SOCIOECONOMIC DIMENSIONS IN LOCATIONS BY CLUSTERS IDENTIFIED FOR THE POPULATION ESTABLISHING RESIDENCE (INCLUDING EXTERNAL MIGRATION) IN ANOTHER LOCALITY AT LAU 2/NUTS 5 IN ROMANIA

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Identifying locations that are part of the LAU2 two types of clusters HH and LL indicates similarities at the level of the population establishing residence (including external migration) in another locality, using spatial statistical analysis method Local Indicators of Spatial Association LISA (Anselin 1995, 1996) and calculated in GeoDA Software. Each location LAU2's type (national, HH or LL) is profiled as calculated in SPSS by the statistical mean of characteristics relevant indicators to the labour market: the number of registered unemployed (2010 and 2013), number of employees (2010), average population density / km2 (1992 – census data) and average number of people entering the LAU2 following the change of residence by reference environment (urban/rural) and national levels in 1990 and 2009 in Romania. Data source is provided by National Institute of Statistic INS – TEMPO online database, socioeconomic indicators detailed level LAU 2 / NUTS 5. These research results have been achieved in the Project NUCLEU PN – 420 118: spatial distribution of cohesion policy indicators, made in 2014, and results are used in Dynahu Project.

Keywords*: regional differences, regional labour markets models, clusters, population establishing residence in another locality.*

Regional economic disparities remain still a priority on the policy agenda, as the 6th Cohesion Report argues:

> "Since 2008, public debt has increased dramatically, income has declined for many people across the EU, employment rates have fallen in most countries

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> and unemployment is higher than for over 20 years, while poverty and social exclusion have tended to become more widespread. At the same time, regional disparities in employment and unemployment rates have widened, as have those in GDP per head in many countries, while in others they have stopped narrowing. These developments mean that the Europe 2020 employment and poverty targets are now significantly further away than when they were first set, and it will require a substantial effort over the next six years to achieve them in a context of significant budgetary constraints" (6th Cohesion Report, 2014: XXIX).

Cohesion policy has an explicit focus on specific territories "particular relevant in areas with high levels of poverty or exclusion" included in the EU2020's Objective: "The reduction of poverty and social exclusion" is a Europe 2020 objective, (but) it is the risk of asymmetric territorial impact (European Commission, 2013).

> "*Asymmetric* means that there is highly unbalanced **spatial distribution of the costs and benefits.** This is important, as a large asymmetric impact may reduce support for the policy and can create problems and delays during the implementation" (: 2) and "Taking into account potential asymmetric impacts can increase the effectiveness and the efficiency of the policy. It can increase political support for a policy, boost the benefits, while addressing excessive spatial concentrations of the costs" (European Commission, 2013: 3).

Roose, Raagma, Kliimask (n.a.) **define peripheral areas in report with human assets and development opportunities**, where development opportunities reflect complex relationship between depopulation (demographic situations – both permanent and seasonal), weak entrepreneurship, skill shortage and social deprivation:

> "The formation of a periphery is the result of the process of peripherization itself, not determined primarily by the structural conditions of economic development in a given locality" (Beetz et al., 2008, cited by Roose, Raagma, Kliimask (n.a.): 6).

LITERATURE REVIEW

Regional economic disparities are reflected also in three economic schools for which "three are the theoretical fields explaining regional differences and the tendency to convergence or divergence of the economies: the neoclassical theory, the endogenous growth and the new geography" (Amendola, et al., 2003: 3).

In **New Economic Geography** (NEG) regional growth paths depend on the localisation of economic activities with relations explained by "core" – "periphery" Kurgman's model (The core – periphery model of Krugman, Fujita and Venables, 1999).

> "The reduction of transactions costs could lead to the spatial concentration of increasing returns to scale industries in the core, where the periphery would specialize in constant returns to scale industries. The understood reason is that investment and innovation, at the origin of growth, require an array of inputs which, because of the various transaction costs, is less costly when production is geographically concentrated" (Amendola et al., 2003: 3).

"Changing trade costs can cause spatial structures to emerge or change" (Baldwin and Forsild, 2000: 314) and proves that "growth is a powerful centripetal force but that the knowledge spill overs are a powerful centrifugal force" (Baldwin and Forsild, 2000: 307).

