
40. Zaman, Gh. and Goschin, Z., (2006), *Regional economic evolution. Typology and structure*, in the volume Dezvoltarea regională în contextul integrării în Uniunea Europeană, Economica Publishing House, Bucharest, 2006, pp. 117-124
41. Zaman, Gh., Goschin, Z. and Roşca, R.E. (2012), *Tipologia şi planificarea creşterii economice regionale. O abordare în turismul românesc/Typology and Planning of Regional Economic Growth. An Approach in Romanian Tourism*, Report of Research, The Publishing House of the University of Suceava
42. Zenou, Y. and Smith, E.T., (1995), *Efficiency wages, involuntary unemployment and urban spatial structure*, Regional Science and Urban Economics, Vol. 25 (4), p. 547, Doi.org/10.1016/0166-0462(95)02100-9
43. *** NIS Bucharest, http://www.insse.ro; *Eurostat Statistics*, 2021, http://www.insse.ro
44. *** *Law no. 315/2004 on regional development in Romania*, published in the Official Monitor no. 577 / 29.VI.2004, http://www.legislatie.just.ro
45. *** European Parliament, 2021, *Nomenclature of territorial units for statistics (NUTS)*, http://www.europarl.europa.eu
46. *** *Annual Report of NBR*, http://www.bnr.ro
47. *** World Bank, *World Development Indicators*, 2021, http://www.data.worldbank.org