REGIONAL DEVELOPMENT IN ROMANIA. A BRIEF STATISTICS ON SOCIO-ECONOMIC DIFFERENCES-A MULTI-CRITERIAL APPROACH

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Abstract

The paper analyzed the development in the NUTS 2 of Romania in the year 2022 using a large spectrum of socio-economic criteria including 32 indicators, destined especially to emphasize the contribution of agriculture to the social and economic growth. The data were picked up from the National Institute of Statistics and Eurostat database. The processing methodology included: structural indices, comparisons among regions, rank-order method to establish the hierarchy based on the region performance. The results reflected the population polarization in North East, South Muntenia, North West and South East and also in Bucharest-Ilfov. Rural population and the one dealing with agriculture is concentrated in North East, South Muntenia, North West and South East. But, the occupied persons in the economy are in Bucharest Ilfov, North West, Center and West. The largest cultivated area and the highest value of agricultural production are in South Muntenia, South East, South West Oltenia, West and North East. The highest value of agricultural production per inhabitant is in South Muntenia, South East, South West Oltenia, West and North East. Labor productivity is higher in Bucharest Ilfov, West, North West and Center. The highest average monthly income, expenditures and savings rate per household is in Bucharest Ilfov, North West, Center and West. Income from agriculture per household is higher in North East, West, South East and North West, while per person is higher in Bucharest Ilfov, South Muntenia, North West and South East. GDP has the highest level is in Bucharest Ilfov, West, Centre, North West, while in North East, South Muntenia, South West Oltenia and South East is lower. In 2022, Romania achieved Euro 26,700 per capita (PPS) (75% of the EU average), coming on the 22 position among the other EU countries. Based on all these criteria, the final hierarchy of the NUTS 2 regions in Romania in 2022 was in the decreasing order: South Muntenia, South East, North West, West, Center, Bucharest Ilfov, South West Oltenia and North East which reflects the existence of discrepancies among regions. Romania has to intensify its efforts to assure a higher rate of economic growth on the principle of equity in the territory and reach a balanced and harmonized economic and social development which, also, have to reduce the gaps compared to the other NUTS 2 regions. For attaining this objective, Romania must to use the EU (TFEU) cohesion funds (2021-2027) to strengthen its economic, social and territorial cohesion and to assure a harmonious and balanced development.

Key words: regional development assessment, NUTS 2 regions, discrepancies and similarities, Romania

INTRODUCTION

Large territorial inequalities among countries and regions in the world have become a "common" and well known "landscape" with a negative impact on the economic development.

This theme has been and still is a research subject either from a theoretical point of view and practically, the researchers being interested to look for statistical methods and

solutions to reduce discrepancies and strengthen the sustainable economic development.

In the era of economic globalization, regional development needs to be focused, first of all, on endogenous regional assets, new strategies for the global industries and evaluation of the effects of the interaction between regional assets and GPN logics on regional development [51].

A new strategy is required to ensure equitable investments in infrastructure for diminishing the gap between urban and rural areas, fostering a more balanced and sustainable trajectory of development [45].

Studying the regional development disparities in many countries, Pietak (2021), affirmed that the existence of *"rich regions or prosperous cities confirm the unbalanced nature of economic growth"* and that the transmissions channels must be analyzed because they affect regional development and lead to disparities in the economic growth [20].

The EU is an important player in the global economic and social development and its cohesion policy is destined to ensure that there are no gaps between different areas and regions in the same country, and also among the member states. At present, the green and digital transition are the EU key goals for which important financial support is allotted throughout Europe [3].

Niebuhr and Stiller (2003) affirmed that despite the EU policies have been focused on a balanced economic and social development, the territorial disparities continue to exist. They tried to identify the regions with a high development and a favorable labor market and concluded that the territorial disparities are caused by the inequalities between rural and urban areas [17].

Other authors also confirm the territorial disparities among the EU member states with a negative impact of their future development. The existence of numerous vulnerable places in terms of lack or insufficient local endowment, accessibility, or connectivity imposes that the EU policy programmes to be fully integrated and to be focused on *"the reduction of gaps between urban and rural areas, on strengthening physical infrastructure, access to schools, cultural facilities, democratic participation, migrants' integration etc"*. In this way, it could be assured a balanced economic growth and cohesion among the EU territories [42].

The excessive territorial inequality regarding welfare and living conditions between places has led to a negative feed-back in terms of "an anti-EU feeling". In consequence, the EU must set up new strategies adapted to the global political and economic situation, and promote its own efficient model of sustainable development in the future taking into account the territorial cohesion [14].

Disparities among the development of regions are also found in Rep of Macedonia as shown by the level of GDP/capita, unemployment rate and demographic indicators development indices. These differences could slow the economic growth and for this reason it is needed to establish a new future strategy [18].

In Serbia, regional disparities have grown in the last decade, as the subsidies had a low effect and that the local policies were wrong. Therefore, in this country, it is also required a new strategy to create jobs, increase labor force, productivity, and reduce migration and concentration of political power in the cities [48].

In the Slovakian agriculture, there are regional disparities as shown by the level of a series of economic indicators, which proved that the regions do not reflect a cohesion, on the contrary, they diverged in terms of life quality, wealth, living standard and working, despite that the EU policy for 2014-2020 is destined to ensure convergence of regions. In consequence, being a complex process, the topic on regional disparities requires a multidimensional approach [44].

A new thinking of alternative approaches is called to take into consideration endogenous development, economy fundamentals, income, livelihood, infrastructure and innovation. In this way, the "left behind places" will have a chance to develop and the regional disparities to be diminished [13].

A new distribution of the European Regional Development Fund (ERDF), based on egalitarian division of the funds and the losses

is urgently required so that each region to have a similar chance to development [6].