Labour force migrates (in the sense of moving, more precisely, it is **mobile)** for work driven by increasing the value of utility, respectively increasing its real wage given by differences in costs explained by differences in real wage, considering that "the flow of interregional migration of workers is proportional to "wage pressure", Krugman (1991) and Fujita et al. (1999), cited by Baldwin and Forsild, 2000: 310). "Migration is the key to agglomeration" (Baldwin et al., 2002: 22) the equilibrium is unstable considering that "agglomeration forces also decrease with trade costs" (Baldwin et al., 2002: 7), until the very low level when dispersion occurs, bearing in mind that "dispersion is the likely outcome both with trade costs are very high and when they are very low" (Baldwin et al, 2002: 7).

Under the theory of **peripheral areas**, the status of human assets and development opportunities explains new socioeconomic trends. The axe core – periphery – is dynamic. In the conditions of global competition a former core could become periphery. **Demographic change and slowing down of economic growth in a global economy** "gives rise to a series of challenges that differ from one city to another, such as ageing populations, shrinking cities or intense processes of suburbanisation", especially industrial cities face stagnation or decline in both Central and Eastern Europe in Western Europe non capital cities (Callatay et al., 2011: VI).

The case of **very low costs** when the **dispersion forces (local competition effect**[1]) is higher than the **agglomeration forces (backward and forward linkages**[2]) results the increasing dispersion effect manifestation on the background

[1] The local competition effect (also known as the market crowding effect) favours dispersion, i.e. it is stabilising (Baldwin et al., 2002: 11).

[2] Demand-linked and cost-linked circular causality (also called backward and forward linkages) favour agglomeration, i.e. they are de-stabilising (Baldwin et al., 2002: 11).

of "**growing income disparities and the poor getting poorer –** in some neighbourhoods, local populations suffer from a concentration of inequalities, in terms of poor housing, low-quality education, unemployment, and difficulties or inabilities to access certain services (health, transport, ICT)" (Callatay et al., 2011: VI). **Social polarisation and segregation** were amplified by the post 2008 economic crises on the background of "gradual retreat of the welfare state in most European countries", considering that:

> "**Spatial segregation** processes – as an effect of social polarisation – make it increasingly difficult for low-income or marginalised groups to find decent housing at affordable prices" (Callatay et al., 2011: VI).

The case of **low costs** when the **dispersion forces** are lower than the **agglomeration forces** results the increasing agglomeration effect manifestation, situation that could be illustrated by the Estonian urban and regional restructuring of Roose, Raagma, Kliimask (n.a.) The analysis is focused on human assets in **peripheral rural areas** using tree data clusters: Proximity (distance to the centre), Demography and Socio-economic status at LAU 2/ NUTS 5 level – as statistical unit, under the scenarios that:

> "At the same time, many peripheral areas have temporarily or permanently attracted people with national or even international decision-making powers (cultural elites, businessmen, politicians) who may contribute to local development: mainly by opening the local society to the outer world as middlemen but also by contributing directly as community members or business partners. This has been labelled as **seasonal buzz**" (Marjavaara 2005, cited by (Roose et al., (n.a.): 5).

In Romania a core-periphery axis is obtained by applying the **spatial autocorrelation analysis**: global and local spatial autocorrelation statistics, with inference and visualization in *socioeconomic dimensions in LAU 2/ NUTS 5 locations by clusters given by registered unemployed people at LAU 2/ NUTS 5 level in 2013 and 2010* (Lincaru et al., 2015).

"More than ever before, local development depends on the nature of urban–rural interaction and, increasingly, on the ability to also account for the global–local axis" (Copus and Hörnström, 2011, cited by (Roose et al., (n.a.): 7)).

RESEARCH QUESTION

The spatial profile of the population establishing residence (including external migration) in another locality is dynamic in time. The association identified through LISA clusters (Anselin 2003, 2005) is applied at LAU 2/ NUTS 5 level for

two years 1990 and 2009 emphasizing not only different agglomeration tendencies but also some socio-characteristics changing in the identified clusters locations. Our research question in this paper is focused on sketching a territorial profile modification in two moments in time including the socioeconomic characteristics variation by cluster type, clusters that could represent the **(new) core locations providing development opportunities**.

VARIABLES AND DATA

Our reference variable is **number of persons with changes of residence** (including external migration)

> "The change of residence is registered in case of persons who arrived and proved to have ensured a dwelling in that locality. Since 1992, changes of residence from one sector to another in the Bucharest Municipality have also been included. Changes of residence in the same locality have not been registered. These data include international immigrants" (metadata POP307A – TEMPO INS).

