

THE ROLE OF RURAL SETTLEMENTS OCCUPYING A CENTRAL POSITION IN THE ELABORATION OF THE STRATEGIES OF TERRITORIAL MANAGEMENT. CASE STUDY THE SOUTHWESTERN DEVELOPMENT REGION

Daniel PEPTENATU

University of Bucharest- Interdisciplinary Centre for Advanced Researches on Territorial Dynamics
(CICADIT), 36-46 M. Kogalniceanu St., Bucharest, Romania, e-mail: peptenatu@yahoo.fr

Radu PINTILII

University of Bucharest- Interdisciplinary Centre for Advanced Researches on Territorial Dynamics
(CICADIT), 36-46 M. Kogalniceanu St., Bucharest, Romania, e-mail: pinty_ro@yahoo.com

Alina PEPTENATU

University of Bucharest,
36-46 N. Bălcescu St., 36-46, Bucharest, Romania, e-mail: alinapep@yahoo.com

Cristian DRĂGHICI

University of Bucharest- Interdisciplinary Centre for Advanced Researches on Territorial Dynamics
(CICADIT), 36-46 M. Kogalniceanu St., Bucharest, Romania, e-mail: cristi7772001@yahoo.com

Abstract: There are many directions of action regarding the increase of the functionality of administrative mechanisms. One of them is supporting the development of some territorial management structures of the type of polycentric networks of human settlements, able to ensure the efficient diffusion of development, starting from the level of coordination centres and continuing up to the local level. Creating some development models, based on polycentric structures, is a main preoccupation of the European decision factors, who, once the European Union has been enlarged, confront with an increase of the development gaps in territorial profile. Building these models supposes a series of difficulties at the local level, where it is difficult to identify territorial systems, able to diffuse development within the settlements network. The polycentric development model includes human settlements, each of them having a certain capacity of subordinating areas, where they occupy a central position. The estimation of the polarization capacity represents a complex step, frequently applied in specialised literature for the superior levels, where the effects within the subordinate areas are obvious. The methodology of analyzing the role of the settlements with a central position within consolidation has been elaborated and developed within some projects of fundamental scientific research (Territorial management based on the theory of development poles (PNII), Production controlled by discontinuities and treatment of the areas being at a high disadvantage and the Interface urban-rural in the context of polycentric development) financed by CNCSIS.

Key words: centrality, rural settlements, polycentric network, territorial management, decentralization

* * * * *

INTRODUCTION

The elaboration of the development strategies, correlated to the decentralization process, represent important priorities of the decision factors at European level today. The spatial projection of this process has the form of some polycentric networks, where it appears a transfer of institutional responsibilities from central level to regional, county and local level, on well established directions. Concretely, the polycentric development model spatially projects the directions which the decentralization process should follow, in order to obtain an optimate territorial functionality.

Hallgeir Aalbu (2004) considers the settlements network represents the spinal column of a territorial-polycentric system, ensuring the efficient and uniform transfer of development, at the entire territory level. The same idea appears in Gudrun Haindl and Petra Hirschler's work (2008). They consider polycentric development can contribute to the balanced economic development and to the reduction of territorial disparities at the European Union's level.

The elaboration of this polycentric development model contributes to the increase of the functionality of administrative mechanisms, by means of the spatial projecting of some efficient information diffusion channels between the development poles, which could ensure a balanced territorial development, this representing a declared objective of decentralization policies, aiming at the transfer of a series of responsibilities from the central level to the local structures.

At the inferior level, the polycentric model comprises growth centres identified depending on their centrality in the local settlements system. Identifying the settlements with a central position has a special importance in the elaboration of territorial management strategies, because it offers the decision factors a clear image upon the support points in constructing polycentric networks, at inferior levels.

The concept of *centrality* first appeared in 1933, when it was used by Walter Cristaller for the enunciation of the central places theory, and it was defined as the property of a town to offer goods and services to an exterior population that lives in the complementary region of the town. Depending on the services offered, the cost and the request for products, the dimension of the influence area, there are several levels of centrality. The inductive and general theory of central places explains the size, number and especially the distribution of towns, the author considering that town defines itself by its capacity of offering goods and services to a surrounding area. In time, the concept became general and extended itself, and it characterises any place which offers services and thus polarizes a clientage.

In a larger acceptance, the term of centrality can reflect the more or less accessible position of a knot within a settlements network. There can be two types of central position within a network: that which minifies the sum of distances from a knot to the others (the optimal localization of the trader) and that which minifies the maximal distance between a knot and the other knots

within the network (the perfect localization for the emergency-ambulance services, fire brigades). Dauphine A. (2003) affirms that centrality is not determined by localization, but by the consolidation of a certain function, which imposes the place within the settlements local system.

The term of centrality was also used in Geography by Rochefort M. (1960), Dugrand R. and Labasse J. (1964), Hautreux (1963), and in the field of regional Geography, Juillard E. introduced the concept of polarized region (1962), whereas George P. (1967) made a presentation of the hexagon, opposing the polarized spaces to the inorganic. Today, the term is frequently used by other human sciences, as sociology, which uses it in order to show a deterioration of social contrasts within an entity, while S. Sassen speaks about social polarization in order to label social dynamics within the global city (1996).

With the exception of spatio-temporal criteria, used for evaluating accessibility, other criteria can be taken into consideration: economic, aesthetic, touristic, landscape criteria, environment criteria etc. The relative importance of the accessibility explanatory components can be measured by means of a set of indicators, which are often complementary. Thus, the accessibility level is closely related to measurement criteria. However, accessibility is not only limited to people's circulation, but it can also refer to information circulation through telecommunications network, where accessibility to a knot is very important for the quality of information exchange.