Sotarauta and Grillitsch (2023) discussed the role of human agency on regional development, emphasizing the relationships between human actions and socially produced structures [46].

For Romania, at 17 years since it became an EU member, it is important to study if the national and regional development is on the right way aligned to the EU programmes for a sustainable, balanced and equitable development.

Many authors tried to approach various aspects, using a large variety of indicators and different research methods, and all of them found that in Romania there are development gaps among counties, NUTS 2 regions, urban and rural areas, cities and communes and villages and also between Romania and other EU member states.

For Romania, territorial development convergence present a high interest, in order to diminish the gaps and disparities among the EU countries and NUTS 2 regions.

The huge discrepancies in the territorial development reflect an inefficient regionalism and not a convergence. An example is given by Bucharest -Ilfov region which has the highest development, grace to a diversified infrastructure and a high qualified labor force, while the East and South regions are marginalized playing a weak role in regional development [47].

Ibinceanu et al (2021) assessed some factors connected to sustainability in Romania: child survival, poverty, education, GDP per capita with implications for regional development and emphasized the significance of a better allocation of the means which could reduce the unemployment rate and improve infrastructure for public services [12].

Otil and Boldea (2015) used capital and labor to evaluate regional development in Romania and concluded that the economic disparities are explained by "*the cultural legacies (norms, values, institutions), that impact on how people interact, communicate, investigate, think, consult, negotiate and act, influencing the behavior at community / society level*" [19].

Dobrin et al. (2010) affirmed that the implementation of the EU directions established for the territorial development strategies in Romania requires a high professional monitoring, based on the use of advanced techniques and instruments for the spatial planning destined to strengthen the administrative capacity to absorb structural and cohesion funds for assuring a good regional development [2].

Taking into consideration the need to assure food security, agriculture is the key sector called to produce high quality food to satisfy the domestic market. This requires a sustained agricultural system able to assure a bioharmonized development in the territory of Romania in the process of administrative reorganization [8, 9, 10, 11].

Analyzing the regional development, many authors make use of GDP, which is one of the main macroeconomic aggregates specific to the National Accounts System and represents in a synthetic manner the results of the economic activity carried out in a certain interval within the territory.

It could be used either in terms of nominal GDP (gross value added at current prices) or in terms of GDP expressed in purchasing power standards (PPS), the last form being used to compared GDP per capita achieved by a country with the EU average. In its last form GDP reflects the economic development and the living standard of a country.

GDP should be analyzed by sources and economic sectors, in connection with other economic and social indicators and also at the territorial level [22].

In Romania, GDP was studied in connection with fixed assets and employment in agriculture using Cobb-Douglas production function and the results proved the existence of a close relationship [33] which make us to draw the conclusion that the improvement of fixed assets and employment could grow GDP level. However, in the territory there are gaps related to these aspects.

The correlation between economic growth, unemployment and employment in Romania confirmed the existence of discrepancies in the economic development [24, 25].

The existing gaps among Romania's regions as reflected by GDP and its resources reflect that the country has not a convergent economic development [26, 34].

Final consumption has a high contribution to Romania's GDP caused by the applied policy which stimulate public and private consumption, but there are disparities among regions regarding this aspect [27].

The dynamics of GDP and its determinants in Romania reflects the unbalanced agri-food export/import ratio and the regional disparities in the agro-food system with a negative impact on food security [30, 32].

The dynamics of the GDP concentration in Romania confirms the territorial disparities among regions of development [37].

Rosu (2021) studied the territorial development in terms of GDP per capita in Romania, and set up a Sustainable Development Index (SDI) based on five criteria and including 15 indicators. In this way, it was possible to better characterize the current sustainable development status of the counties [43].

Among the EU countries there is an income inequality which is another form of discrepancy in the regional development [31]. Also, the changes and relationships between average income and consumption expenditures per household reflect the discrepancies between rural and urban areas both in a country or at the EU level [36, 41].

The high share of the population dealing with agriculture and the trends in agricultural production value in Romania confirmed an unequal development of the rural areas [40].

In the EU's agriculture there are large discrepancies concerning labor productivity among the member states which confirm the differences of agriculture development either nationally and by region [28].

In Romania's agriculture, labour productivity is much smaller than in any other EU country and also the territorial differences are sustained by the high share of rural population and low endowment in agriculture [29, 38].

Analyzing the development level in the regional space of Romanian Banat, based on a global development index including social, economic and of life standard aspects, there were found local disparities too. To improve the situation, a new territorial model of equitable development is required [1].

A synthetic index of territorial inequalities, based on a integrated use of GDP/capita, labor productivity and life expectancy was set up by Goschin (2015) in order to characterize both economic and social discrepancies in Romania, in a more suitable way than using individual indicators. After evaluating the territorial gaps and their impact on economic development, the author developed an economic growth model which cointegrated GDP and the synthetic index and which proved that in Romania the disparities in the territory will continue [7].

Also, Veres et al. (2022), elaborated a "multidimensional composite index called the PEESH (population, economic, education, social, and health) Development Index, for measuring the territorial socio-economic development in Romania. The use of this index led to a certain change in the county classification in Romania between 2000 and 2019. They proposed a changed approach of the EU territorial development from a multidimensional perspective, taking into consideration the complex character of this process [49].

In this context, the purpose of the research was to analyze the regional development of Romania in the year 2022 using a large range of socio-economic criteria for which the empirical data were available at present in the National Institute of Statistics and Eurostat databases. Among the 32 criteria used there were included indicators regarding: (a) demography, (b) agriculture, (c) labor productivity, (d) income and expenditures per household and person, (e) GDP and GDP per capita. The conception of this paper is an original one belonging to the authors and aimed to emphasize the role of agriculture in the territorial development, taking into consideration the high importance of this economic sector in assuring food security. The structural indices and the rank-order method allowed to establish the hierarchy of the regions based on their socio-economic performance and to identify the discrepancies among regions and also by means of

GDP/capita (PPS) to appreciate the difference between Romania's performance and the EU average.

