

**THE CITY REDEFINED: UNDERSTANDING THE RELATIONSHIP BETWEEN
PEOPLE AND THEIR PLACE**

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Abstract

The Ministry of Regional Development and Public Administration (MRDPA) in Romania launched a large debate in regard to updating the National Territory Plan (PATN). According to Barca (2009) and McCann and Pose (2012) the success of public policies is conditioned by their simultaneous reliance on locations and people. The scope of this paper is to formulate a functional city definition on the background of place-based policy based on the New Geography Economy theory, supported by GIS (Anselin, 2002b, p.5). Our causality chain analysis concluded that the root cause of the public policies is space. We found and show spatial patterns of population, the density of population and population growth rates using ESDA tools choropleth maps (Jenks Classification, equal interval data, Statistical map), maps overlay and spatial correlation analysis at NUTS 5 and 3 level. The tendency is to shrinking wining agglomeration and to expanding the marginalised ones.

Keywords: placed policy, city, regional sustainable development, planning policy, public administration

JEL Classification: R58, R11, H7, H83, Q56

1. Introduction

In May 2018, ESPON launched a public debate regarding the “New thinking on functional urban areas, polycentric territorial structures and cross-border collaboration”. ESPON research projects concluded that “Demographic tendencies and climate change are a growing concern for planners and policy makers living in border regions in Central Europe, Serbia, Croatia and Italy. These challenges are compounded by spatial blindness across the border, underestimation of the advantages brought about by cross-border governance and provision of services and lack of

commitment to genuine cross-border investments. Moreover, the challenges appear differently and with a different magnitude depending on the geographic characteristics.” (ESPON, 2018).

In Romania, the landscaping and urbanization activities are carried out in accordance with the Law 350/2001 on Territorial and Urban Planning, with subsequent modifications, which establishes as objectives of spatial planning: the balanced economic and social development of regions and areas, respecting their specificity, improving the quality of life of people and human collectives, the responsible management of natural resources and environmental protection, the rational use of territory. According to Law 350/2001, the spatial planning activity is exercised throughout Romania based on the principle of spatial hierarchy, cohesion and spatial integration at national, regional, county, urban and communal level, creating the appropriate framework for balanced development and rational use of the territory as well as responsible management of natural resources and environmental protection. The Ministry of Regional Development and Public Administration (MRDPA) has recently launched important territorial development projects as it is the Spatial Planning of the National Territory in a national context. This new territorial development approach is made in public debate process, with a large bibliography gathered under the umbrella of the Project Law /2017 for the Revision of 351/2001.

In this specific context, the main objective of our research is *to define the city based on place-based – theory*, a conceptual input for the National Territory Plan (PATN) debate (Annex 1).

2. Literature review

The analysis of the scientific literature specific to our research area concentrates on two directions, namely: 1) the spatial agglomerations as *functional smart growth generators* and 2) the place-based policy approach.

For the first direction, an important contribution belongs to Moretti (2012) who develops the line launched by Adams (1776), Reich (1991), Porter (2000), Florida (2002) and more recently by Krugman, Venables and Fujita (1999). A major contribution of Moretti is the positioning in the knowledge economy and prioritizing human capital towards financial capital as the most valuable "fuel" for achieving smart growth. Smart work creates "Great Divergence," generates attraction forces and inequalities (complex phenomena such as mobility, cost of living, poverty trap). In this context, the New Century becomes the Century of Human Capital (Lincoln, 2017)!

Moretti (2010) in “New Geography of Jobs” explains that America, the most advanced country in the knowledge economy, suffers dynamic processes of creating and destroying jobs. This

process is at sectoral level located in new cities with new features. These cities evolve and attract prosperous resources while other cities are in decline.

Agglomerations of labour force with a high level of education of urban residents have led to a structural change in America's economy, especially after 1980. Moretti's model approaches the capacity of an urban location as the engine of economic growth, especially to attract force skilled workers and innovative companies. The spiral of economic growth leads to an increase in attractiveness for highly educated workers and innovative companies. In the 1970s and 1980s, the economic success of a locality could be anticipated by the presence of capital infrastructures (factories) and physical infrastructure (roads and railways), reflecting the presence of the Industrial Production Model (Taylorist Model). The emergence of the new model of work, based on innovation and knowledge, radically changed the predictors of economic success of a community to the characteristics of the human capital of that community, namely the share of high-educated workers. Moretti has demonstrated the importance of education in the new century as the best public investment sector in which the "return rates" / "returns on investment" are ensured! These return rates are a supply of two major phenomena: increasing workforce adaptability and crowding into a large number of creative people. These phenomena generate positive, both quantitative and qualitative externalities.

Lincaru (2017) found that, in Romania, the average salaried employment multiplier is different by LAU2 type. Thus, the wage employment multiplier has the following national median values: at the city level the maximum of 3.2, for the municipality is around 3, for county residence is 2.9, national average at LAU2 level is 2.65 close to the commune average of 2.6. The mentioned work concludes that "the success of a location in Romania can be predicted when there is a rich infrastructure for the quality of life simultaneously with high human capital agglomerations employed in tradable base sectors." Lincaru (2017, p.79, 100).

For the place-based policy approach, we have started from the idea that in the context of globalisation and the knowledge economy, the trends in the theory and practice of public intervention, especially in the socio-economic field, are radically rethought/reshaped. Hamelton (2015, p.1) found that "place-less power, meaning the exercise of power by decision-makers who are unconcerned about the impact of their decisions on communities living in particular places, has grown significantly in the last thirty years a fact that explains the increasing social polarisation, regardless of the level of development". Barca et al. (2012, p.149) states that *the success of public policies is conditioned by their simultaneous reliance on locations and people*. Territorial

development policy is shifted from sectoral to territorial development (OECD, 2011, p.24), from space blind policies to *Place-Based Policy - Opportunities-Oriented Policies* (Barca, 2009, p.2).

Orszag et. al. (2009) proposed a Memorandum entitled „Developing Effective Place-Based Policies for the FY 2011 Budget” (Table 1). The guidance memorandum outlines “policy principles meant to advance the Administration’s domestic and fiscal priorities and to increase the impact of government dollars by leveraging place-conscious planning and place-based programming” (Orszag et.al., 2009, p.1). The local scale is the new principle characteristic for this new policy “often through partnership” under a new approach where the “complex problems require flexible, integrated solutions, focused on results” (Orszag et.al., 2009, p.5).

Table 1. White House 2010 memo as guidance for agencies to develop place-based policies

YES: Place-based policy	NO: Not a place-based policy
A program to foster successful networks or clusters of businesses at the local or regional level	A program to make mortgage credit available to qualified borrowers generally .
A Federal program to foster homeownership through a neighbourhood-based approach to financing, redevelopment, and financial literacy development	A Federal program to make credit available to small businesses generally .
A Federal program that targets local workforce development organizations (which help supply skilled labour) and connects them to efforts to generate jobs (local demand for labour)	A program to provide unemployment insurance to the unemployed as a category .