After Pumain D. and Offner J.M. (1996), attractiveness can be translated as the measure of a place's force of attraction, by the total of flows attracted by that place. At the same time, the attraction of a place upon a space, more or less extended, heterogeneous, which depends on the centre, is called polarization. The centre exerts upon space a magnetization which is proportional with its activities, its population or its equipment.

In a second acception, attraction accompanies the pole's enclosing in the development of a regional assembly. Perroux F. (1955) considers selective sectorial investments have as a result the multiplying of growth, and Boudeville R. (1972) developed this theory at regional level by means of interindustrial exchanges.

Pumain D. (1996) considers centrality is a fundamental characteristic, which can explain the forming of urban agglomerations by aggregation. The increase of central functions of a settlement leads to agglomeration and secondary centres, or even to new centres within a region. A fundamental hypothesis of Cristaller's theory of central places, aggregation is a process of the realignment of people or activities in a limited area, but also of realignment of services and equipments of the same size, in order to form the same functional level. Aggregation implies the existence of some resemblances or interest communities between nearby people or objects, which are intensified by interactions allowing proximity.

In the opinion of geographers Polese M. (1955) and Monet J. (1988), centrality appears as a concentration in a strategic place of actors and activities related to accessibility, lowest transfer costs, agglomeration advantages, information richness, but also as a concentration of some intense and varied sociability forms. Thus, besides a well-known economic dimension, centrality has polyvalent dimensions: political, social, and even symbolic (localization of power). Centrality has not the same constant geographical translation. It depends on the networks' dynamic, so that, by means of concentrating strategic

functions, it can lead to the decrease of an area's centrality and to the occurrence of punctual centralities which describe the metropolization process (Coffrey W., Searmur R., 1997).

Centrality theories are called classical and they are mostly applied in the study of urban settlements networks. But they can be also applied, with the necessary adjustments, to rural settlements networks. Centrality is characterised by a multiscalar organising, so that space is differentiated into centres and suburbs, at different geographical scales.

Several studies about human settlements systems were developed, having as purpose a better territory setup and an efficient space organising. In the 19th century, the theory of central places or towns' theory first came into discussion. Thus, Reynaud J. (1841) highlighted the possible relationship between towns/cities, and he defined the hierarchized urban network. Kohl J. G. (1850) studied the geometrized transport network, a geometric projection/designing which was the basis for a multitude of subsequent studies. Lalanne L. (1863) demonstrated the reorganising of communication networks in triangles, forming hexagons in the centre of which there were the most important settlements from the respective place. The geographer who formalised this theory was the german Walter Cristaller (1933, 1950), and a little bit later the economist Losch A. (1938, 1940).

Cristaller, quoted by A. Dauphine (2003), referring to urban systems, considers that «stationary state is only fiction, whereas motion is reality», thus underlying the importance of treating settlements systems as dynamic organisms, characterised by permanent evolution.

The centre-suburbs theory describes the opposition between the two fundamental types of places of reciprocal dependence within a spatial system, where the rule is given by inequality: the centre, which dominates and has got advantages, and the suburbs, which are dominant. This conceptual pair is present in the work of Sombart W. (1902), as well as in the work of the economist Amin S. (1973).

The economist Losch A. (1954) based his research especially on the market study. The existence of towns' levels could be demonstrated within the neoclassical theory of general balance, taking into account that the proportion of the number of towns between different levels may vary. Losch also used hexagons in order to show the complementary areas of central places, considering that the profit, which optimizes the market area of each central good, depends on the minimum area for sellings, on distance and on the cost of the transport.

In conclusion, Losch demonstrates that an economic region is formed by joining several market areas, several regions form a regional system, and this, on its turn, together with other towns of the same type, form a superior system. This way, a hierarchy of regions and goods, ressembling that of central places, comes out (Ianoş I., Humeau B. J., 2000).

Walter Cristaller's general theory stays for the basis of population systems repartition, based on the offer and request of services. It was taken up by Beckmann M. and MacPherson J. (1970), and also by Tinberger (1964) and Bos (1965). In 1967, Berry concluded that the development of a town depends very much on its geographic, economic and social position within a towns system. Edward L. Ullman (1954, 1958) was the geographer who dealt with a theory of towns distribution inspired by W. Cristaller's theory of central places.

Along the time, the theory of centrality became well known at world level and there were many historians referring to it, but they used less the geometric

normative triangular-hexagonal image which was conceived and published by the German geographer Walter Cristaller and they used more the spatial hierarchies which this theory implies.

However, there were in the past and there still are in the present voices stating that the model of centrality is false from the mathematical point of view, and it had never been verified before it was used. Also, Walter Christaller was accused by certain historians (Rossler, 1990, Fahlbusch, Rossler and Siegrist, 1989) that he served the Nazis. Other historians, as Wardenga (1996), deny this opinion.

Favier Rene studied settlements networks at regional level, discovering that the ranking of towns from Dauphine in the 17th and 18th centuries had few common points with Cristaller's theory of central places. The conclusion is that the respective province was not organised in a genuine urban network, but it consisted of a series of juxtaposed assemblies, more or less hierarchized/classified. One of those who tried to draft some geometrical figures in the case of settlements networks was Charles Higounet, whose figures were irregular, and on certain peaks there could be noticed the absence of some towns.

A supporter of centrality, Jack Thomas (1914), having as an example Toulouse region, shows that in the settlements which have a marketplace, the most important are the secondary and tertiary activities, and he illustrates this by the presence in these places of administrative services (tax collectors, public notaries), medical services (doctors, healers) and money lenders.

Radeff Anne studied the commercial structures from the French regions Franche-Comte and Savoie, in western Switzerland, and she considers the centrality hypothesis cannot be verified. She considers Cristaller's geometrical model is false and ideologically dangerous, and the ideas which inspired him are contrary to the causalities from reality.