MATERIALS AND METHODS

This research is based on the study of literature on the topic, data collection from the main official information sources: National Institute of Statistics and Eurostat database for the year 2022, for which there were found final data connected to the indicators selected to be analyzed at this moment.

In the text, the regions were symbolized as follows: North East (NE), South East (SE), South Muntenia (S Munt), South West Oltenia (SW Olt), West (W), North West (NW), Center (C) and Bucharest Ilfov (B If).

The system of the 32 criteria used to assess the development of each NUTs region included a large variety of socio-economic indicators which are grouped as follows:

(a) Demographic indicators: population, rural population, occupied population, population occupied in agriculture, forestry and fishing;

(b) Agricultural indicators: agricultural surface, cultivated area, agricultural production value, vegetal production value, animal production value; all these indicators have been also calculated per inhabitant;

(c)Labor productivity in the economy

(d)Average monthly income per household in the economy and in agriculture; Average monthly expenditures per household in the economy and in agriculture; the average monthly saving rate per household;

(e)Average monthly expenditures per person in the economy and per agriculturist; Average monthly expenditures per person; the average monthly saving rate per person;

(f)GDP (PPS) by region and as a share in the EU GDP (PPS) per capita and also as a share in Romania's GDP(PPS) per capita.

For the level of each indicator have been calculated the shares in Romania's level of that indicator and in the EU's level in case of GDP. Most of the indicators were determined per inhabitant for showing the social impact and enabling the calculation of differences among regions. For each indicator mentioned above, it was applied the rank-order method, considering that the rank 1 is given for the best performance or the highest level registered by that indicator and the rank 8 was given for the lowest level recorded by a region. Finally, the points received by a region for each indicator were summed and consequently, based on the total number of points, it was established the final hierarchy of the 8 micro-regions of Romania.

The results were presented in tables and graphics accompanied by the essential comments. The main conclusions were presented at the end of this research.

RESULTS AND DISCUSSIONS

The 8 micro-regions of Romania were founded in 1998 for coordinating the regional development in the pre-accession period of Romania to the EU.

Table 1. Romania's development regions: surface and counties included

Region	Surface (km^2)	Share in Romania's area (%)	Counties included
ROMANIA	238,411	100.0	
NE	36,850	15.4	Bacau, Botosani, Iasi, Neamt, Suceava, Vaslui
SE	35,762	15.0	Braila, Buzau, Constanta, Tulcea, Vrancea
S Munt	34,489	14.5	Arges, Calarasi, Dambovita, Giurgiu, Ialomita, Prahova, Teleorman
SW Olt	29,212	12.3	Dolj, Gorj, Mehedinti, Olt, Valcea
W	32,028	13.4	Arad, Caras Severin, Hunedoara, Timis
NW	34,159	14.4	Bihor, Bistrita Nasaud, Cluj, Maramures
C	34,100	14.3	Alba, Brasov, Covasna, Harghita, Mures, Sibiu
B If	1,811	0.7	Bucharest and Ilfov

Source: Own calculation based on the data from [50].

They corresponds to EU NUTS 2 regions and play an important function in managing the funds allotted to each member state by the EU.

They have a mixtures of characteristics of various types including: geographical position and delimitations, surface, relief, natural resources, demography, economy and environment, living standard.

Surface of the development micro-regions

Table 1 shows the surface and the counties of each development region of Romania.

Population

In 2022, *Romania's resident population* accounted for 19,043,098 inhabitants, of which 17% were living in NE region, the highest share, and 8.8%, the smallest share, belonged to W region. The rest of percentages

belonged to the other 6 regions in various proportions (Table 2).

The population living in the rural areas accounted for 9,083,666 inhabitants, representing 47.7% in the total population of Romania. Of the total rural population, the highest share of 21.1% belongs to the NE region while the lowest share of 3.3% belongs to B If (Table 2).

Rural population in Romania has a high share than in other EU countries [21], it is aging and dealing mainly with agriculture, has a low training level and the youth migrates to cities for better paid jobs [35, 39].

The share of the rural population in the population of the region had the highest level of 61.2% in S Munt region and the lowest weight of 13.2% in B If (Table 2).

Table 2. Romania's total and rural population distribution by region in 2022

	Share of the region population in Romania's population (%)	Share of the region rural population in Romania's rural population (%)	Share of the rural population in the region in the region population (%)	Differences among regions versus the share of the rural population by region
ROMANIA	Total population = 19,043,098 inhabitants = 100.0	Rural population= 9,083,666 =100.0	47.7	0
NE	17.0	21.1	59.4	+11.7 pp
SE	12.2	12.6	49.4	+1.7 pp
S Munt	15.0	19.2	61.2	+13.5 pp
SW Olt	9.9	11.2	54.6	+6.9 pp
W	8.8	7.8	42.2	-5.5 pp
NW	13.5	13.8	49.6	+1.9 pp
C	11.9	11.0	44.0	-3.7 pp
B If	11.7	3.3	13.2	-34.5 pp

Source: Own calculation based on the data from [15].

The occupied civilian population of Romania accounted for 7,852.1 thousand persons in 2022, while *the population occupied in* agriculture, forestry and fishing was 858.8 thousand persons, meaning 10.93%.

Table 3 shows that B If region had 18.7% of the total occupied population of Romania, while SW Olt had only 8.6%.

Regarding *the share of the occupied population in agriculture, fishery and fishing* by region in total Romania's occupied population, we may notice that 16.8%, the highest weight belonged to SW Olt and, the lowest weight of 1.05% belonged to B If.