Source: Orszag et.al., 2009, p. 3

Douglas (2010) approaches, in a systemic way, the place-based policy: *“an effective place-based policy requires comprehensive interagency collaboration and investment that can ensure an increased impact of federal dollars and a greater return on federal investments. By concentrating resources, this approach asserts the primacy of place in moving our nation towards more robust social and economic outcomes. A place-based policy is about finding the place-specific triggers not only to localized neighbourhood and community growth but also to metropolitan and regional growth. Federal programs that meet urban and rural areas where they are and federal policies that respond to the ways that people live will meet the demands of communities that are striving for a better quality of life.”*

Tackett (2012) evaluates that “Education Department’s place-based approach not only better targets the specific needs of individuals and populations, but also improves the impact and efficiency of investments.”

Randle and Kippin (2016) found that “place-based system change requires us to understand how to create a coherent relationship between the different perspectives, enabling different ‘levels’

to function successfully as one system”. If the System functioning approach is implemented “requires us to change existing organisational infrastructure into place-based system infrastructure” (Randle and Kippin, 2016)

Chand (2018, p.157) considers that “place-based approach for resilient cities framework incorporates the thinking for change as a dynamic process across the timescales and by understanding the relationship between people and their place”.

Public policies are called to renew and support innovation and efficiency in the use of all resources, including human capital, while at the same time minimizing new manifestations of labour market segmentation. Innovation and efficiency are the main inputs of the new model of endogenous economic growth, which implacably leads to the exploitation of the opportunities offered by the knowledge economy, technological progress and digitization, and implicitly changing the content of work, changing the lifestyle, housing patterns, family, demographic model.

The new role of space becomes in the new context the new integrator in public policies, marking the transition to location-based policies, focused more on to results, finally expressed by a better life for its beneficiaries.

3. Methods

The integrator role of space for the public policies and its new role in the transition toward Place-based policymaking is pointed out using the causality chain analysis. The agglomerations / heterogeneous spatial distributions of populations are identified using some tools from Exploratory Spatial Data Analysis (ESDA) like Choropleth Maps and Local Indicators of Spatial Association (LISA) tools (Anselin, 1995), in GIS and GeoDA software. Among the spatial agglomerations identified a special attention is given to High-High type clusters – clusters with functional smart growth generator role, as well as to Low-Low type clusters, clusters with a high risk of deprivation, marginalisation and lack of opportunities.

Causality chain analysis

The causality chain analysis is a logic tool, useful in any problem’s better understanding and solving. When the problems persist, regardless the solutions applied, it is the case to drill further. Usually, the superficial solutions are easy to see and solve only the intermediate causes for problem symptoms. Actions are applied in low leverage points with lower impact, efficiency and effectiveness. Pushing deeper, backward in the system thinking concept of cause and effect, we reach the root cause. The root cause is found in the Fundamental Layer, beyond the intermediate

causes included in the Superficial Layer and allows formulating fundamental solutions. When fundamental solutions are found, then the actions (in our case policies) are applied in higher leverage points, assuring higher impact, efficiency and effectiveness. The causal chain analysis links the root cause placed with the problem symptoms, allowing to solve the problem only if its root cause is solved. On this background, a modern conceptual anchorage of the city definition could be formulated in the framework of place-based leadership in a rapidly globalizing world.

Methods used to detect the heterogeneous spatial distribution of populations

Krugman, Venables and Fujita (1999) in *New Economy of Geography* establish that the production is heterogeneously distributed in space, higher in agglomeration (highly populated locations). Starting from this idea, we used the following ESDA method to emphasise the heterogeneous spatial distribution of populations in Romania on the different time horizon.

ESDA offers geovisualisation (the visualisation and exploration) of “spatial data in dynamically linked windows, browsing outliers and smoothing of maps for rates (proportions)” (Anselin, 2002a, p.1) and allows “for finding and showing interesting patterns” (Anselin, 2002b, p.9)

- Choropleth Maps represents “Counterpart of Histogram, where are values/attributes for discrete spatial units with associate colours palette (Anselin, 2002b, p. 14). Aiming to avoid the misleading role of the areas, we applied three types of classification methods for the following geocoded data:

- 5 classes Natural Breaks (Jenks) Classification is an optimization method for Choropleth Maps, minimizes variation in each group, applied in Arc GIS desktop 9.3. This method allows identifying clusters where data values are “placed into a single class. Class breaks occur where there is a gap between clusters.” In this case, “data is unevenly distributed; that is, many features have the same or similar values and there are gaps between groups of values” (ArcGIS 9.2. Desktop Help, 2008). This tool is used in Map 2 to point some clustering tendencies in population density change during 1992-2014 at NUTS 5 level;
- 10 equal interval data classification that “divides attribute values into equal size ranges” is used to “emphasize the amount of an attribute relative to one another” (GisGeography, 2018). This tool is used in Map 1 to highlight the population growth rates variation classes during 1948-2060, specifically to distinct positive to negative values at NUTS 3 level;

- Statistical map for the visualisation of the population evolution during 1948-2060 at NUTS 3 level (Map1) using a special case of symbol maps – in our case bar maps;

- Maps overlay in view to identify spatio-temporal patterns and multi-dimension phenomenon Arc Gis Desktop. McHarg (1971) used for the first time the superimposing of different maps, a process well-known as a map overlay. In GIS is possible to work in different layers, selecting some characteristics and make some of them transparent, and even more, generating “new data layer as a product of existing layers”. This process requests that “data layers must be referenced to the same coordinate system (e.g., the same UTM and SPC zones, in our case ESRI Ro shapefile according to SITURA administrative system), the same map projection (in our case STERRO70), and the same datum (horizontal and vertical, based upon the same reference ellipsoid). Furthermore, locations must be specified with coordinates that share the same unit of measure”. (DiBiase et.al., 2005)

- Another illustration technique is the Spatial Correlation Analysis used to find global and local spatial autocorrelation, respectively to visualise the Spatial Autocorrelation (Box 1). With this technique, we could answer the question if the identified pattern is random or clustered. (Anselin, 2002b, p.53). We apply Queen Contiguity weight rule of first order.

- Moran’s I Spatial Autocorrelation Statistic is a cross-product statistic with inference based on permutation estimation (Anselin, 2002b, p.54); a Moran's Index value near +1.0 indicates clustering, while an index value near -1.0 indicates dispersion.

Box 1. Spatial correlation and autocorrelation analysis

cross-product

$$I = (N/S_0) \sum_i \sum_j w_{ij} \cdot z_i \cdot z_j / \sum_i z_i^2$$

with $z_i = x_i - \mu$ and

$$S_0 = \sum_i \sum_j w_{ij}$$

N – the number of spatial units indexed by i and j

x – variable (attribute) of interest

μ - mean

w_{ij} is a matrix of spatial weights with zeroes on the diagonal

W is the sum of all w_{ij}

z_i – the deviation of an attribute for feature x_i from its mean μ

$m^2 = \sum_i z_i^2$ does not vary with i, thus constant

Linear Spatial Autocorrelation

- linear association between value at i and weighted average of neighbours:

$$\sum_j w_{ij} y_j \text{ vs. } y_i, \text{ or } W y \text{ vs } y$$

- four quadrants (Figure 1)

• high-high, low-low = spatial clusters

• high-low, low-high = spatial outliers

Moran's I is the slope of linear scatterplot smoother

$$I = z' W z / z' z$$

Local Moran Statistic

$$I_i = (z_i / m^2) \sum_j w_{ij} \cdot z_j$$

$\sum_i I_i = N \cdot I$ (global Moran is average of local Moran statistics)

(Anselin, 2002b, p.56, 72)

- Local Indicator of Spatial Analysis (LISA), selecting clusters Low–Low and High-High - spatial cluster hot spots, in GeoDa and Arc Gis Desktop. This is a technique of ESDA that focuses on “spatial aspects of data – identification of local patterns of spatial association included in the topic of spatial autocorrelation analysis. LISA allows the decomposition of global indicators like Moran's I into the contribution of each individual observation. These statistics served to identify local pockets of no stationarity or hot spots and to assess the influence of individual location on the magnitude of the global statistics and to identify outliers” (Anselin, 1995, p.94).