Administrative and geographical data – concern also the statistical unit LAU 2/ NUTS 5 level (and not the persons or households) (Anselin, 1998). **Location variables** LAU 2 local administrative units count 3,190 units, with polygons provided by ESRI in 2014 using SIRUTA from INS, with the role of statistical units. For each polygon it is calculated its area.

a. **Area data** are provided by Romania ESRI shape polygons that reflect territorial description of LAU 2 and are regulated according to Law 351/6th July 2001 regarding the National Territory Arrangement Plan – spatially geocoded using the polygons areas for LAU 2 described by ESRI Romania using Arc GIS Software. The territorial administrative units LAU 2 level are represented in SIRUTA code by municipality, town, commune and County residence and are equivalent with NUTS 5 level.

b. **Cluster identification**:

Pin – **Number of persons with changes of residence** (including external migration) POP307A – TEMPO INS in 1990 and 2009 (data downloaded on 18.11.2014 last update on TEMPO *10–05–2013*). According to the variable on which is made the spatial analysis, result the LISA clusters "high-high" (H-H), "low-low" (L-L), "low-high" (L-H), and "high-low" (H-L) clusters in GeoDA (Anselin).

c. **Attribute data**:

Socioeconomic indicators (Romania, provided by INS) as attribute information for each LAU 2 the statistic unit by cluster type:

● Average number of employees at LAU 2 level, FOM104D INS TEMPO in 1991 and in 2010 (data downloaded on 01.09.2014 last update on TEMPO 31–10–2013);

● Registered unemployed persons at the end of the month in 2010 at LAU 2 level, SOM101E INS TEMPO, 2009;

● Total population in 2011, Census Data INS – ESRI Romania;

● Number of persons that entered in a locality 2009 (*) – Total population which who arrived and proved to have ensured a dwelling in a locality in 2009: establishing residence (including external migration) by counties POP307A – TEMPO INS – Origin–destination flow (data downloaded on 01.09.2014 last update on TEMPO 29–07–2014).

METHOD

1. Neighbourhood analysis/ contiguity and spatial weighting technique used. (Anselin, 1998, 2002). Spatial relation conceptualization spatial LAG modelling is based on rook contiguity, first order type. For 2014, among the 3 189 LAU 2 (provided by ESRI) with data there are 805 location with 5 neighbours, 799 locations with 6 neighbours, 577 locations with 7 neighbours, 408 with 4 neighbours and 282 with 8 neighbours, summing a cumulative percent of 90.1%. The maximum number of neighbours is 16 and minimum 1 in 4 locations.

2. Analysis of global and local spatial autocorrelation is realised through the Moran's I and Local Indicators of Spatial Association [LISA] Maps, local clusters highlighting in 1990 and in 2009 for the number of persons with changes of residence at LAU 2 level (Anselin, 2003: 99).

3. Selection of LAU 2 units included in HH and LL clusters types (Anselin 1995, 1996); See *Map 1*, *Table no. 1*. LISA's clusters HH, LL and total units type for Number of persons with changes of residence in 1990 and respectively the LISA's clusters HH, LL and total units type for Number of persons with changes of residence in 2009.

DISCUSSIONS AND LIMITS

The migration in the sense of Krugman model reflects the equilibrium searching in terms of costs, mainly: labour force cost–real wage, trade costs (transport, production costs, etc.). We consider important to be identified the **core locations** (or locations that have the potential to become core, in report with all other locations are peripheries) as the agglomerations of/ geographical concentration that could provide still comparable access to housing, education, employment, common interest services (health, transport, ICT) etc., locations where the market

crowding effect is not yet present in conditions of competitive transaction costs. In short, we consider that the migration ensures the agglomeration effect as long as the transaction costs are low.

The main limit of our article is represented by the fact that we identified the tendency of agglomeration (the Moran's I is still too low) with core potential only by the population that enter in location and not by its accumulation level (respectively the exit population is not considered, reason for which it is ignored the flow into location).

The **second** important **limit** is given by the low spectrum of the socioeconomic attributes of locations identified in HH locations (as core potential locations), in some cases the characteristics are expressed only by means of the indicators more or less comparable (we use the best years accessed in the TEMPO–INS in the first part of the 2014 year).

RESULTS

Our results regarding the *number of persons with changes of residence* following the spatial analysis at LAU 2 level covers the following issues for 1990 and 2009: global spatial autocorrelation, local spatial autocorrelation and socioeconomic characteristics of the locations by cluster type in absolute and relative terms.