The importance of the settlements with a central position function is emphasized by the polarized development theory, sustained by Perroux F. (1955), who considers development is centred upon natural and compensatory growth poles. Sometimes, these poles are disposed in such a manner that they form development axes by means of a functional restructuring of great complexity. Compensatory poles appear in the case of large urban establishments and portuary-industrial installations, they are also called technopoles and they are based upon tertiary activities of superior level, usually localized outside urban agglomerations.

By means of the theory of growth poles, promoted as a theory of sectors' unbalanced growth, it is demonstrated that territorial inequalities come out as a result of the oversized development of some sectors which act as development engines, attracting and dominating by their position and their size (D. Jula, N. Jula, D. Ailenei, A. Gârbovean, 1999). Thus, by the same authors, territorial disparities are the primary result of regional development by means of growth poles, being mentioned the hypothesis of a regional growth in stages, especially after 1970. Synthetizing Richardson H. (1966) and Friedmann's J. (1973) ideas, quoted by Ianoş I. and Heller W. (2006), who catch up the theory of regional growth promoted by Myrdal G. (1957), two stages of regional development can be individualized: the polarization or spatial concentration stage (in which an urban industrial process at national level is developed, leading to economic growth), and the integration stage, where a decentralization or reverse polarization takes place, starting from an intraregional decentralization (the industry relocation in satellite-towns) to an interregional decentralization (the development of some

secondary centres situated in big cities) and finally getting to an intraregional decentralization (Ianoş I., Heller W. 2006).

The researches referring to the settlements network from the Southwestern Development Region individualised the centrality of each development pole, depending on its capacity of structuring the subordinated space.

CONCEPTS AND METHODS USED IN THE ANALYSIS OF SETTLEMENTS HAVING A CENTRAL POSITION FUNCTION

The spatial projecting of the polycentric network supposes covering the following stages: the definition of the theoretical framework, the analysis of the polarization capacity and the identification of rural settlements having a central position function.

Understanding the way a polycentric network including settlements with a central position function works, is conditioned by knowing the theoretical framework on the basis of the elaboration of the territorial management model, based on the theory of growth poles.

Polycentrism is a principle based on the idea of promoting several decision centres. Within the territory planning, the concept supposes a complex approach of territorial development, using growth poles as specific instruments, classified depending on their capacity of spreading a new quality in the subordinated territorial subsystems. Development poles are grouped in polycentric networks classified depending on their capacity of polarizing development centres.

Polycentric development is a space development strategy based on promoting and implementing some policies of consolidating the development poles and growth centres network. By decisional impulses, the relations between the polycentric network's components are re-defined, key resources are used in a superior manner and a part of the problems of the territory in discussion are solved.

The analysis of the polarization capacity and field researches identified the main polarization directions represented on graphic models by means of development vectors, representing both the directions and a certain type of development qualitative weight, starting from the superior rank development poles to subordinated rank poles.

The concept of *structure axis* supposes an alignment which is able, by means of the possibilities it offers, to attract investments which allow a superior development on the accessibility tracks between the development poles. Depending on the structuring capacity, a superior category was identified, and it comprises development corridors characterised by a high degree of population and economic activities concentration, integrating the national and regional poles and spreading "development" at supra- and interregional levels.

The polycentric development model is based on several decision levels: the capital, national development poles, regional development poles, intraregional development poles, local development poles and growth centres.

National development poles are represented by urban settlements with the highest polarization capacity from the development regions, accomplishing the functional connection with the capital, and having the role of coordinating and distributing information from the capital level to the entire regional space level.

Regional development poles are urban settlements with a polarization capacity which is inferior to national poles polarization, consolidated by administrative functions held in time. This category is represented by the

present county seats, which, due to their administrative function, imposed themselves totally within the urban county systems.

Intraregional development poles are represented by urban settlements which benefited by a regional context of advantages, which contributed to the increase of their polarization capacity, becoming comparable to county seats.