4. Results and discussion

Territorial planning development in Romania – causal chain analysis

The causal chain analysis has been based on the following fundamental/basic documents: Romania's Territorial Development Strategy, National Strategy for Sustainable Development of Romania Horizons 2013-2020-2030, National Strategy for Sustainable Development of Romania

Horizons 2013-2020-2030, General decentralization strategy 2017, National Strategy for Research, Development and Innovation 2014-2020, Romania's National Export Strategy for 2014-2020, National Competitiveness Strategy, National Strategy on the Digital Agenda for Romania 2020, National Waste Management Strategy 2014-2020, National Employment Strategy 2014-2020, National Strategy on Social Inclusion and Poverty Reduction 2015-2020, The National Immigration Strategy for 2015-2018, National Action Plan for Energy Efficiency, National Culture and National Heritage Strategy 2016-2022, National Health Strategy 2014-2020, Anticorruption Strategy in Education, Anti-Corruption National Strategy for 2016-2020 and National Strategy on Climate Change and Low-Carbon Economic Growth for 2016-2020.

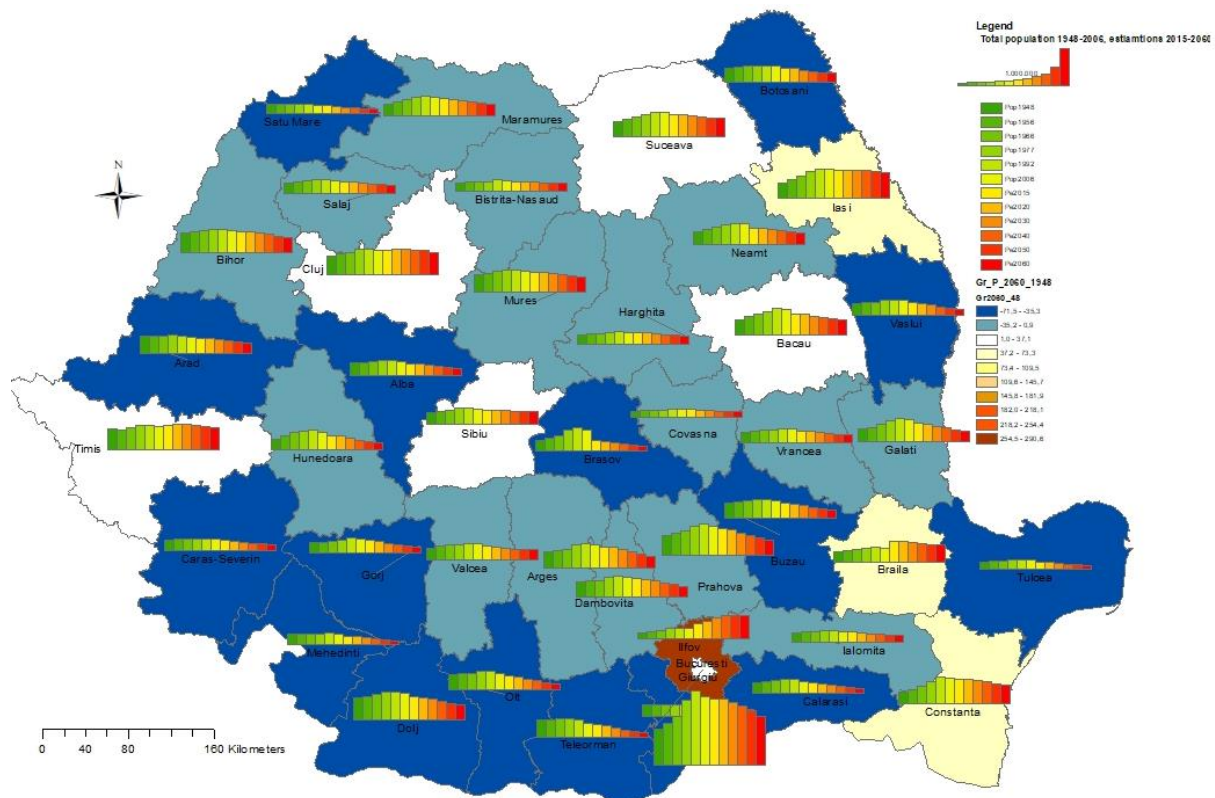
A short presentation of each document can be found in Annex 2. On the background of endogenous economic growth and the New Geography Economy economic theories, we make a critical analysis of these documents. Their convergent value is the transition to the green/blue economy with results that target the inclusion and quality of life of the inhabitants. The mutual “root causes layer”: all problems and their solutions have to be identified, implemented and capitalized mostly at the local level – in *a functional area*. The functional area is delimited by the main agglomeration and its neighbourhood area – the space where diverse and specialised activities are developed by people.

Each document reflects a specific policy and the short presentation emphasises the causality chain analysis structure. We found the fact presence of the place-based policy approach in all policies described by their strategical documents. Our analysis emphasises the fact that the selected policies reflect relevant dimensions in territory planning, but they are not coordinated. We consider that, to coordinate them is necessary to integrate them into space. All these dimensions are intersected in territory where the effective socio-economic (specialised) activity is developed. The spatial blindness explains the loss of resources and the lack of efficiency provided by actions with effects in conflict. Starting from the root problem, we formulated our definition for the city: a location where an optimal mix of policies is realized, in order to identify, exploit and optimize the local opportunities and values, improving the quality of life for its inhabitants/citizens.

Total population spatial analysis during 1948-2060 at NUTS 3 level using Choropleth maps

The National Institute of Statistics (NIS) (2017, p.11) proposes as the most probable scenario the Moderate Scenario for the total resident population in Romania at NUTS 3 level (registered at 1st July), with the base, the 2015 value of 19.82 million persons. In this scenario, it is estimated that in 2060, Romania will have around 13.8 mil persons. (Figure 1)

Figure 1. Evolution of the Romanian population at county level in the period 1948-2060, population growth rate in 2060 compared to 1948