Agricultural indicators

Of Romania's surface of 23,839,072 ha, *the agricultural area* represents 61.3%, more exactly 14,630,072 ha, according to the National Institute of Statistics (2014).

Of this surface, 8,005,889 ha, meaning 54.7% represent *the cultivated area* in the year 2022. The largest share of the cultivated area with various crops is in S Munt and accounts for 23%, and the smallest area of 0.9% is in B If.

Taking into consideration the population, we may found that *the cultivated area per inhabitant* in Romania is 0.42 ha, varying between 0.03 ha, the smallest land surface, in B If, and 0.7 ha, the largest surface, in SE (Table 4).

Table 3.Occupied civilian population in Romania and in agriculture, forestry and fishing by region in 2022

	Share of the region occupied civilian population in Romania's occupied population (%)	Share of the region occupied population in agriculture, forestry and fishing in Romania's occupied population in agriculture, forestry and fishing (%)	Share of the occupied population in agriculture, forestry in the region in total occupied population of the region (%)	Differences among regions versus the share of the rural population by region
ROMANIA	Total occupied civilian population= 7,852.1 thousand persons = 100.0	Occupied population in agriculture, forestry and fishing = 858.8=100.0	10.93	0
NE	12.7	19.5	16.9	+5.88 pp
SE	11.0	13.9	13.9	+1.27pp
S Munt	12.5	17.6	15.5	+4.57 pp
SW Olt	8.6	13.2	16.8	+5.87 pp
W	9.8	8.8	9.9	-1.03 pp
NW	14.0	14.8	11.6	+0.67 pp
C	12.7	10.3	8.9	-2.03 pp
B If	18.7	1.9	1.05	-9.88 pp

Source: Own calculation based on the data from [15].

Table 4. Cultivated area and its distribution by region of development and inhabitant in 2022

	Share of the region cultivated area in Romania's cultivated area (%)	Share of the cultivated area of the region in the total surface of the region (%)	Cultivated area per inhabitant (ha/capita)	The share of the region in the cultivated area per capita in Romania (%)
ROMANIA	8,005,889 ha= 100.0	54.7	0.42	100
NE	15.9	34.6	0.40	95.2
SE	20.3	45.4	0.70	166.6
S Munt	23.0	53.5	0.64	152.4
SW Olt	13.5	37.1	0.58	138.1
W	9.5	23.8	0.46	109.5
NW	10.1	23.6	0.32	76.2
C	6.8	16.0	0.24	57.1
B If	0.9	34.2	0.03	7.14

Source: Own calculation based on the data from [15].

The results from Table 4 show that the cultivated area per inhabitant exceeds the average in Romania, accounting for 0.42 ha/capita, only in the regions SE, S Munt, SW Olt, and W, and in the other regions it is below this mean, in the decreasing order; NE, NW, C and B If.

The value of agricultural production in Romania accounted for Lei 109,567.7 million in 2022, of which 22.2 % was carried out in S Munt, followed by 15.5% in SE and 15.4% in NE and 12.4% in SV Olt, summing 65.5%.

The value of agricultural vegetal production was Lei 71,876.41 million, representing 65.8% of the total agricultural output value, while *the value of animal production* accounted for Lei 34,842.53 million, meaning only 31.8%.

The agricultural production per inhabitant in Romania was Lei 5,753.6/capita, with variations between Lei 8,520.1/capita in S Munt and Lei 869.4/capita in B If.

The regions which exceed the average agricultural production value per capita are: S Munt, SE, SV Olt and W (Table 5).

The vegetal production value obtained by Romania in 2022 accounted for Lei 13,584.6 million in S Munt (18.9%) and Lei 1,211,9 million (1.7%) in B If.

Among the regions, the highest share of the vegetal production value varied between 77% in S Munt and 39.6% in B If.

The animal production value by region recorded the highest share in Romania's animal production value in S Munt (22.2%), followed by 15.5% in SE, 15.4% in NE and

12,4% in SW Olt, and the lowest weight was 1.8% in B If.

The regions with the top share of animal production value in total agricultural production value are: Centre 42.2%, NW 41.8%, NE 41.4%, W 38%, and the region with the lowest weight is B If (5.3%) (Table 6).

Table 5. Agricultural production value by region and inhabitant in Romania, 2022

	Share of agricultural production value of the region in Romania's agricultural production value (%)	Share of the average production value/capita in the region in Romania's average production value/capita (%)
ROMANIA	Lei 109,567.7 Million = 100.0	Lei 5,753.6/capita = 100
NE	15.4	91.0
SE	15.5	127.4
S Munt	22.2	148.1
SW Olt	12.4	126.3
W	9.9	112.9
NW	11.7	88.3
C	11.1	93.0
B If	1.8	15.1

Source: Own calculation based on the data from [16].

Table 6.Vegetal agricultural production value and animal production value by region, Romania, 2022

	Share of vegetal production value by region in Romania's vegetal production value (%)	Share of vegetal production value by region in the region agricultural production value (%)	Share of animal production value by region in Romania's animal production value (%)	Share of animal production value by region in the region agricultural production value (%)
ROMANIA	Lei 71,876.41 million= 100	65.6	Lei 34,842.53 million = 100	31.8
NE	16.7	57.2	15.4	41.4
SE	18.4	69.8	15.5	26.1
S Munt	18.9	77.0	22.2	21.4
SW Olt	12.2	73.3	12.4	25.8
W	9.5	60.7	9.9	38.0
NW	11.8	57.7	11.7	41.8
C	10.8	57.2	11.1	42.4
B If	1.7	39.6	1.8	5.3

Source: Own calculation based on the data from [16].