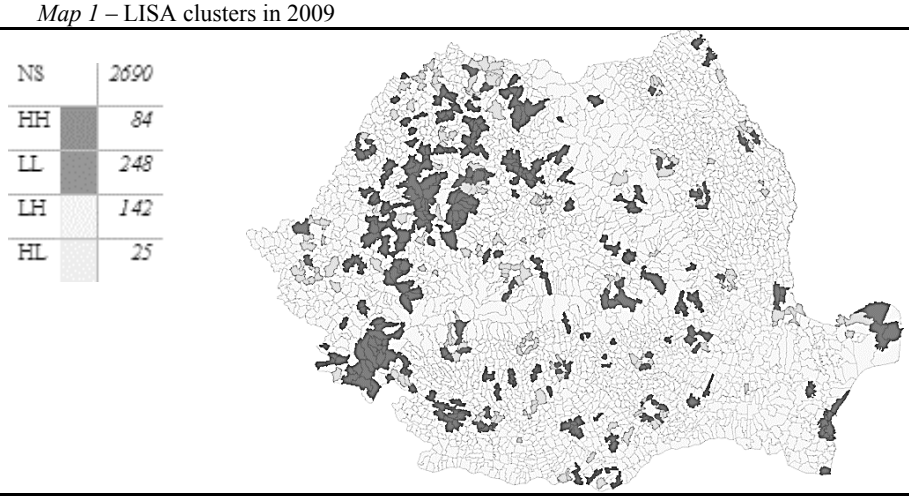
Global spatial autocorrelation

The *number of persons with changes of residence* presents a spatial dispersion global tendency at LAU 2 level, slightly decreasing from 1990 to 2009. The observed values of Moran I index of this indicator have negative values: of 0.0162 in 1990 and 0.00645 in 2009, both values are lower than the theoretical mean value E (I) of the Index Moran [(E(I) = –0.0003] indicating that there is not a significant spatial correlation (Anselin, 2005: 135; Anselin, 2003: 91). Please note that we opted for determining inference Moran I index 999 permutations for number of registered unemployed at UAT 2 for the empirical distribution is obtained for a level of $p = 0.016$ pseudo significance in 1990 and $p = 0.055$ respectively in 2009; In 1990 we obtained a Z score of 2.3459 of Moran I with a standard deviation for the reference distribution (Sd), $Sd = 0.070 < Sd\ 1.65$, p value > 0.10 with a less than 90% level of confidence, which leads us to accept the null hypothesis, namely that the identified pattern is completely randomized. In 2009 we obtained a Z score of 1.5373 of Moran I with $Sd = 0.0044 < 1.65$ Sd, p value > 0.10 with a less than 90% level of confidence, which entitles us to accept again the null hypothesis, and therefore the fact that the identified pattern is the result of chance.

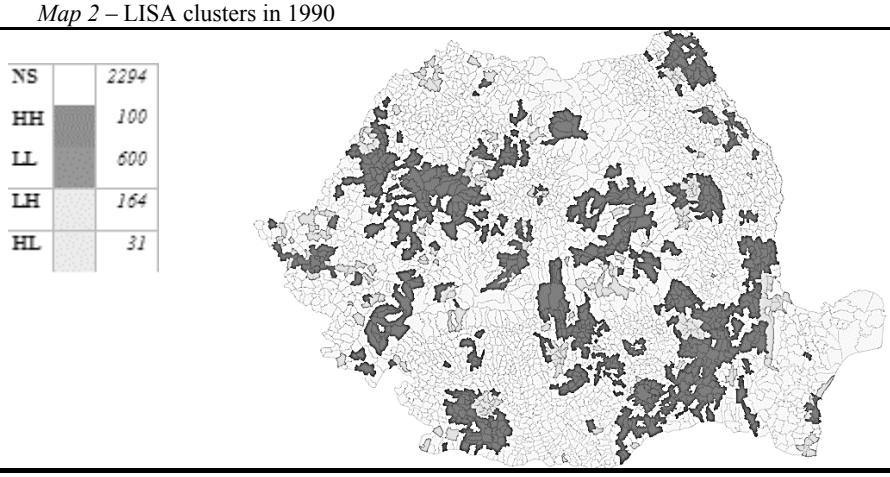
Map 1

LISA cluster map for the population establishing residence (including external migration) in another locality at LAU 2 /NUTS 5 (significance 0.05, number of permutation 999)

Map 1 – LISA clusters in 2009



Map 2 – LISA clusters in 1990



Source: Shape file LAU2 polygons ESRI Romania 2014. Mapping data, FOM104D INS TEMPO, Map realised by authors in GeoDA.
HH = High-High and LL = Low-Low = **spatial clusters** and HL = High-Low and LH = Low-High = spatial outliers; clusters calculated by authors in Geoda.