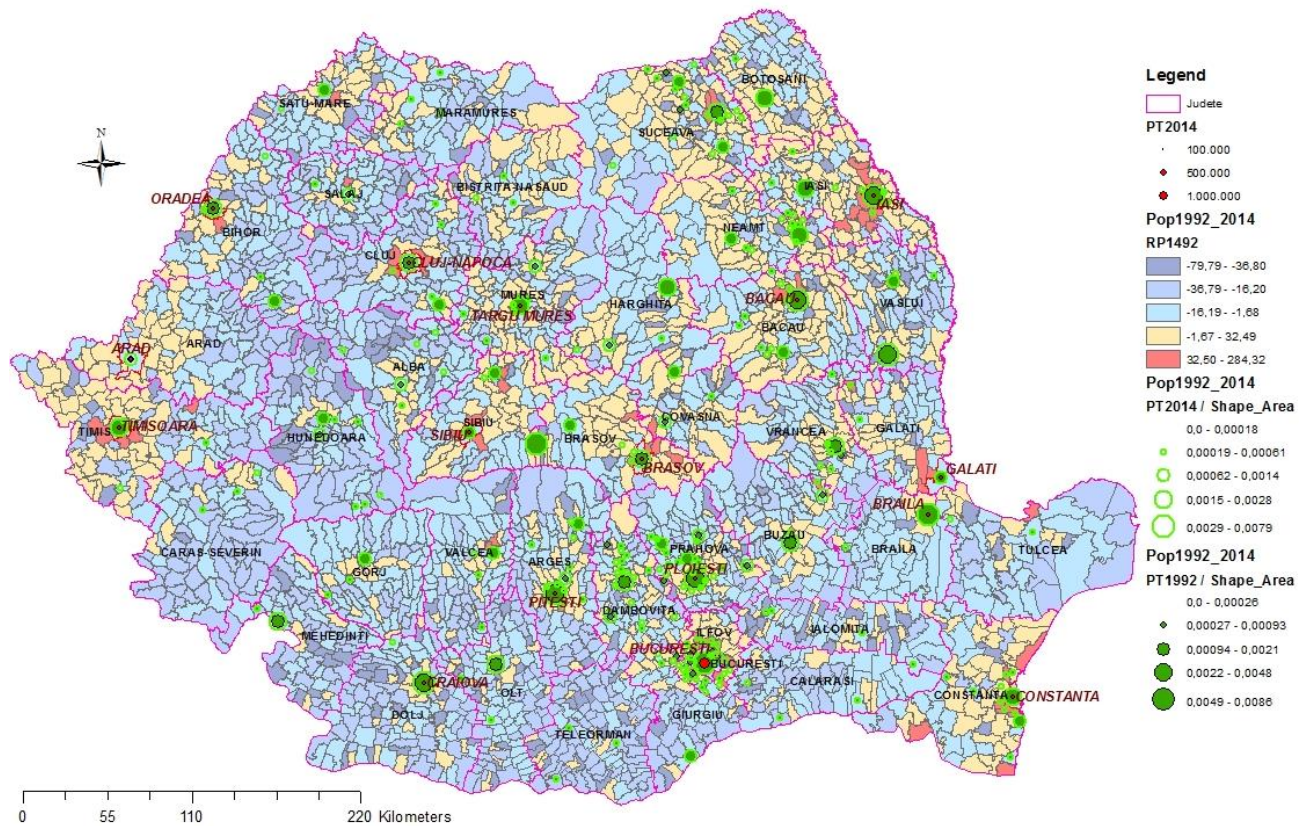


Source: Made by authors in Arc Gis desktop, shapefile ESRI Ro, based on NIS, 2017

As a consequence of the negative natural growth (natality and mortality) coupled with the negative migration balance (internal and external migration), regardless the projection scenarios, the total resident population is decreasing with values from 3.6 persons (Optimist Scenario) to 8.8 persons (Pessimist Scenario) (NIS, 2017, p.21). The base of projection in this model was the NUTS 3 level of the resident population during the 2012-2015 period. We mention that this model counts the total population as the sum of the values projected at territorial level. (NIS, 2017, p.20)

In figure 2, using the Choropleth maps by 5 classes (Jenks intervals), we illustrate the growth rate of total population change at NUTS 5 level during 1992-2014, overlaid with the urban locations with a population over 15 thousand persons in 2014 and, finally with the layer of total population density in 1992 and in 2014. A pattern of West to East increasing population agglomerations is observable (excepting Tulcea), a model contrary to the usual North-South pattern.

Figure 2. Total population change at NUTS 5 level during 1992-2014 in Romania: density of total population in 1992 and 2014, the growth rate for total population during 1992-2014



In view to confirm the pattern illustrated by figure 2, we applied ESDA (Exploratory Spatial Data Analysis) – LISA (local indicator of spatial association) analysis for the spatial distribution of the growth rate for the total population. We identified the spatial clusters/ agglomerations identification HH (High-High) and LL (low-low) type, as lattice data at NUTS 5 level /LAU 2 level, using RPL 2011 microdata provided by NIS (figure 3). Figure 4 presents the LISA significance map for each feature at NUTS 5 level.

Figure 3. HH and LL clusters for the growth rate of the population during 1992-2014, cities over 15 thousand persons and the counties with continuity pattern of losing population