The values of vegetal production and animal production per inhabitant are shown in Table 7, where we may observe that at the national level, Romania obtained Lei 3,774.4 vegetal production and Lei 1,829.6 animal production.

Compared to this average level, the situation by region is the following:

- *The value of vegetal production per inhabitant* which exceeds the country average is recorded in SE, S Munt, SV Olt and W, and below the country mean there are the regions NE, NW, C and B If.

-*The value of animal production per capita* exceeds the country mean only in the regions: S Munt, SE, SW Olt and W (Table 7).

Labor productivity

In 2022, Romania achieved Lei 148,339.2 per person *labor productivity in the economy* (in current prices), of which Lei 29,562.2 per person came from agriculture, forestry and fishing (19.92%).

Compared to 2015 level =100, *the real labor productivity*, in terms of growth index, accounted for 104.5 at the EU-27 level, while in Romania it was estimated at 128.2.

By NUTS 2 region, the situation is shown in Table 8, which reflects that the highest growth was recorded by B If (159.6), followed by W region (140.5) and NW (137.8). The only region which did not achieve a growth was SW Olt (99).

Labor productivity in Romania is smaller than in other EU countries [23].

Table 7. The value of vegetal production and animal production per inhabitant by region, Romania, 2022

	Share of the value of vegetal production per capita by region in Romania's average vegetal production per capita (%)	Share of the value of animal production per capita by region in Romania's average animal production per capita (%)
ROMANIA	Lei 3,774.4 per capita	Lei 1,829.6 per capita
NE	98.7	91.0
SE	151.2	127.4
S Munt	126.1	148.1
SW Olt	124.3	126.3
W	108.3	112.9
NW	89.0	88.3
C	90.5	92.9
B If	14.3	15.1

Source: Own calculation based on the data from NIS [15].

Table 8. Real productivity per person in terms of real index in 2022 (2015=100)

Region	2015=100	Differences versus 2015 (pp)
NE	104.6	+4.6
SE	109.6	+9.6
S Munt	102.0	+2
SW Olt	99.0	-1
W	140.5	+40.5
NW	137.8	+37.8
C	115.0	+15
B If	159.6	+59.6

Source: Own calculation based on the data from [4].

Average monthly income per household

In 2022, *average monthly income per household* accounted for Lei 6,464.12. The NUTS 2 regions, which exceeded this national average, were: B If (148.4), NW (108.2), C (104.7), but all the other regions recorded smaller values.

From agriculture, forestry and fishing, a household registered an average monthly income of Lei 117.42 at national level. By NUTS 2 region, the national average was exceeded by NE (Lei 178.8), W (Lei 174.05), SE (167.00), and C (113.35). All the other regions registered a smaller monthly average income from agriculture and, especially, B If (6.73), the smallest level (Table 9).

Average total expenditures per household

In 2022, in Romania, *the average monthly expenditures per household* were Lei 5,610.75. By region, the level of this indicator varied between Lei 8,187 in B If, the top level, and Lei 4,588.41 in NE, the lowest level in NE.

The national average was exceeded by B If, NW and C, while the remaining regions were below.

The average monthly expenditures per household destined for purchasing food and beverages accounted for Lei 1,020.38 representing 18.18% of the average monthly expenditures per household.

By NUTS 2 region, the average monthly expenditures for food and beverages ranged between Lei 1,607.22 in B If and Lei 857.04 in S Munt (Table 10).

The average monthly savings rate per household was calculated as a percentage ratio between the difference calculated between the average monthly income per household and the average monthly expenditures per household, divided by the average monthly income. The result accounted for 13.20% of the monthly average income. By NUTS 2 region, the savings rate exceeded the national rate only the following regions: W (18.29%), C (14.78%), B IF (14.63%), SW (13.23%) (Table 11).

Table 9.Average monthly income per household and average monthly income per household coming from agriculture, forestry and fishing, Romania, 2022

	Share of average monthly income per household by region in Romania's average monthly income per household (%)	Share of average monthly income per household by region coming from agriculture, forestry and fishing in Romania's average monthly income per household (%)	Share of average monthly income per household by region coming from agriculture, forestry and fishing in Romania's average income from agriculture etc (%)
ROMANIA	Lei 6,464.12 per household	Lei 117.42 lei per household from agriculture etc.= 1.81%	117.41 = 100
NE	79.6	3.47	152.3
SE	84.15	3.08	143.0
S Munt	92.3	1.54	78.3
SW Olt	89.0	1.42	69.4
W	99.5	2.70	148.2
NW	108.2	1.67	99.7
C	104.7	1.68	96.5
B If	148.4	0.17	5.7

Source: Own calculation based on the data from [15].

Table 10. Average monthly expenditures per household and Average monthly expenditures per household for purchasing food and beverages, Romania, 2022

	Share of average monthly expenditures per household by region in Romania's average monthly expenditures per household (%)	Share of average monthly expenditures per household by region for buying food and beverages in Romania's average monthly expenditures per household (%)	Share of average monthly expenditures per household by region for buying food and beverages in Romania's average expenditures for purchasing food and beverages (%)
ROMANIA	Lei 5,610.75 per household	Lei 1,020.38 per household for buying food and beverages = 18.18%	Lei 1,020.38 = 100
NE	81.8	19.04	85.6
SE	87.8	19.17	92.4
S Munt	92.8	16.45	84.0
SW Olt	89.0	17.74	85.5
W	93.6	19.31	99.4
NW	109.7	16.56	99.9
C	102.7	17.76	100.4
B If	145.9	19.63	157.5

Source: Own calculation based on the data from [15].