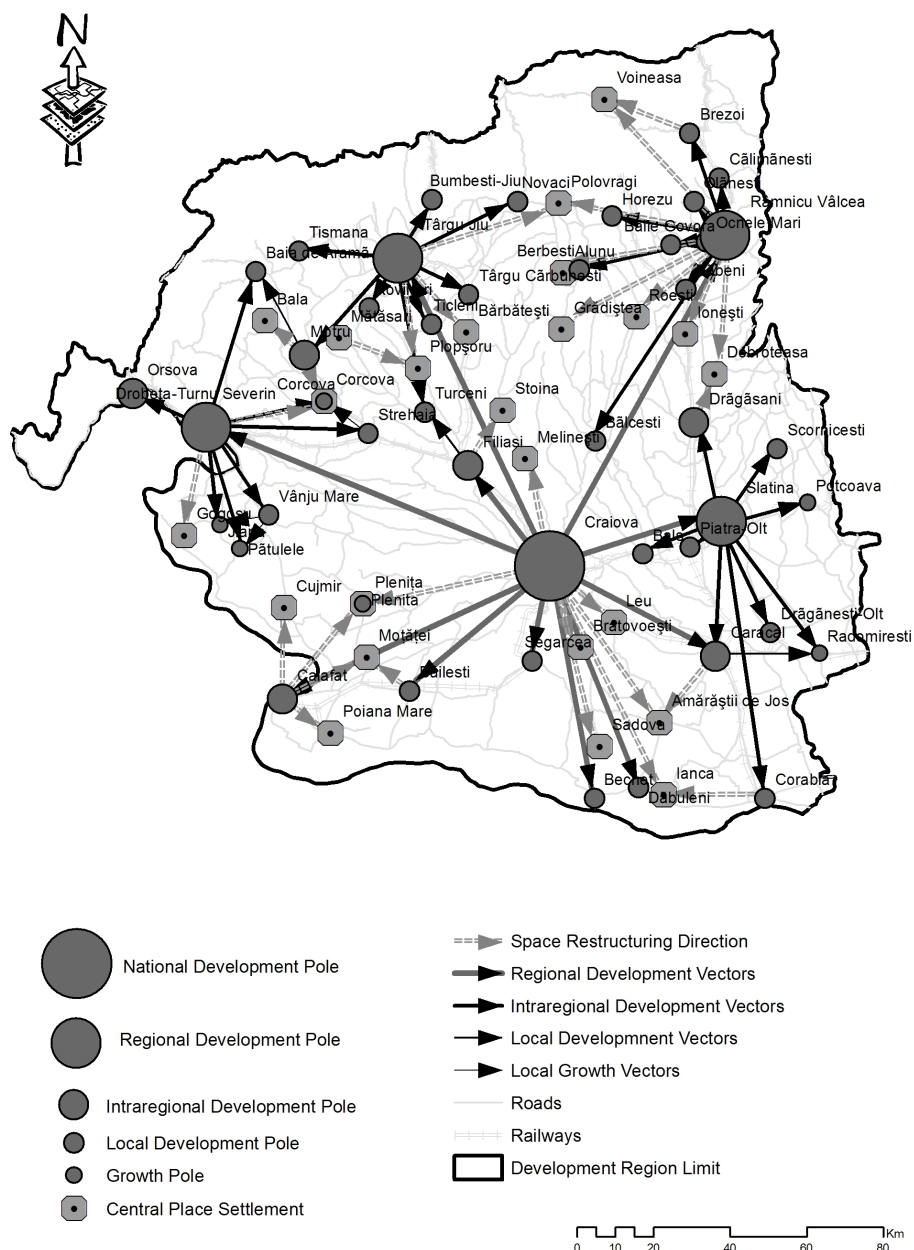


Figure 1. The Distribution of Central Place Settlements in the South-West Polycentric Network

Local development poles are the urban settlement with an important role in the functioning of county networks, contributing to the spreading of

development from the level of intraregional and regional poles, towards the local level. The importance of these poles is given by their function of information redistribution within the subordinated rural area.

Growth centres are represented by rural settlements, which, by their economic activities, may constitute development engines for the rural areas which are highly disadvantaged. Growth centres are indispensable as they elaborate the polycentric development strategies, specific for the highly disadvantaged areas. Settlements with a central role function from the deep rural areas are enclosed in this category, and they may contribute to the information transfer towards the periphery of the polycentric network.

Territorial synapses are components of the polycentric network. An information exchange between regional polycentric networks is taking place at the synapses level, due to some territorial complementarities. Identifying these synapses is a hard demarche/ issue, because of the scale these exchanges are taking place at. This is the reason why a detailed knowledge of territorial systems is needed.

When identifying the role of the settlements with a central position function, an important role is held by the concepts of *territorial competence* and *territorial cohesion*. Territorial competence is represented by those functionalities which give particularity to the territorial system, imposing it in the competition against other systems. Functional specialization is a determinant of the territorial competence. The analysis of the territorial competence had in view the projections in perspective of those competences, which could allow the rural settlement to impose in the local settlements network. The territorial cohesion is represented by the polycentric network components' capacity to stay united by means of development and multiplication of the relations between them.

In the present study an analysis of the intensity of relationships between settlements system's components was made, based on five criteria: size and demographic attractiveness, economic power and competitiveness, capacity of polarization by services belonging to the superior tertiary, the number of towns of inferior rank from the influence area, territorial representativeness and perspectives of support for the consolidation of the regional settlements system. As a result of these indicators' aggregation, a *coefficient of the polarization capacity* was obtained, on the basis of which development poles for the Southwestern Development Region were classified (table 1).

Depending on the polarization capacity, there can be identified the superior and medium decision levels, but there cannot be identified the settlements with a central position from the inferior sector of the network, on which the development of the rural areas at a high disadvantage is based. In order to identify them, a development coefficient for rural settlements from the Southwestern Region was calculated, the centrality of rural settlements being given by the adjustment of the development level with the distance from the first town having more than 30,000 inhabitants.

The development coefficient was calculated on the basis of a set of indicators grouped in five criteria: accessibility and the position in relation to urban settlements from the system (the coefficient of connectivity to the transport network, isolation coefficient, the coefficient distance to the closest town having more than 30,000 inhabitants), the criterion of infrastructure development level (social infrastructure and physical infrastructure), the criterion of geodemographic dimension (the population of rural settlements, active population and natural augmentation), the criterion of geodemographic

quality (education stock, the inhabitable surface, the quality of sanitary services), the criterion of economic development (number of managers, unemployment rate, the weight of population working in agriculture and the number of employees).