Local spatial autocorrelation

With GeoDA software (Anselin, 1995) we made the two types of spatial synchronized maps illustrating the local autocorrelation LISA tendencies for the *number of persons with changes of residence* at LAU 2 level: the Cluster *Map 1*

and *Map 2* are significant at a minimum p = 0.05 for 999 permutations inference by convention we consider reasonable enough. We mention that for the *Map 1* with data 2009, there are the following significance levels for the identified clusters: 326 locations with p = 0.05, 129 location with a p = 0.01, 44 locations with a p = 0.001. Also, for the *Map 2* with data 1990, there are the following significance levels for the identified clusters: 578 locations with p = 0.05, 260 location with a p = 0.01, 57 locations with a p = 0.001. In this model there are 5 types of spatial autocorrelation: High-High (H-H), Low-Low (LL) called spatial clusters registering positive spatial autocorrelation with agglomeration tendency (local Moran I > 0), HL and LH called spatial outliers registering negative spatial autocorrelation or dispersion tendency and NS locations – not significant spatial autocorrelation.

Table no. 1

Means for socio establishing residence economic characteristics in locations by cluster type (HH, LL and national) identified for the population establishing residence (including external migration) in another locality at LAU2 /NUTS 5 and by residence area (rural, urban, and national) in 1990 and 2009, in Romania

Lisa_pin90		**Pin_1990**	*Nsi_2010*	*denPTkm2*	*Nsal_1991*	**Nr UAT 2 1990**	Lisa_pin09		**Pind_2009**	*Nsi_2010*	*denPTkm2*	*Nsal_2010*	**Nr UAT2 2009**
HH	Rural	**577**	*142*	*156*	*1188*	**75**	**HH**	Rural	**219**	*166*	*150*	*1 099*	**59**
	Urban	**11 233**	*1 984*	*910*	*67 821*	**22**		Urban	**570**	*700*	*452*	*13 723*	**24**
	National	**2 994**	*560*	*327*	*16 300*	**97**		National	**321**	*321*	*237*	*4 749*	**83**
LL	Rural	**21**	*123*	*45*	*377*	**559**	**LL**	Rural	**32**	*96*	*29*	*139*	**233**
	Urban	**126**	*376*	*138*	*4 840*	**43**		Urban	**68**	*237*	*68*	*959*	**12**
	National	**29**	*141*	*52*	*695*	**602**		National	**34**	*103*	*31*	*179*	**245**
Total	Rural	**116**	*123*	*63*	*447*	**2 867**	**Total**	Rural	**53**	*123*	*63*	*235*	**2 867**
	Urban	**1 979**	*871*	*418*	*20 031*	**314**		Urban	**587**	*871*	*418*	*11 794*	**314**
	National	**299**	*197*	*98*	*2 375*	**3 189**		National	**105**	*197*	*98*	*1 372*	**3 189**

Randomization with 999 permutations, significant at p = 0.05 minimum weighted spatial contiguity Rook scheme of 1st order

Means are calculated for the locations by types of clusters identified by LISA method and illustrated in the maps, for the 4 socioeconomic indicators:

Map 1 – LISA clusters in 2009.

Map 2 – LISA clusters in 1990.

Where we used the notations for the socioeconomic indicators best values available:

Pin – Number of persons with changes of residence (including external migration) POP307A – TEMPO INS

Nsi – Registered unemployed persons at the end of the month annual means

Nsal – Annual average number of employees

denPTkm2 – number or habitants / km2, indicator calculated for 2011 INS Census geovectorised by ESRI

Nr. UAT2 – number of territorial administrative units by cluster type, represents the statistical unit, 2011 INS Census geovectorised by ESRI.

Source: Calculated by the authors in GeoDA and SPSS.

Next to the LISA result clustering tendency (for HH and LL location) by the *number of persons with changes of residence* at LAU 2 level we add supplementary information regarding the dimensions of the attributes described by socio economic indicators in these locations types (*Table no. 1*).