Table 11. Average savings rate per household in Romania, 2022

	The average monthly savings rate per household in Romania (%)	Differences among regions regarding the savings rate from the average monthly savings rate per household in Romania (pp)
ROMANIA	13.20 %	0 pp
NE	10.82	-2.38
SE	9.57	-3.63
S Munt	12.74	-0.46
SW Olt	13.23	+0.03
W	18.29	+5.09
NW	11.95	-1.25
C	14.78	+1.58
B If	14.63	+1.43

Source: Own calculation based on the data from [15].

Average monthly income per person carried out in Romania in 2022 was Lei 2,575.07. By region, its level varied between Lei 3,836.7 in B If, the highest level, and Lei 2,028.34 per person in NE, the lowest level.

This indicator had a higher value than the national mean in B If 9140%), NW (105.6%), C (102.3%) and W (100.4%) (Table 12).

Average monthly expenditures per person accounted for Lei 2,235.12 in 2022 at the country level.

Higher expenditures per person were done in B If (146.5%), NW (107.1%) and C (100.4%).

In the other regions, the expenditures spent by a person were lower than the national average. The monthly savings rate per person from the average monthly income per person was 13.2% at the level of Romania and by region its level varied between 18.3% in W region and 9.5% in SE (Table 12).

Table 12. Average monthly income per person, average monthly expenditures per person and the average monthly savings rate per person, Romania, 2022

	Share of the average monthly income per person and region in Romania's average monthly income per person (%)	Share the average monthly expenditures per person and region in Romania's average monthly expenditures person (%)	Average monthly savings rate per person (%)	Differences among regions versus average monthly savings rate per person (pp)
ROMANIA	Lei 2,575.07 per person = 100	Leo 2,235.12 per person= 100	13.2%	0 pp
NE	78.8	80.9	10.8	-2.4
SE	86.9	90.5	9.5	-3.7
S Munt	92.3	92.8	12.7	-0.5
SW Olt	91.1	91.0	13.2	0
W	100.4	94.5	18.3	+5.1
NW	105.6	107.1	11.9	-1.3
C	102.3	100.4	14.8	+1.6
B If	149.0	146.5	14.6	+1.4

Source: Own calculation based on the data from [15].

Average monthly income per agriculturist
It is an indicator reflecting the fed back to the people working in agriculture for their hard work during every month. In 2022, it level was Lei 1,377.44, as an average at the country level.

By region, it varied between Lei 6,678.31 in B If and Lei 918.48 in SV Olt.

The national mean was exceeded only by the following regions: B If (4.8 times), S Munt (+40%), NW (+35%), SE (+22.42%), C (+18.86%).

In SW Olt, NE and W, an agriculturist obtained a lower average monthly income than the national mean (Table 13).

Table 13. Average monthly income per agriculturist

	Share of the average monthly income per agriculturist by region in Romania's average monthly income per agriculturist (%)
ROMANIA	Lei 1,377.44 per agriculturist = 100
NE	77.88
SE	122.42
S Munt	140.14
SW Olt	66.68
W	97.83
NW	135.00
C	118.86
B If	484.90

Source: Own calculation based on the data from [15].

GDP (PPS) per inhabitant
This is the most synthetic indicator reflecting the economic and social development of a region and country and allows comparisons among regions and countries.

In 2022, the EU-27 GDP(PPS) accounted for Euro 35,440 per capita.

Romania achieved Euro 26,700 per capita (PPS), representing 75% of the EU average, compared to 74% in 2021 and 57% in 2012.

In 2022, Romania is close to Hungary's GDP which carried out 76%, but it is still behind Poland (80%).

Among the EU-27 member states, Romania comes on the 22 position for GDP (PPS) per capita as shown in Table 14.

By development region, in 2022, GDP (PPS) per capita varied between Euro 62,900 in B If, the highest level in Romania and Euro 20,200 in S Munt region.

Table 14. Romania's position among the EU member states for GDP(PPS) per capita in 2022

EU GDP (PPS) = Euro 35,440 per capita = 100	
EU countries with a higher GDP (PPS) than the EU average	EU countries with a lower GDP (PPS) than the EU average
1. Luxembourg 256 2.Ireland 234 3.Denmark 136 4.Netherlands 131 5.Austria 124 6.Belgium 120 7.Germany 117 8. Sweden 117 9.Finland 110 10.Malta 104	12.Italy 86 22.Romania 75 13.Cyprus 94 23. Croatia 73 14.Czechia 90 24.Latvia 72 15.Slovenia 90 25.Slovakia 71 16.Lithuania 89 26. Greece 67 17.Spain 85 27.Bulgaria 62 19.Estonia 85 20. Portugal 79 21.Hungary 76
11.France 100	

Source: Own conception based on [14].

The share of the Romanian NUTS 2 regions in the EU average of Euro 35,440 per capita varied between 177.5 in B If, the top level and 46% in NE, the smallest level.

Therefore, the only region which exceeds the EU average GDP per capita is Bucharest Ilfov. If we take into account that Romania's GDP per capita was Euro 26,700 in 2022, we may notice that only two regions exceeds the national average: B If, 2.35 times and W region by +3.7%. All the other development regions have still a lower GDP than Romania's average per capita and this reflects an insufficient development and large discrepancies among regions (Table 15).

Table 15. Romania's GDP (PPS) per capita and by region of development in 2022

	EU GDP (PPS) in 2022 = Euro 35,440 per capita			Romania's GDP (PPS) in 2022= Euro 26,700 per capita	
	Romania GDP Euro/capita = 26,700	Share in the EU GDP (%)	Differences versus EU GDP= 100 (pp)	Share in the Romania's GDP (%)	Differences versus Romania's GDP= 100 (pp)
NE	16,300	46.0	-54	61.0	-39.0
SE	21,400	60.3	-39.7	80.1	-19.9
S Munt	20,200	57.0	-43	75.6	-24.4
SW Olt	20,300	57.3	-42.7	76.0	-24.0
W	27,700	78.2	-21.8	103.7	+3.7
NW	24,700	69.7	-30.3	92.5	-7.5
C	25,200	71.1	-28.9	94.4	-5.6
B If	62,900	177.5	+77.5	235.6	+135.6

Source: Own calculations based on the data from [4].