Table 1. The development poles ranking depending on the polarization capacity

Development poles	County	The coefficient of the polarization capacity	Category
CRAIOVA	Dolj	53,08	National development pole
RAMNICU VALCEA	Valcea	52,24	Regional development pole
TARGU JIU	Gorj	52,15	Regional development pole
DR.TR.SEVERIN	Mehedinti	51,96	Regional development pole
SLATINA	Olt	51,95	Regional development pole
CARACAL	Olt	51,86	Intraregional development pole
FILIASI	Dolj	51,86	Intraregional development pole
MOTRU	Gorj	51,85	Intraregional development pole
CALAFAT	Dolj	51,84	Intraregional development pole
DRAGASANI	Valcea	51,83	Intraregional development pole
ORSOVA	Mehedinti	51,82	Intraregional development pole
SEGARCEA	Dolj	51,62	Local development pole
BABENI	Valcea	51,58	Local development pole
ROVINARI	Gorj	51,56	Local development pole
NOVACI	Gorj	51,40	Local development pole
BAIA DE ARAMA	Mehedinti	51,38	Local development pole
TG. CARBUNESTI	Gorj	51,37	Local development pole
TURCENI	Gorj	51,37	Local development pole
BUMBESTI-JIU	Gorj	51,32	Local development pole
CORABIA	Olt	51,28	Local development pole
STREHAIA	Mehedinti	51,25	Local development pole
BALCESTI	Valcea	51,24	Local development pole
BALS	Olt	51,18	Local development pole
SCORNICESTI	Olt	51,17	Local development pole
VANJU MARE	Mehedinti	51,17	Local development pole
BAILESTI	Dolj	51,16	Local development pole
BAILE GOVORA	Valcea	51,16	Local development pole
BREZOI	Valcea	51,14	Local development pole
TICLENI	Gorj	51,13	Local development pole
CALIMANESTI	Valcea	51,09	Local development pole
DABULENI	Dolj	51,09	Local development pole
HOREZU	Valcea	51,08	Local development pole
BECHET	Dolj	51,07	Local development pole
BAILE OLANESTI	Valcea	51,06	Local development pole
BERBESTI	Valcea	51,05	Local development pole
TISMANA	Gorj	51,03	Local development pole
DRAGANESTI-OLT	Olt	50,97	Local development pole
PIATRA-OLT	Olt	50,97	Local development pole
OCNELE MARI	Valcea	50,91	Local development pole
POTCOAVA	Olt	50,90	Growth centre
CORCOVA	Mehedinti	50,89	Growth centre
PATULELE	Mehedinti	50,87	Growth centre
JIANA	Mehedinti	50,86	Growth centre
RADOMIRESTI	Olt	50,82	Growth centre

The analyses resulted on the basis of statistical support emphasize the contributions of each indicator to the shaping of a certain capacity of supporting the development process within the local settlements network.

The identification of settlements with a central position function was done by calculating the development coefficient resulted from the grouping of the 19 primary indicators into five large classes.

The criterion of accessibility and position towards urban settlements within the system. The classification of studied localities according to this criterion was done on the basis of arithmetic average of standard values which are valid for the three indicators. The importance of $\frac{1}{2}$ was given to this criterion, from the total represented by the demographic dimension criterion in our analysis. It is enclosed in the category of positive components from this analysis. Following the classification, there were identified 14 localities with a value outrunning 0.25, from among which Livezi (Vâlcea county), Șvinița (Mehedinți county) and Grădiștea (Vâlcea county) occupy the first three places, with values over 0.30.

The superior part of the hierarchy is made up of communes benefitting either by a special accessibility in the case of communes Prunișor (3 railway stations and the European road E70), Ploșoru (2 railway stations and the European road E79), or by a high value of the isolation coefficient in the case of localities Șvinița, Livezi, Zătreni, Grădiștea, Ostroveni, which have marginal positions within the Olt settlements system, with considerable distances both to the cities with more than 30,000 inhabitants and to closest urban centres. Most part of rural settlements in Oltenia are enclosed in the error 0.10-0.20 (over 200 of them), benefitting of a relatively medium accessibility.

In the inferior part of the hierarchy, 90 communes with values between 0.05 și 0.10 are situated, being crossed by county roads, of local importance, situated close to some urban centres. The minimum value of the hierarchy is held by Bucovăț commune (0.008), which is situated nearby Craiova, at less than 5 km.

The accessibility of rural settlements is one of the indicators which allow the highlighting of those communes interfering, from the territorial mobility point of view, with the neighbouring settlements and they determine the convergent orientation towards them of matter, energy, information and human resources flows. Although the isolation coefficient has a special importance in appreciating the position each rural settlement occupies towards the closest urban elements, the distance from a town with over 30,000 inhabitants is primordial in establishing the communes with a central position function, because centrality at the commune level is important as it doesn't develop dependently from the big urban centres.

Having in view the way the communist regime, by the vicious policy of territorial planning, led to the artificial growth of the number of towns in Romania, one can draw the conclusion that urban centres having less than 30,000 inhabitants may regress and even disappear as fast as they had been declared towns. Therefore, new growth poles may rise, with a solid and natural foundation, with a position relatively close to the present small urban centres. This is the reason why the standardized value of the distance towards the town with over 30,000 inhabitants got, in the present analysis, the weight of a total value, unlike the distance towards the first urban centre which takes part with only 0.50. There can be also noticed that front-rank settlements of this hierarchy correspond mostly to communes which are part of those groups considered to be disadvantaged areas, deprived of urban centres on a distance of 25-30 km.

The criterion of infrastructure development level. Primary values were standardized, and an average of them was done, obtaining a weight of 1/3 from the total represented by the criterion of demographic dimension. The classification of the 379 communes by this criterion shows, at the superior part, a number of 4 localities with values over 0.10: Baia de Fier, Bălteni, Mătășari (all of them from Gorj county) and Vaideeni (Vâlcea county) and other 58 communes with values between 0.05 and 0.10. Most of the communes are situated in the category 0-0.05 (over 250), whereas the last part from the hierarchy distinguishes itself by the negative values it proposes, counting 66 communes, with values over -0.05, as it is the case of Secu and Botoșești-Paia, both of them from Dolj county).

The first positions within the hierarchy are generally occupied by communes situated nearby urban centres and they prove a higher development degree, accessibility and closeness to big urban centres, encouraging a better town endowment. The last category of communes from this hierarchy includes settlements with a significant weight of establishments built on the ground, this being a consequence of isolation, demographic aging or conservatory mentality of the population, who dispose of a reduced power of buying.

The geodemographic dimension criterion. The criterion of geodemographic dimension played the most important role in the classification of communes from Oltenia, being considered as a total to which other criteria, having smaller weights, related to. There can be also noticed that demographic dimension influences, especially from the quantity point of view (the inhabitants number), the hierarchies based on the other criteria.