Socioeconomic characteristics of the locations by clusters type in absolute terms

At **national level** it is visible the tendency to decrease the spreading of locations with high level of the *number of persons with changes of residence*, surrounded with locations with high level of the *number of persons with changes of residence*: in 1990 there were 97 locations HH type and in 2009 decreased at 83 locations LAU 2. The mean of the unemployed persons / LAU 2 in 2010 was 560 unemployed person /LAU 2 HH 1990 type and decreased at 321 unemployed person /LAU 2 HH 2009 type (*Table no. 1*). The mean of the number of persons that entered a HH location decreased from 2994 persons in 1990 (HH location identified in 1990) at 231 persons in 2009 (HH location identified in 2009) associated with the tendency of population density decreasing from 327 persons/km^2 in 2011 (in HH location identified in 1990 for population establishing residence) to 237 persons/km^2 in 2011 (in HH location identified in 2009 for population establishing residence) and in terms of employed population there is also registered an sharply decrease tendency from 16,300 salaried persons / LAU 2 HH type in 1991 (in HH location identified in 1990 for population establishing residence) to 4,749 employed persons/ LAU 2 HH type in 2010 (in HH location identified in 2009 for population establishing residence).

Also in HH clusters (calculated for population establishing residence in 2009) but by residence area there is a high heterogeneity, both in terms of spreading and intensity.

– In **rural area** the diminishing of core tendencies formation is visible, the HH locations by the *number of persons with changes of residence* decreases from 75 LAU 2 in 1990 to 59 LAU 2 in 2009 – locations that are associated with an increase in terms of registered unemployed person from the mean of the unemployed persons/ LAU 2 in 2010 of 142 unemployed person /LAU 2 HH 1990 type to 166 unemployed person/ LAU 2 HH 2009 type (*Table no. 1*). In these locations is visible the decreasing tendency of the number of persons that enter in the location from 577 persons/ year in 1990 (in HH rural location identified in 1990) to 219 persons/ year in 2009 (in HH rural location identified in 2009), and the population density is slightly decreasing in 2011 from 156 persons/km^2 (in HH rural location identified in 1990) to 150 persons/km^2 (in HH rural location identified in 2009). Besides, also the number of salaried persons decreased from 1,188 salaried persons in 1991 (in HH rural location identified in 1990) to 1,099 salaried persons in 2010 (in HH rural location identified in 2009).

– In **urban area,** the *number of persons with changes of residence* as the quantity of persons that enter a location – input population phenomena – decreases both in terms of surface and intensity. The number of HH from urban area by entrance of population increased from 22 LAU 2 in 1990 at 24 in 2009. In these locations is visible the tendency of a sharply decrease of the number of persons establishing residence from 11,233 persons/ year in 2009 (in HH rural location identified in 2009) to 570 persons/ year in 2009 (in HH rural location identified in 2009), is intensive decreasing the population density in 2011 from 910 persons/km^2 (in HH rural location identified in 1990) to 452 persons/km^2 (in HH rural location identified in 2009) and also the number of salaried persons decreases from 67,821 salaried persons in 1991 (in HH rural location identified in 1990) to 13,723 salaried persons in 2010 (in HH rural location identified in 2009).

Socioeconomic characteristics of the locations by cluster type in relative terms

Our assumption that "migration ensures the agglomeration effect as long as the transaction costs are low" is sustained in relative terms as tendency (for our very short list of characteristics).

The HH location (calculated for the population establishing residence in **1990**) registered 10 times higher population that enter in the national average location (*locația medie națională*) in 1990, 2.8 times higher number of registered unemployed persons in 2010 in the national average location, 3.3 times higher population density in 2011 in the national average location and 6.9 times higher the number of salaried persons in 1991 in the national average location.

The HH location (calculated for the population that enter in location in **2009**) registered 3 times higher population that enter in the national average location in 2009, 1.6 times higher number of registered unemployed persons in 2010 in the national average location, 2.4 times higher population density in 2011 in the national average location and 3.5 times higher the number of salaried persons in 2010 in the national average location.

The HH rural location (calculated for the population that enter in location in **1990)** registered 5 times higher population that enter in the rural national average location in 1990, 1.2 times higher number of registered unemployed persons in 2010 in the rural national average location, 2.5 times higher population density in 2011 in the rural national average location and 2.7 times higher the number of salaried persons in 1991 in the rural national average location.

The HH rural location (calculated for the population that enter in location in **2009)** registered 4.2 times higher population that enter in the rural national average location in 2009, 1.4 times higher number of registered unemployed persons in 2010 in the rural national average location, 2.4 times higher population density in 2011 in the rural national average location and 4.7 times higher the number of salaried persons in 2010 in the rural national average location.

The HH urban location (calculated for the population that enter in location in **1990)** registered 5.7 times higher population that enter in the urban national average location in 1990, 2.3 times higher number of registered unemployed persons in 2010 in the urban national average location, 2.2 times higher population density in 2011 in the urban national average location and 3.4 times higher the number of salaried persons in 1991 in the urban national average location.