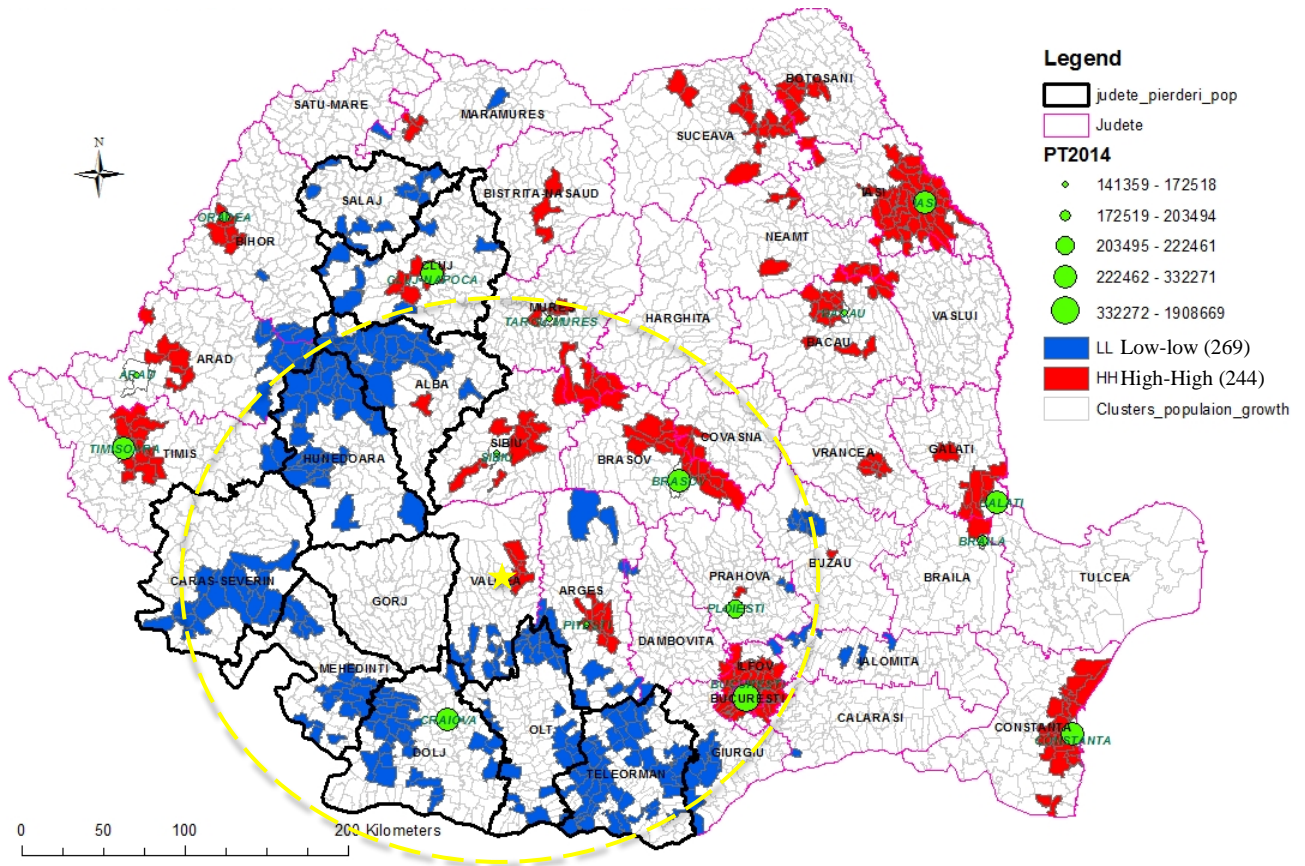
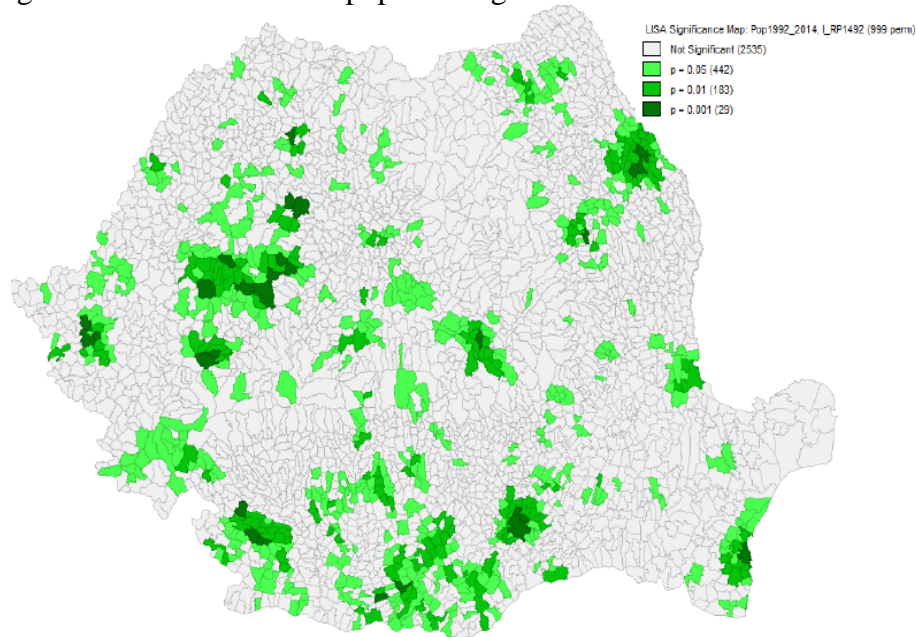


Figure 4. LISA significance MAP for total population growth rate



Note: Permutation 999, pseudo p-value 0,001, I: 0.2441, E[I] = -0.0003, mean -0.0006, sd=0.106, z value: 23.1081

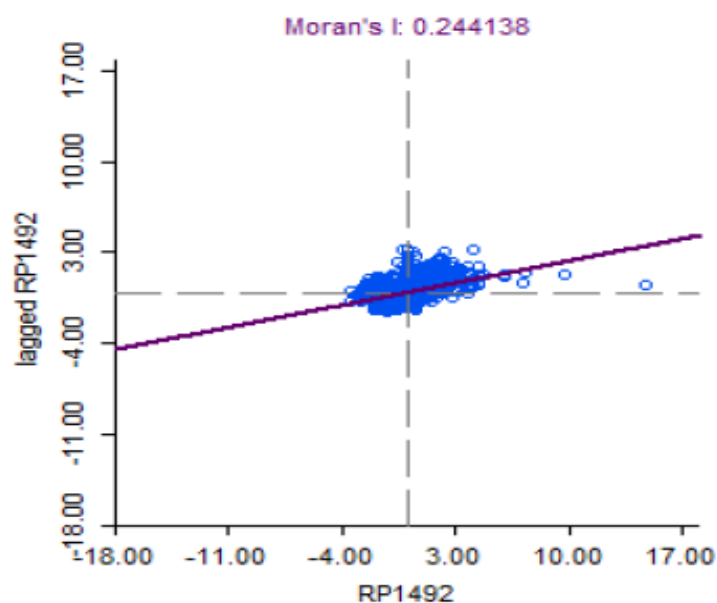
Total population spatial analysis during 1992-2014 at NUTS 5 level using Low –Low and High-High cluster analysis

The spatial analysis (Anselin, 2003, 2005, 2016) revealed a pronounced agglomeration tendency for total (resident population) at the NUTS 5/LAU2 level in Romania, synthetically presented in figure 3.

Under the Null Hypothesis NH: complete spatial randomness (CSR), in condition Queen Contiguity spatial weight rule for weighting of 1st order by SIRUTA for a number of permutation = 999, p-value 0.001 is highly statistically significant (in 29 locations, see figure 4), we reject NH and make the decision of clustering tendency, there is no spatial randomness. Applying Univariate Local Moran's, calculated in GeoDa 1.10.0.8 we obtain the following results: the Moran's I am 0.244138 (Figure 5), higher than the theoretical value of -0.0003, with a pseudo p-value 0,001, SD of 0,106, z-value 23.1081>1.65.

The result of spatial analysis for all 3189 LAU2 indicates a spatial clusters tendency for growth rate of total population during 1992-2014 period (figure 3), registering positive spatial autocorrelation with agglomeration tendency in two types of clusters: Innovative hubs (HH locations with high level of growth of total population rate having neighbourhood locations with high level of growth population rate, counting 244 locations) and Black holes (LL locations with low level of total population rate during 1992-2014, having neighbourhood locations with low level of growth rate for total population, counting 269 locations).

Figure 5. Univariate Local Moran's results



The main tendencies resulting from figures 1 to 4 can be summarized as follow:

- The functional economic structures (HH clusters) are decoupled from the administrative delimitation border. In the mirror, the LL clusters heavily share a continuous pattern in the South-West, bordered by a disc with the geometrical centre in Vrancea, with an approximate radius of 200 km.
- Next to peri-urban area of Bucharest – the location with the highest dynamic development, there are visible on long-term other 3 important poles of development: Constanța, Iași and the North of Brăila. If it is validated the Medium Scenario and also the agglomeration identified in figure 3 - a new axis of development will be shaped on *the Eastern side of Romania, instead of the present Golden triangle*. Looking at figure 2, the core of the development in 2014 is located in the Golden Triangle: Bucharest, Prahova (Ploiesti), Argeș (Pitești) and (Brașov). Secondary poles of development could become Cluj, Timis, Sibiu and Suceava, on long-term (at 2060 horizon).
- The population mobility across large surfaces (like internal and external migration) could have disruptive triggers like climate changes, mono-industrial sectors without the capacity to innovate in both directions: diversification and specialisation.
- All-trans-frontier locations – with few exceptions (Timiș - Western gate to Serbia and Hungary, Suceava - Northern gate to Ukraine, Iași - Eastern gate to Republic of Moldova and Constanța – South-Eastern gate to the Black Sea) present high risks in development!