There were used all the above indicators, whose standardized values constituted an average, and as a result the following categories of communes are to be mentioned: the superior part of the classification is occupied by 15 communes, presenting values of over 0,60 (Poiana Mare, Sadova, Șimian, Podari, Călărași, Bralostita, Izbiceni, Bratovoiești, Breasta, Cerat, Desa, Seaca de Camp, Piscu Vechi, Ciupercenii Noi, Malu Mare); there are communes with numerous population in general, high migration score, a part of them being nearby big towns (Podari) or county seats (Șimian); the second category counts 80 communes with values between 0,50 and 0,60; next category and the most numerous one consists of 174 communes with values between 0,40 and 0,50; the fourth category has got 96 communes with values between 0,30 and 0,40.

From the last category, 14 communes detach (Cireșu, Gogoșu - Dolj, Dubova, Lădești, Măciuca, Șovarna; Livezile, Seaca de Pădure, Ghioroiu, Vlădaia, Săcelu, Hurezani, Boișoara, Topana) with values of under 0,30, denoting an accentuated depopulation in the last years, determined either by the process of demographic aging, implying a negative natural score and a decrease of the active population, of women of fertile age, or by the migration of inhabitants towards other towns or even to the neighbouring communes, in search of a job. The minimum value is present in the commune Cireșu (0,2149), which also has a high value of the isolation coefficient.

The demographic quality criterion. The communes classification by this criterion started from the primary values for each of the above indicators, considered to be positive components. These were standardized and their arithmetic average was calculated, getting a score of ½ from the total shown by the demographic dimension criterion.

The maximum value for this indicator (0.31) was recorded in the commune Arcani (Gorj county) and on the next level (values between 0.25 and 0.30) there

are 3 communes (Apele Vii, Bălești and Afumați) with a geodemographic quality hard to deny. The next category includes 35 communes with values between 0,20 and 0,25, and the fourth category has 115 communes with values between 0,15 and 0,20. The most numerous communes (192) are those having a value of criterion D between 0.10 and 0.15, a big weight having the communes with values of 0.10-0.11.

At the inferior part of the classification there are 31 communes with values between 0.05 and 0.10, and 2 communes with a minimum value (0.04): Seaca and Lipovu. The values of the geodemographic quality criterion impose a normal organization of rural settlements, highlighting those disposing of: high education stock (and here it has to be mentioned these settlements do not always coincide with the privileged position of some communes close to university centres, but only communes having at least a highschool level institution – example Voineasa, Vâlcea county); high weights of the inhabitable surface specific for each inhabitant (and here we can notice the prevalence, in the superior part of the hierarchy, of the communes from the plain area, which were developed since the communist period, when agricultural activities had a greater importance or the prevalence of the communes situated close to important urban centres, where recent residential districts appeared, benefitting of investments from the urban area).

The economic development criterion. The final value of this criterion resulted from the average of the 4 indicators, where the number of managers and employees contributed with a positive value, while the unemployment rate and the weight of the employees working in the agriculture field were considered negative values.

The economic criterion constituted $\frac{1}{2}$ related to the total represented by the demographic dimension of the communes. The classification shows, in the superior part, 2 communes, both from Gorj district, exceeding the value of 0.15 (Bălteni and Bălești) and which are situated at less than 10 km from an important town (Bălești at 5 km far from Târgu Jiu) or even in the influence area of two towns (Bălteni at 5 km far from Rovinari and Țicleni).

The next grouping of communes may be enclosed, from the values point of view, between 0.10 and 0.15, consisting of 9 communes, out of which some are situated next to the towns which are county seats (Podari near Craiova, Bujoreni near Râmnicu Vâlcea, Șimian near Drobeta Turnu-Severin), and from among others there are to be mentioned Poiana Mare and Plopșoru, which have a large number of employees, but also an obviously higher value of entrepreneurs.

A series of 38 communes have got values between 0.05 and 0.10. Except those communes situated in the shadow of some important urban centres, some communes having a real economic development potential distinguish: Mătășari, Melinești, Moțăței, Plenița, Ionești. Although they are situated in the superior part of the hierarchy by the economic criterion, they generally show relatively high values of unemployment rate, compared to the previous period, and relatively high values of the number of employees from the agriculture field. These are mainly due to present economic restructuring which started with the closing of some enterprises in the area, which led to the liquidation of numerous jobs, both in the communes and in the neighbouring towns.

There can be also noticed that a part of the communes situated in the superior part of the hierarchy are settlements which exploit varied raw material (oil and natural gases, coal, building materials) which, although in the last years

were restricted, they still keep a certain number of employees in the extractive field (Bălteni, Baia de Fier, Scoarța, Mătășari). Although unemployment rate is one of the indicators which were used with a negative value in the estimation/determination from which resulted the hierarchy of communes by the economic criterion and having in view that even the communes from the peak of the classification show rather high values, the number of unemployed people must be looked not only as an impediment in the future development of the respective settlements, as unemployed people represent a considerable potential of human resources (cheap work force/ manpower) which can attract important economic investments.

The last category, consisting of 59 communes, is situated in the inferior part of the hierarchy, with negative values, within them prevailing the population which is occupied in the personal household, and practices an agricultural activity of subsistence. These settlements are situated at big distances from urban centres, even in under-privileged rural areas, where urban centres are situated at a distance of 25-30 km (Șvinița –Mehedinți county holds the minimum value of -0.03).

The aggregation of the indicators led to the identification of settlements with a central position function, or with favourable conditions for developing this function, and imposing them into the local settlements system. The settlements occupying a central position from Oltenia are those joint components of the settlements network which, regarded in terms of development perspectives, prove to have the characteristic of satisfying the socio-human and economic necessities, both at community level and for the surrounding area. Taking into account the evolution of settlements imposed by several factors, both endogenous (site conditions, the existence of local resources) and exogenous (the types of systemic relations, the economic and demographic states policies), there can be referred to a differentiated development of the communes from the studied area.