In 2023, according to Eurostat, the EU achieved Euro 37,610 per capita GDP (PPS0 and Romania Euro 30,000, representing 80% of the EU average.

But, if we compare Romania's GDP per capita achieved in 2022 versus 2021, we may notice that in all the regions of development GDP increased in various proportions, varying between +14.46% in West, +12.7% in

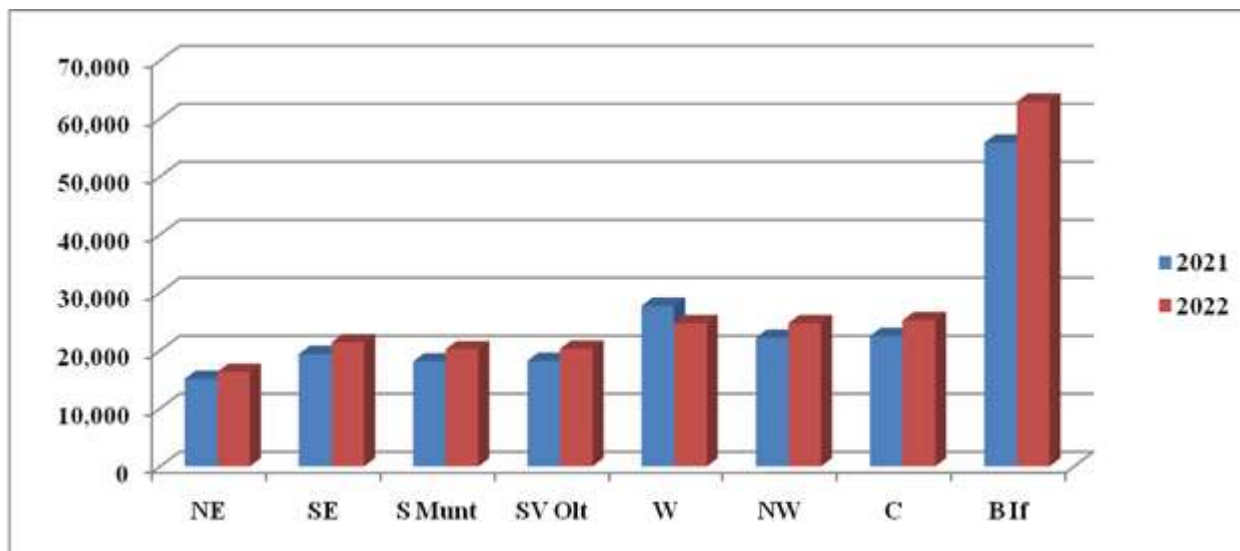Bucharest Ilfov, +12% in the Center region and the smallest increase was + 7.)% in North East (Fig. 1).

Fig. 1. Dynamics of Romania's GDP (PPS) by region in 2022 versus 2021 (Euro/capita)
Source: Own design based on the data from [5].

The classification of the development regions in Romania based on the performances achieved in 2022 according to the results found in this analysis.

Based on the cumulated points for the 32 indicators used in this research and applying the rank-order method, it was established the hierarchy of the 8 regions, taking into consideration that the region with the smallest number of total points is in the top and the region with the largest number of points is situated on the last position.
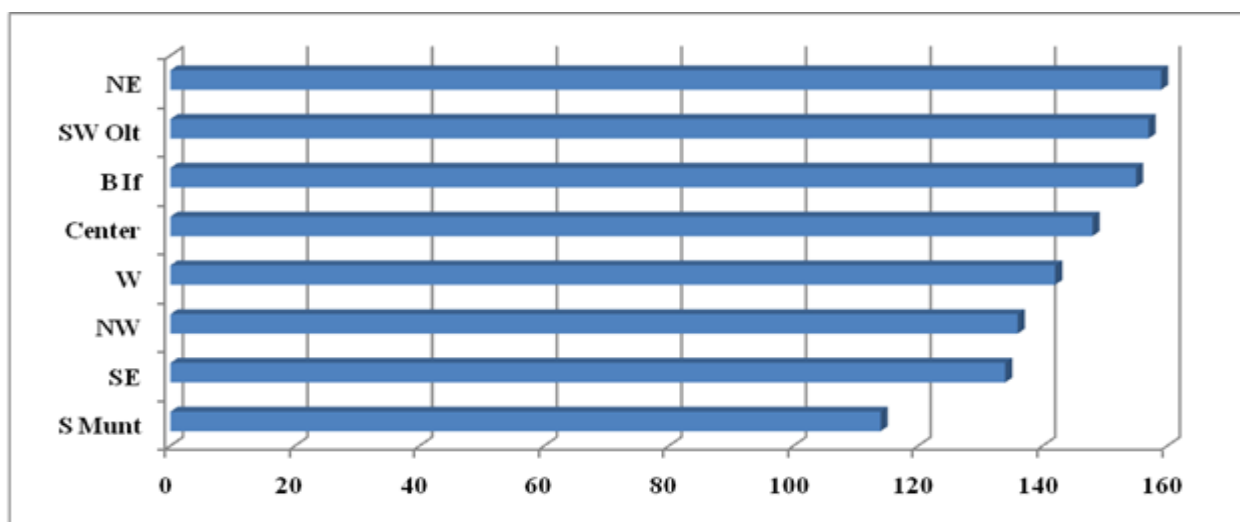
Fig.2. The hierarchy regarding the development of the NUTS 2 regions in Romania as assessed by a research in which there were used 32 economic and social indicators
Source: Own conception and results.