In conclusion, in our approach, functional economic social areas are the locations that agglomerate high-density population able to provide positive externalities.

5. Discussions and conclusion

The city concept is not an easy task when we talk about defining cities – but it is a tremendously important step. Nowadays we talk about smart cities, smart growth and smart urban development emerges as the new wave of urbanism, overpassing its old frontiers! The very new dimension is the economic function of the city's “smart growth”, defining it not only for habitation, living, entertainment, but also for the production in internationalised markets. Under these concepts, there are incorporated other essential dimensions in the global competitiveness: the specialisation and economic activity diversification reflecting positive externalities of high human capital agglomerations, describing its functionality. Cavaco et al. (2015) point that Smart Growth is the next step after the New Urbanism (the mid-90s), involving large number of stakeholders instead only specialised experts. Also, if by tradition the urbanism was the subject of architects and

physical planners, nowadays important contributions are made by the *environmentalists and policy planners*. If we also talk about concepts, it is impossible to ignore the principles associated in a natural manner. In a “classic” approach, spatial planning principles, such as “compact growth, mixed land uses, transit-oriented development, brownfield redevelopment, walkability, community participation and stakeholder collaboration” (Cavaco et al., 2015, p.3) are still available, and they should be taken into consideration.

Space and knowledge interactions generate different externalities, as we already mentioned before: specialisation and diversification, each of these functions with a projection on the land using patterns. Among the mainland using patterns are the function for living (social) and production (economic), located in “islands”/ centres/networks nodes positioned relatively the city administrative frontiers inside or outside it but in continuous relations and interdependencies below a “gravitational frontier” of the city – natural marked by its power. The sustainability of this living organism is conditioned by the environment (natural) systems that assure ecosystems services for life support (see Global Platform for Sustainable Cities).

The New Geography Economy is supported by the omnipresent GIS – Geographic Information System as Science (Anselin, 2002b, p.5). GIS links people to geography from the global to local scale, in a standardised manner, where socio-economic data are geocoded and allow “affordable and transparent spatial data manipulation”, geo visualisation and spatial analysis exploring.

Looking at the Public policies using the causality chain analysis, we found that the root causes the Space, Spatiality and Spatial Interaction. Spatial patterns include “social interaction context, neighbourhood effects, interacting agents, strategic interaction, spatial externalities, and agglomeration” (Anselin, 2002a, p.45) that reflect functional boundaries for cities shaped by HH hotspot clusters in a location where population density and/or the growth rate of population is developing supported by positive externalities. We found in Romania a spatial clusters tendency for a growth rate of total population during 1992-2014, with evident spatial heterogeneity spatial distribution at NUTS 5 level. Also, the spatial segregation looks to amplify in the moderate scenario of the projected population at 2060 horizon, at NUTS 3 level. Public policies represent a relation in different dimensions between people and their places. It is obvious that agglomerations LL clusters type are losers, while the HH clusters type is a (potential) winner if we are looking at the NUTS 0 framework – Romanian National level. But the real competitive world is global, that implies a relativity of competitive power for HH nucleus locations, subject to further research.

Finally, as a *root layer for the modern city concept*, we consider three basic dimensions: *physical* (architecture), *functional* (specialisation, diversification, relations and interdependencies) and its *environment footprint* (anthropic activities systems interaction with natural systems, including climate change adaptation, species preservation, etc.). This insight is concordant with the Smart Growth Urbanism under its *sustainability mark*. Each dimension has a specific policy in Romania, in a high degree of independence. The only viable solution is that all these diverse policies to be brought together under the place-based policy making, in functional areas! And, so, the *city could be defined as a location where an optimal policy mix is realized in a functional area, in order to identify, exploit and optimize the local opportunities and values for a better life for all its citizens.*

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Annex 1. Main legislative documents with relevance in territorial planning in Romania and in Law 351/2001- updating PATN

The Spatial Planning of the National Territory (PATN). [online] Available at: <<http://www.mdrap.ro/dezvoltare-teritoriala/amenajarea-teritoriului/amenajarea-teritoriului-in-context-national/-4697>> [Accessed 14 March 2018]

Law 363/2006 of 21/09/2006 on the approval of the Spatial Planning of the National Territory – Section I Transport Networks

Law 171/1997 on the Approval of the Spatial Planning of the National Territory Section II – Water

Law 5/2000 on the Approval of the Spatial Planning of the National Territory - Section III - Protected Areas

Law 351/2001 on the Approval of the Spatial Planning of the National Territory - Section IV - Human Settlements Network

Law 575/2001 on the Approval of the Spatial Planning of the National Territory Section V - Areas of Natural Risk

Law 190/2008 on the Approval of the Spatial Planning of the National Territory Section VIII – areas with touristic resources

Studies that serves as the basis for Law 351/2001 Revising, finalized in 2014:

- PATN – Phase 1. [online] Available at: <http://www.mdrap.ro/userfiles/PATN_etapaI.pdf> [Accessed 14 March 2018]
- PATN – Phase 2. [online] Available at: <http://www.mdrap.ro/userfiles/PATN_etapaII_vol_1_2.pdf> [Accessed 14 March 2018]
- PATN – Phase 3. [online] Available at: <http://www.mdrap.ro/userfiles/PATN_etapaIII.pdf> [Accessed 14 March 2018]

Annex 2. Short description of the main documents employed for the causal chain analysis

1. **Romania's Territorial Development Strategy (SDTR)**, Polycentric Romania 2035: Territorial Cohesion and Competitiveness, Development and Equal Opportunities for People brings in a new approach. This profile of territorial development is shaped in a polycentric development perspective, with international economic zones, where the small and medium cities are connected in networks with the large cities. In this document the infrastructure is referred to, in its “traditional” content – the transport (roads) infrastructure. The network of the cities is connected by both administrative cooperation (see SCAP, 2014 and SGD, 2017) relations and road infrastructure. Also SDTR 2035 (2016, p.137) makes reference in its vision at the “functional territory” from two perspectives: functional national territory integration in EU space (through efficient interconnection of electrical, transports and broadband infrastructures) and global competitive goods produced in specialised functional territories (SDTR 2035, p.137, Objectives 1 and 3). The SDTR perspective is in line with NEG theory, supporting life quality, both in dwellings, through increasing access to local services at EU standards provided by infrastructures, and through incomes’ increase, based on higher productivity based on innovation inputs in competitive agglomerations.

2. **National Strategy for Sustainable Development of Romania Horizons 2013-2020-2030** (SNDD) launched on November 12, 2008, with effect from December 8, 2008 (SDDR, 2008) promotes a new model of development. The new model’s philosophy is characterised by “the high value-added generating development model, driven by the interest in knowledge and innovation, oriented towards the continuous improvement of people's quality of life and their relations, in harmony with the natural environment”.