The HH urban location (calculated for the population that enter in location in **2009)** registered is equal with the population that enter in the urban national average location in 2009, 0.8 times from the number of registered unemployed persons 2010 in the urban national average location, 1.1 times higher population density in 2011 in the urban national average location and 1.2 times higher the number of salaried persons in 2010 in the urban national average location.

CONCLUSIONS AND FUTURE STUDY

Our study has identified the following main tendencies, considering the **opportunities and human assets criteria** realised (using as proxy indicators: number of salaried, registered unemployed persons – proxy for social protection linkage/ positive aspect especially in rural area, density of population and population that enters in one location only):

– the decrease of the number of potential core centres, and also the decrease of the "power of the locations" with this rank. In report with the Romania's 2007 accession to EU the periphery effect of all LAU2 in national level is confirmed by the important number of labour mobility of Romanians in Europe. The labour liberty in open frontier conditions illustrated the periphery effect of Romania's economy in relation with global centres of competitiveness from UK, Germany, France, Italy, etc.;

– in 2009 in comparison with to 1990 there is a higher tendency to new agglomerations as core locations in rural area "more powerful" than in urban areas;

– increasing the access to registered unemployment in rural area in 2009 in comparison with 1990 indicates a better connection to social protection of active population, fact confirmed also by the tendency of increasing the number of salaried person in rural areas.

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The spatial analysis offers to policy makers in different policies areas – development, employment, poverty decreasing, labour market competition and flexibility characteristics – useful tools to explore the integrated approaches. The added value of this article is provided by the results of applying the spatial

analysis tools in view of making a profile of some socioeconomic indicators in locations LAU 2/ NUTS 5 level used as statistical units but reflecting the smallest administrative unit. This multidimensional spatial heterogeneity profile offers an input for the policy dimension and for a better estimation of the budgetary effort, providing a practical background for implementing more efficient and more targeted actions and measures in the new strategic cycle under the new 1303/2013 Regulation of the European Parliament and of the Council common provisions.

The analysis of labour force mobility with its dimension of population (internal and external) migration opens important directions to improve labour market analysis as a functional area of the territory in a multidimensional perspective, including besides the administrative/ political level the specific types of territories: border regions, rural areas, coastal areas, mountains, sparsely populated areas, inner peripheries, etc. (ESPON – GEOSPECS, 2013).

It is necessary to identify, make a diagnosis and reduce spatial imbalances also in cohesion policy and therefore to create new instruments to address asymmetric territorial impacts if/when they arise.

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REFERENCES

Amendola, A., Caroleo, E. F., Coppola, G., *Regional differences in the European labour market*, ESRA 2003, Congress, CELPE – Centro di Economia del Lavoro e di Politica Economica and DISES. Dipartimento di Scienze Economiche e Statistiche Via Ponte Don Melillo, Università degli Studi di Salerno, 84135 SALERNO, 2003.

Anselin, L, *Exploring Spatial Data with GeoDaTM: A Workbook*, Center for Spatially Integrated Social Science, Illinois, USA, 2005.

Anselin, L., *Local indicators of spatial association*, LISA, Geographical Analysis, 1995.

Anselin, L., *Short Course Introduction to Spatial Data Analysis*, ICPSR–CSISS, University of California, Santa Barbara, June 24–28, 2002.

Anselin, L., *GeoDa™ 0.9 User's Guid*e, Spatial Analysis Laboratory, Department of Agricultural and Consumer Economics University of Illinois, Urbana-Champaign, Urbana, IL 61801, available

online at http://sal.agecon.uiuc.edu/ and Center for Spatially Integrated Social Science http://www.csiss.org/, Revised, June 15, 2003.

Anselin, L., Syabri, I., Kho, Y, *GeoDa: an introduciton to Spatial Data Analysis*, in "Journal: Geographical Analysis", The Ohio State University, 2006.

Baldwin, R., Forsild, R., Martin, P., Ottaviano, G., Robert-Nicoud, F., *The core-periphery model: key features and effects*, Printed: 06/02/2002 17:32 Created: 16–Dec–01 09:11 Filename= CP_chap_for_DS_volume.DOC, This draft: 06/02/2002.

Callatay, C. H., Svanfeldt, C., et. al., *Cities of tomorrow, Challenges, visions, ways foreward*, European Commission, Directorate General for Regional Policy, 2011.

Capello, R., Nijkamp, P., *Handbook of Regional Growth and Development Theories*, Edward Elgar, Cheltenham, UK, 2009.