From this point of view, the region of development which accumulated 114 points is ranked 1st, it is about South Muntenia, being followed in the 2nd position by South East region with 134 points and on the 3rd position by North West region with 136 points. On the 4th position is situated West region with 142 points, being followed by Center region on the 5th position with 148 points, and on the 6th position by Bucharest Ilfov with 155 points. On the 7th position is South West Oltenia which accumulated 157 points.

Finally, on the 8th position comes North East region with 159 points (Fig. 2).

CONCLUSIONS

This research work studied the regional development in Romania in the year 2022 by a comparative analysis of the 8 NUTS 2 regions using a set of 32 indicators which covered a large range of aspects considered important by authors who desired to emphasize the contribution of agriculture to the social and economic growth in various parts of the country.

Regarding the demographic aspects, it was noticed a polarization of total population as follows: the largest number of residents is in the North East, South Muntenia, North West and South East and also in Bucharest-Ilfov regions, while the lowest number of inhabitants was found in the other regions, especially in the West.

Rural population is concentrated in North East, South Muntenia, North West and South East, the regions were agriculture is much more developed, and, in a smaller proportion in the West and Bucharest Ilfov regions were the opportunities offered by the capital and the City of Timisoara in finding well paid jobs are more numerous.

Also, in these four regions North East, South Muntenia, North West and South East it was found the largest population occupied in agriculture.

The occupied population in the economy has a higher share in Bucharest Ilfov, North West, Center and West.

Regarding the contribution of agriculture to the territorial development, taking into account the surface, as land is the most precious capital for producing food and nourish the population, it was noticed that the largest areas are, in the following regions, in the decreasing order being: South Muntenia, South East, South West Oltenia, West and North East. Obviously, the highest contribution to the value of agriculture production is given by these regions: South Muntenia, South East, South West Oltenia, West and North East.

Taking into account the resident population, the highest value of agricultural production per inhabitant was noticed in South Muntenia, followed by South East, South West Oltenia and West, the last two regions having a smaller population than the others. The North East region, despite that it is ranked the 3rd for the value of agricultural production, came on the 6th position due to the fact that it has a higher number of inhabitants. When we analyzed the contribution of various regions to the value of vegetal and animal production, we found again the four regions South Muntenia, South East, South West Oltenia, West and North East as it was normal to be. At the oposite pole, with a smaller contribution there are Bucharest Ilfov, West and Center regions.

Analyzing the vegetal and animal production value per inhabitant, we found that on the first four positions there are: South East, Sount Muntenia, South West Oltenia and West. On the last position is Bucharest Ilfov which reflects that in this region is not possible to cover the local market requirements in agro-food products and the other regions must be supply the difference to assure food security.

Labor productivity has the highest performance in Bucharest Ilfov, West, North West and Center, where the employees are more qualified and the jobs are more attractive especially in other fields of activity than agriculture.

Average monthly income and expenditures per household and person in the economy reflect again discrepancies among regions. The highest average monthly income per household is in the following four regions, which in the decreasing order are: Bucharest Ilfov, North West, Center and West, and these four regions have also the highest share regarding the average monthly expenditures per household, as well as the expenditures for food and beverages and the savings rate.

In the other four regions, income and expenditures are much lower per month.

Regarding the average income and expenditure per person, also these four regions are on the first position, but in the following order: Bucharest Ilfov, Center, North West and West.

Average monthly income coming from agriculture per household and person is much smaller compared to the national average. But, the regions where the average monthly income from agriculture is higher are, in the decreasing order: North East, West, South East and North West.

The average monthly income coming from agriculture per person is higher in the following regions: Bucharest Ilfov, South Muntenia, North West and South East.

Gross Domestic Product registered a different level among regions, which again could be divided into two categories:

-regions with the highest GDP, in the decreasing order: Bucharest Ilfov, West, Centre, North West;

-regions with a lower GDP, in the decreasing order: North East, South Muntenia, South West Oltenia and South East, where agriculture is better developed, but it has a smaller contribution to GDP compared to other economic sectors (industry, IT, commerce, transport etc).

Romania's GDP compared to the EU's GDP

In 2022, Romania achieved Euro 26,700 per capita (PPS), representing 75% of the EU average Euro 35,440 per inhabitant.

Compared to the level in 2021 (74%) this means an increase of 1 percentage point.

For its performance in the year 2022, Romania comes on the 22 position among the other EU member states. It is still behind Hungary (76%), Portugal (79%) and Poland (80%), but it has a higher GDP per capita than Croatia (73%), Latvia (72%), Slovakia (71%), Greece (67%) and Bulgaria (62%).

The final hierarchy of the regions of development of Romania in 2022

Based on the total cumulated number of points for each indicator taken into consideration in this research regarding the economic and social performance which emphasize the contribution of agriculture, it was established the final classification of the regions, which is the following one in the decreasing order: South Muntenia, South East, North West, West region, Center, Bucharest Ilfov, South West Oltenia and North East.

The obtained points reflect the existence of discrepancies among regions, an aspect which does not entirely fit to the EU cohesion policy.

Romania has to intensify its efforts to assure a higher rate of economic growth on the principle of equity in the territory and reach a balanced and harmonized economic and social development which, also, have to reduce the gaps compared to the other NUTS 2 regions.

The treaty on the Functioning of the European Union (TFEU) enables the EU to take measures to strengthen its economic, social and territorial cohesion and to assure a harmonious and balanced development.

The cohesion funds (2021-2027) are destined for investments through national or regional programmes to the countries with a gross national income per capita below 90% of the EU average and Romania is among the 15 countries in this situation [3]. The funds are mainly destined for investments through the national and regional programmes (environment, trans-European network of transportation), the total budget being Euro 48.3 Billion.

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