3. **Strategy for Consolidating the Public Administration 2014-2020** (SCAP, 2014) and setting up the National Committee to Coordinate the Implementation of the Strategy for Strengthening Public Administration 2014-2020, approved by HG 909/2014. Also, this programmatic document contributes directly to the emergence of the new place-based policy approach including in its first Objectives the building of “the optimal framework for the distribution of competences between the central public administration and the local public administration and their sustainable pursuit”. This process is ample and complex. Some of the new activities involved by the reform refer to: the implementation of a new financial and fiscal decentralised policy, the administrative-territorial

reorganization, coupled with the development of a methodology for calculating the local development index and institutionalization of its periodic monitoring at national level.

4. **General decentralization strategy (SGD 2017)** approved by Government Decision no.229/2017 is in force since 19 April 2017. SGD makes “the transfer of new competencies from central to the local level in order to create the premises for increasing the quality and efficiency of public services provided to citizens as well as local development”. This new framework marks the presence of a place-based policy in the following sectors: agriculture, culture, tourism, environment, health, education - extra-curricular activities and youth and sport.

5. **National Strategy for Research, Development and Innovation 2014-2020 (SNCDI, 2014)**, consolidated by GD 81/2017 points towards spatial knowledge structures, relevant for innovation policy, components of the place-based policy. This new approach becomes more visible following the 2017 regulation improvements:

- Decision no. 81/2017 for the modification and completion of the National Strategy for Research, Development and Innovation 2014-2020, approved by the Government Decision no. 929/2014. This document presents a major relevance for research, completeness, human capital, development, innovation, smart specialization, competence centres, transfer infrastructure and innovation incubators, research infrastructures, the labour market in research;
- Order no. 7021/2017 on the approval of the *de Minimis Aid Scheme* to support the development of small and medium-sized enterprises in partnership with innovation and technology transfer entities under the 2014-2020 Regional Operational Program.

6. **Romania's National Export Strategy for 2014-2020 (SNER, 2014)** also presents specific issues of place-based policies. Thus, regional development is an essential element of sustainable development through the export of clusters and the attraction of foreign investments, with the participation of associative structures of the business environment and local public authorities.

7. **National Competitiveness Strategy 2015-2020 (SNC, 2014)**, makes a motion for maximizing the competitive impact at the territorial level by addressing the 3 C: “Concentration: overcoming the density differences; Connecting Territories: Exceeding the distance factor; Co-operation: overcoming the division factor”. The SNC works under a new philosophy of administrative structures (at local, regional and national level) roles from *bureaucratic* one to a *functional role*,

respectively to competitive mobilization in *development areas*. This document signals the low contribution of territory in economic processes of added value creation. SNC emphasises the high potential of some economic activities agglomeration to create positive effects, a manifestation of territory characteristics with direct impact on dynamics and economic functionality. As a consequence of the new demand paradigm, SNC concludes that “the current level of decentralization is insufficient and the principle of subsidiarity is only formally addressed in the design and implementation of policies with a territorial impact” (SNC, 2014, p.32).

8. National Strategy on the Digital Agenda for Romania 2020 (SNADR, 2015), active since 2015. The primary objective of the Next Generation Network (NGN) Infrastructure Development Plan is to define and plan policy and administrative measures that can stimulate the development of new generation broadband infrastructure, i.e. the penetration of broadband access services in Romania at high-speed levels according to Europe 2020 Digital Agenda standards. The main action to be implemented is the “Action IV - Broadband and Digital Services Infrastructure (SNADR, 2015, p.93), which has a dedicated strategic development line - B1. Building new-generation backhaul networks and backbone infrastructure”. This development line is materialised in administrative and legislative proposals, dedicated action line for "supporting the use of standardized digitalised land management tools and their publication on national geo-portals". (SNADR, 2015, p.99; Stanculescu et.al., 2015).

9. National Waste Management Strategy 2014-2020 (SNGD, 2014) approved by Decision no. 870/2013 assumes the scope to put Romania on the road towards “Recycling Society” (SNGD, 2014, p.3) through the pushing of Circular Economy Package implementation acceleration. Recycling Society applies the waste management hierarchy according to Law 211/2011, by stock (municipal and similar waste from industry, including fractionally collected separately) and by specific waste flows. In the waste management, the responsibilities are shared by all stakeholders, from public local and central authorities (environment, administration, health, industry, finance), everyone has to assure adequate services for the management of all categories of waste, for every step in the waste hierarchy, coupled with “raising awareness of the possibilities of reducing the amount of waste generated and of waste management options” (SNGD, 2014, p.40). The distinction of this strategy, when compared with the presented documents, mainly lays in its sectoral approach, focused to promote: circular economy, green (blue) economy, economic restructuring, eco-innovation. The spatial analysis is not used and, the territorial level is mentioned until the county

level for the 30 counties with integrated waste management systems and at the local level in the Manufacturer's responsibility for the Waste electrical and electronic equipment management. For this type of waste is required the availability and accessibility, throughout the country, of the collection points, considering the population density criterion! (SNGD, 2014, p.36). In this field, the normative documents faced a recent “explosion” at EU level, documents adopted also in Romania but not yet implemented, especially since 2015

-**Decision no. 3/2016** on the Circular Economy Package: COM (2015) 614 final, “Closure of the loop - an EU action plan for the circular economy”, COM (2015) 593 final - Proposal for a Directive of the European Parliament and of the Council Amending Directive 2000/53 / EC on end-of life vehicles, Directive 2006/66 / EC on batteries and accumulators and waste batteries and accumulators and Directive 2012/19 / EU on waste electrical and electronic equipment, COM 594 final - Proposal for a Directive of the European Parliament and of the Council amending Directive 1999/31 / EC on the storage of waste, COM (2015) 595 final - Proposal for a Directive of the European Parliament and of the Council amending Directive 2008/98 / EC on waste, COM (2015) 596 final - Proposal for a Directive of the European Parliament and of the Council amending Directive 94/62 / EC on packaging and packaging waste, since February 8, 2016. *In this document, it is launched the call to analyse municipal and biodegradable waste definitions and calculus methodology.*

- **Decision no. 28/2016** on Closure of an EU action plan for the circular economy COM (2015) 614 recalls that “in order to fully benefit from the positive impact of the increase in the remediation potential, there is also a necessity for qualified persons in this field, which requires functional training systems that are difficult to obtain on the whole territory if left to the discretion of the Member States, without a stimulus stemming from concerted action at Union level.”

- **Decision no. 36/2017** on the role of energy recovery of waste in the circular economy - COM (2017) 34 final Effective from 12 April 2017, emphasizes the importance to use waste hierarchy established by the EU.

- **Decision no. 47/2017** on - The role of energy recovery in the circular economy COM (2017) 34, in force since 06 June 2017 presents the recommendations especially for the state members with important rural population and open/large landscapes to develop separate collection systems and recycling infrastructure.

10. **National Employment Strategy 2014-2020 (SNOFM, 2014)** includes a general spatial perspective, without a specific reference to spatial heterogeneities. In regard to increasing

employment performance, is assumed that Public Employment Services (PES) have to be developed at local level (as well as at the national and county level) especially focused on facilitating the transition from inactivity and unemployment toward employment, a topic mentioned in its second objective. In the same domain of employment, we mention other strategy documents with relevance to increase employment, providing active measures, especially through skills acquiring in lifelong learning and work experience for the workers, with a special focus on the youth: The National Lifelong Learning Strategy 2015-2020 (SNLLL, 2015), the Law no. 279/2005 on an apprenticeship at the workplace, the law no. 335/2013 on the conduct of internships for graduates of higher education updated by OUG 49/2014 and the Law 164/2017, the National Strategy for Youth Policy for the period 2015-2020 (SNDPT, 2015), and the Law 76/2002 on the unemployment insurance system and the stimulation of employment. In the context of the spatial structure of competitiveness (Moretti, 2012), as well as knowledge space interaction we point the fact that the need for place policy development should be taken in consideration in the employment policy. While the agglomerations increasing reflects growth behaviour, in view to assure its sustainability is essential to support inter-sectoral mobility of workers in positive transitions based on productivity gains through innovation absorption, patterns strongly clustered.