The use of this aggregation formula had the purpose of placing these settlements in a series (hierarchy) within which the values vary between 0 and 100 (although they are not percentages) and where the average is 50, and the standard error is 14 (Sandu D, 1999). The communes within this study are those which have a score of the development coefficient of over 50, more developed than the national average, and those with a score under 50 are settlements having a higher poverty degree.

The estimation of the development degree of the communes from Oltenia is the main component of this analysis, having the purpose of placing those settlements which could be characterised by centrality in the superior sector. Having in view the values of the development indicator for Romania's communes, calculated by a team of sociologists coordinated by Sandu D., one can notice that, at district level, the studied region presents values under 50 for this indicator, and it is placed within the area characterised more precisely by poverty (Mehedinți and Olt - 44, Dolj - 45, Vâlcea - 48). Only one county exceeds the country average: Gorj - 52, which is also the administrative unit with the most restricted disadvantaged rural areas and with an approximately balanced spreading of urban centres, so that there are few areas without nearby towns on distances of at least 25-30 km.

24 communes were chosen from the superior part of the hierarchy; the communes situated close to large urban centres occupied first places within the

hierarchy and they were eliminated. Also, there were a series of territorial groups of communes having the shape of a „cluster”, each of them holding a high value of the development indicator. In this case, due to the small inter-communal distance, we selected those settlements with geodemographic potential, with the highest value of development indicator, the field research having an important role, too, so that the distance between two selected communes is optimal, having in view the possibility of developing a specific influence area for each future growth pole.

Such territorial communes groups with a high attraction potential are present in the field area of Dolj county (the groups Poiana Mare, Piscu Vechi, Desa, Seaca de Câmp from among which we selected Poiana Mare; Cetate, Moțăței, Plenița, Maglavit from among which we selected Plenița and Moțăței; Castranova, Coșoveni, Malu Mare and Leu from among which we selected Leu; Călărași, Sadova and Ostroveni from among which we selected Sadova) and in the piedmont area of Vâlcea county (Grădiștea, Livezi and Zătrești from among which we selected Grădiștea). There were also pairs of communes, as follows: Stoina-Stejari, Melinești-Fărcaș, Bărbătești-Aninoasa, Mătășari-Câlnic, Dobroteasa-Vulturești, Amărăștii de Jos-Dănești, which belonged to the same category from the point of view of development indicator, a situation in which the commune with a lower value of development was eliminated. Generally, it was aimed at the distance between individualised communes to be of at least 15 km, and the distance towards urban centres of at least 20 km in the case of large and medium sized towns, with a high area influence, and at least 15 km in the case of small and very small towns.

There are some exceptions, in the case of communes situated nearby some towns which were declared urban centres soon or towns which were declared this way on some purely administrative criteria, but they have not shaped themselves a polarization area well contoured yet.

The selected communes may be grouped as follows: eight in Dolj county (Amărăștii de Jos, Bratovoești, Leu, Melinești, Moțăței, Plenița, Poiana Mare, Sadova), five in Gorj county (Bărbătești, Mătășari, Plopșoru, Polovragi, Stoina), four in Mehedinți county (Bala, Corcova, Cujmir, Gogoșu), two in Olt county (Dobroteasa, Ianca) and five in Vâlcea county (Alunu, Grădiștea, Ionești, Roești and Voineasa). The grouping by political-administrative criterion was done for a better visualization of the respective communes in the territory, because county limits were not taken into account when establishing these settlements, and they cannot impose important spatial restrictions. Also, this is the reason why there is a different number of rural settlements which can carry out the central position function for each county. The distribution of the 24 communes on the relief steps shows the presence of a big number of settlements (22) situated in the plain and plateau area, extremely favourable for inhabitation since oldest times.

In the final hierarchy, made by ranking the communes depending on the average of the values of the five criteria with different weight, there can be mentioned several categories of communes, as follows: with values over 0.25, on the first place there is Poiana Mare (0.26); between 0.20 and 0.25 there are 8 communes, which will become, besides Poiana Mare, the most important growth poles in Oltenia (Mătășari, Voineasa, Melinești, Plopșoru, Gogoșu, Moțăței, Plenița and Sadova); between 0.20 and 0.17 there are the other 15 communes, easily differentiating themselves, the values being very close.

CONCLUSIONS

In the Southwestern Region, the polycentric network is coordinated by the national development pole Craiova, which benefits of a central position within the regional urban settlements system. The configuration of the polycentric network took into account the geographic, demographic and economic particularities of the regional area. This region's particularity is the lack of some development poles in the inferior sector, able to contribute to the development of some profoundly disadvantaged geographic areas.

If we study the hierarchy of rural settlements from Oltenia from the point of view of development indicator, it can be noticed that the 24 selected communes correspond to some values over the country average (over 50) as it follows: on the first place, the commune Poiana Mare detaches, with a score of 53.7, followed by the communes Mătășari, Voineasa, Melinești and Plopșoru, also with values over 53; the third category counts 19 communes with values between 52 and 53.

The 24 rural settlements characterised by the central position within the local system of settlements are nodal components of the settlements network, able to structure the surrounding space and to contribute to the propagation of information from the suprasystems level to local level (figure1).

The consolidation of this function is an important task for the decision factors, who have to pay a special attention to these growth centres (by policies with a high specificity degree), this way ensuring a balanced development for the inferior level of the polycentric network.

Acknowledgements

The methodology we used in this article was elaborated in some research projects : Territorial Management Based on Growth Poles Theory, Urban-Rural Interface in the Context of the Polycentric Development, Discontinuities Controlled Production and the Treatment of the Profound Disadvantaged Areas, Entrepreneurial Sector and its Role in Regional Disparities Attenuation.