European Commission, *Assessing territorial impacts: Operational guidance on how to assess regional and local impacts within the Commission Impact Assessment System.* SWD(2013) 3 final.

ESPON–GEOSPECS, *European Perspective on specific Types of Territories*, Applied Research 2013/1/12, Draft Final Report | Version 23/03/2012.

Fischer, M.M., and Getis A., Ed., *Handbook of Applied Spatial Analysis Software Tools, Methods and Application*s, Springer, 2010.

Fischer, M. M., Wang, J., *Spatial Data Analysis, Models, Methods and Techniques*, Springer, 2011, p. 13.

Griffith, D. A., *Spatial Autocorrelation: A Primer. Association of American Geographers,* Washington, DC, 1987. Cited in Christopher D. Lloyd, local Models for Spatial Analysis, Second Edition, 2011, Taylor and Francis Group, LLC;

Lloyd C. D., *Local models for spatial analysis. second edition*, CRC Press, Taylor and Francis Group, 2011, pp. 65–80.

Roose, A., Raagma, G., Kliimask, J., *The status and trends of human and territorial assets in the peripheral rural areas of Estonia,* Journal of Baltic Studies Urban and Regional Restructuring in the Baltic States, A special volume dedicated to the memory of Professor Salme Nõmmik (03.03.1910–21.09.1988).

Stewart, R., Rogerson, P., *Spatial analysis and GIS. Department of Geography*, SUNY at Buffalo, Taylor and Francis, 2005, pp. 1.

Stillwell, J., Clarke, G., *Applied GIS and Spatial Analysis, School of Geography,* University of Leeds, Wiley 200.

Applied spatial analysis on labour market analysis:

Lincaru, C., Ciucă, V., Pirciog, S., Atanasiu, D., Chiriac, B., *Socio-economic dimensions in LAU 2/ NUTS 5 locations by clusters given by registered unemployed people at LAU 2/ NUTS 5 level in 2013 and 2010*, article to be published (abstract accepted at the 10th International Conference of the Romanian Association of Regional Science, which will be held at the Stefan cel Mare University during 8 to 9 May 2015 in Suceava), 2015.

*** Project: *Dynamic interaction between the natural and human components based on the synergy of ecological and socio-economic factors in the rapidly urbanizing landscapes represents the research objective of DYNAHU*, Grant of the National Authority for Scientific Research, CNDI– UEFISCDI, project number PN-II-PT-PCCA-2011-3.2-0084, Coordinator partnership: National Institute of Research and Development for Optoelectronics INOE 2000, Duration: July 2012–June 2016 – Project supported by a grant of the Romanian National Authority for Scientific Research, CNDI– UEFISCDI, project number PN-II-PT-PCCA-2011-3.2-0084.

*** *(6th Report, 2014), Investment for jobs and growth, Promoting development and good governance in Eu regions and cities*, Sixth report on economic, social and territorial cohesion, European Commission, Brussels 2014, available online at http://ec.europa.eu/regional_policy/ cohesion_report.

Acest articol îşi propune identificarea unor aşezări care fac parte din două tipuri de clustere HH şi LL formate din locaţii UAT 2, caracterizate de similitudini la nivelul populaţiei care şi-a schimbat domiciliul (inclusiv prin migraţia externă) în altă localitate. S-au folosit metoda de analiză statistică Indicatori Locali de Asociere Spaţială LISA (Anselin, 1995, 1996) şi calculul în Software GeoDA. Tipul fiecărei aşezări UAT 2 (naţional, HH sau LL), calculat în SPSS, este dat de media statistică a caracteristicilor indicatorilor relevanţi pe piaţa forţei de muncă: numărul de şomeri (2010 şi 2013); numărul de salariaţi (2010), densitatea medie a populaţiei/km^2 (1992 de date – census) şi numărul mediu de persoane care intră în UAT 2 ca urmare a schimbării domiciliului, după mediul de referinţă (urban/ rural) şi la nivel naţional, în 1990 şi 2009 în România. Sursa datelor este asigurată de Institutul Naţional de Statistică INS – baza de date TEMPO-line, indicatorii socioeconomici la nivel detaliat LAU 2/ NUTS 5. Aceste rezultate de cercetare au fost obţinute în cadrul proiectului NUCLEU PN – 420118: Distribuţia spaţială a indicatorilor politicii de coeziune, *studiu realizat în 2014.*

Cuvinte-cheie*: diferenţe regionale, modele regionale ale pieţei muncii, grupuri, populaţie care a făcut o schimbare de domiciliu în altă localitate.*