11. National Strategy on Social Inclusion and Poverty Reduction (SNISRS, 2015) for the Period 2015-2020 and its Strategy Action Plan 2015 - 2020, approved by GD 383/2015 and the Order 393/630/4236/2017 recognise this problem at national scale. Bedi et al. (2007) proof that “location is a powerful determinant of poverty”. From the location perspective, urban profiling in developing countries is influenced by poverty profile of location, reflecting the absence of infrastructures, services, production, etc. World Bank (2015, 2016), Tesliuc (2015) et al. use spatial ESDA instruments as poverty maps, urban and rural marginalized areas. These innovative instruments in evaluation and diagnosis of poverty offer highly granulated information at village (sat) level (lower than LAU2/NUTS5 level). Using large spatially integrated data sets, the balancing, the targeting of poor areas becomes more efficient and poor people are more likely to improve resource allocation, with effective results in improving standards of living for all inhabitants in Romania. We also mention two other relevant studies for our insight: Sandu et al. (2016) made an Atlas of marginalized rural areas and local human development in Romania and Anton et. al (2014) explored urban marginalized communities. Stroe and Cojanu (2017) warned about the following phenomenon in Romania: “the number of working people facing poverty is increasing, i.e. even they have a job, their incomes are below a certain poverty threshold”. Closely

connected with the poverty reduction, a special case is the Roma community. In the same area we mention the **Romanian Government Strategy for Inclusion of Romanian Citizens belonging to the Roma minority for the period 2015-2020**, (SGRR, 2015) active since January 2015;

12. **The National Immigration Strategy for 2015-2018 (SNI, 2015)** and its Action Plan launched a response to the European Council's (25 - 26 June 2015) interconnected measures for refugees helping. Romania's Cota according to the agreed European Agenda on Migration of the European Commission was of 2.362 persons, from which 1.705 internal reallocation by emergency mechanism and 657 persons by external EU reallocation mechanism (SNI, 2015, p. 2). This strategical document is more complex and exceeds this helping mechanism, assuming as general objective the following: "Promoting legal migration for the benefit of all parties: Romanian society, immigrants and their countries of origin". In the context of increasing labour force deficits on national labour markets, international mobility for work is a short-term solution for skills deficits adjustment. Complementary to the SNOFM, the SNI builds mechanisms to assure the access facilitation of the labour force according to the Romanian labour market needs, needs that have to be qualified and anticipated. Economic and social integration, for immigrants in Romania, is mainly made at the local level communities. (SNI, 2015, p. 16)

13. **National Action Plan for Energy Efficiency (PNEE, 2014)** stimulates a new role for local authorities (city or commune) in promoting and implementing the strategic priorities of clean and efficient energy (PNEE, 2014, p.13). Local authorities have to create local economies with low carbon emissions, efficient use of energy in public transport, in buildings, increasing energy efficiency, stimulating the usage of high cogeneration systems for heating and cooling, using prices (approved by national regulation authority) and subventions as instruments. According to Law 199/2000 and OG 22/2008, there are defined energy criteria for the city profiling (population over 20 thousand people/ energy consume over 1000 tep) with responsibilities in the creation of own energy efficiency strategies and programs on short and long-term, associated with investment and action plans for implementing (PNEE, 2014, p.15-16), stimulating the energy services diversification in the local plan by private companies, especially SMEs. Also, from the energy efficiency perspective, cities are "invited" to Mapp their buildings by NZEB zones - further the "conventional characteristics – by conventional energy sources" and classify them by the energy consumption, using as reference the "*NZEB - The building with energy consumption close to*

zero” – the building with low energy consumption, which uses regenerable energy over a specified threshold according to art. 4 and art. 5 of the EU Directive 2010/31/EU.

14. **National Culture and National Heritage Strategy 2016-2022 (SCPN, 2016)** project in public debate launched in December 2016 promotes culture as a development factor, element of local and regional identity and diversity. Culture and Cultural Patrimony assure the territorial vitality through supporting creative economy, increasing access to culture, supporting cultural diversity and integration of Romanian culture into international culture circuit.

15. **National Health Strategy 2014-2020 (SNS, 2014)** and its Action Plan launch the decentralisation process in health management through increasing the local communities' competences. Local communities become responsible for the increased effective use of health resources in view to better providing health services to the population. SNS (2014) is result oriented, aiming to improve population's health. There are targeted to be developed the health infrastructure managed in integrate networks for health, assuring access at the local level.

16. **Anticorruption Strategy in Education (ESA, 2013)**. Even if education is another sector in a process of decentralisation, since 2013, through ESA it was launched the process to adopt some additional measures launched by the Ministry of Education to prevent and combat corruption in education, applied in local public administration. The specific instrument is the protocol of collaboration and communication between the Ministry of Education and territory data providers (from the Ministry's subordinated network, as well as from local Councils). (ESA, p.28)

17. **Anti-Corruption National Strategy for 2016-2020, (SNA, 2016)** works for developing a culture of transparency for open government at central and local level, through the “Reserve Fund” available to the Government and the National Program for Local Development. The envisaged measures will increase the predictability of budget allocations, while limiting political clientelism (SNA, 2016, p.14). Increasing integrity, reducing vulnerabilities and corruption risks in local public administration (SNA, 2016, p14) is realised through public policy anticorruption decentralisation. The public policy decentralisation is implemented through the formulation of local anti-corruption policies with associated procedures and rules, the promotion of an index of integrity, the development of codes of conduct, etc.

18. **National Strategy on Climate Change and Low-Carbon Economic Growth for 2016-2020 (SNSC, 2016)** and its National Action Plan include a special chapter regarding the urban development (SNSC, 2016, p.34). Cities need to develop action plans for the production and use of sustainable energy, as outlined in PNEE (2014). Along with the energy efficiency management, other two objectives are iterated, aiming to diminish the CO₂ emissions: increasing the compactness solutions for the cities development and improving the technical performances for all cities infrastructures at least at the EU standards: water supply, used water/sewage and solid waste collection, and more to be recycled and reused (applying Circular Economy principles), etc.

References for the main strategic and political documents with relevance in territorial planning in Romania

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Anti-Corruption National Strategy for 2016-2020 (SNA), 2016. [online] Available at: <http://dpaps.gov.ro/docs/pdf/diverse/strategia_nationala_anticoruptie_2016-2020.pdf> [Accessed 21 March 2018]

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National Competitiveness Strategy 2015-2020 (SNC), 2014. [online] Available at: <<https://legestart.ro/hg-nr-7752015-privind-aprobarea-strategiei-nationale-pentru-competitivitate-2015-2020/>> [Accessed 25 February 2018]

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