REFERENCES

- AMIN S., (1973), *Le développement inégal; essai sur les formations sociales du capitalisme périphérique*, Paris: Les Éditions de minuit;
- BEAUJEU-GARNIER J., CHABOT, G., (1963), *Traité de géographie urbaine*, Paris;
- BECKMANN M., (1958), *City Hierarchies and the Distribution of City Siz*, Structural Proportions in a Hierarchy of a City, Economic Development and Cultural Change;
- BECKMANN M., MCPHERSON J.C., (1970), *City Size Distribution in a Central Place Hierarchy: An Alternative Approach*, Journal of Regional Science 10, 25-33;
- BERRY B.J.L., (1956), *The Functional Bases of the Central Place Hierarchy*, Econ. Geogr.;
- BONETTI E., (1964), *La teoria della località centrale*, Trieste;
- BOS H.C., (1965), *Spatial Dispersion of economic Activity*, Rotterdam University Press;
- BOUDEVILLE J.R., (1969), *L'Espace et les poles de croissance*, P.U.F., Paris;
- BOUDEVILLE J.R., (1972), *Amenagement des territoires et polarisation*, Genin, Paris;
- BRACEY H. E., (1956), *A rural component of centrality applied to six southern countries in the UK*, Econ. Geogr., vol. 32, pp. 38-50;
- CARTER H., (1955), *Urban Grades and Spheres of Influence in SW Wales*, Scottish Geogr. Mag., pp.43-56;
- CHABOT G., (1948), *Les villes, aperçu de géographie humaine*, Paris;
- CHRISTALLER W. (1950). *Das Grundgerüst der räumlichen Ordnung in Europa. Die Systeme der europäischen zentralen Orte*. Frankfurter geographische Hefte, 24, 1, p. 10-19,
- CHRISTALLER W., (1933), *Das Problem der zentralen Orte*, Jena;

- CHRISTALLER W., (1933), *Die Zentralen Orte in Sueddeutschland. Eine oekonomisch-geographische Untersuchung ueber die Gesetzmäßigkeit der Verbreitung und Entwicklung der Siedlungen mit staedtischen Funktionen*, Jena;
- COFFEY W.J., SHEARMUR R.G., (1997), *The growth and location of high order services in the Canadian urban system, 1971 – 1991*, Professional Geographer, 49, pp. 404 – 418;
- COJANU, V., (2007a), *A Discussion on Competitive Groups of Countries Within the European Area of Integration*, South-East European Journal of Economics, vol. 5, nr. 2, pp. 185-202;
- COPPOLANI J., (1959), *Le réseau urbain de la France, sa structure et son aménagement*, Paris;
- DAUPHINÉ A., (2003), *Les réseaux urbains: un exemple d'application de la théorie des systèmes auto organisés critiques*, in Annales de Géographie, vol. 112, pp. 227-242;
- DICKINSON R.E., (1947), *City Region and Regionalism*, London.
- DUGRAND R., (1963), *Villes et campagnes en Bas-Languedoc. Le réseau urbain du Bas-Languedoc méditerranéen*, Paris.
- FAHLBUSCH M., ROSSLER M., SIEGRIST D., (1989), *Conservatism, Ideology and Geography in Germany 1920-1950*, Political Geography Quarterly, Vol. 8, pp. 353-367;
- FAVIER R., (1993), *Les Villes Du Dauphiné Aux XVIIe Et XVIIIe Siècles*, Presses Universitaires De Grenoble, Grenoble;
- HAINDL G., HIRSCHLER P., (2008), *Metropolitan development and strategic positioning-Planning Efforts in selected cities on different levels*, REAL CORP 008, Proceedings/Tagungsband, Vienna, pp. 617-621;
- HALLGEIR, A., (2004), *Spatial policies in the European Union*, EuroFutures, Stockholm;
- HAUTREUX J., ROCHEFORT M., (1963), *Le niveau supérieur de l'armature urbaine française*, Paris;
- HAUTREUX J., (1963), *Les principales villes attractives et leur ressort d'influence*, Revue d'urbanisme, 78.
- HAUTREUX J., ROCHEFORT M., (1964), *Métropole et centres régionaux dans l'armature urbaine française*, Construction – Aménagement, 17;
- HAUTREUX J., ROCHEFORT M. (1963), *Physionomie générale de l'armature urbaine française*, Armand Colin, Paris;
- HIGOUNET C., (1992), *Villes, sociétés et économies médiévales*, Fédération historique du Sud-Ouest, Institut d'histoire, Université de Bordeaux III (Talence);
- HIRSCHMANN A.D., (1985), *The Strategy of Economic Development*, New Haven, London;
- IANOȘ I., HELLER W., (2006), *Spațiu, economie și sisteme de așezări*, Editura Tehnică, București;
- JUILLARD E., (1961) *Essai de hiérarchisation des centres urbains actuels*, Min. constr., CEES;
- JULA D, AILENEI, D., JULA N., GĂRBOVEAN A., (1999), *Economia dezvoltării*, Editura Viitorul Românesc, București.
- KAYSER B., (1958), *Campagnes et villes de la Côte d'Azur; essai sur les conséquences du développement urbain*, Monaco;
- LABASSE J., (1955), *Les capitaux et la région*, Paris;
- LABASSE J., ROCHEFORT M., (1964), *Le rôle des équipements tertiaires supérieurs dans la polarisation de la vie régionale en Europe Occidentale*, Min. Constr;
- LÖSCH A., (1938). *The nature of economic regions*. The Southern Economic Journal, 5, p. 71-75;
- LOSCH A., (1954), *The Economics of Location*. New Haven, CT: Yale University Press;
- MONNET J., AUBERT P. L., SANQUER R., (1998), *La ville au crible de la proximité*, in La ville ou la proximité organisée, Paris: Anthropos, pp. 211-223.
- MYRDAL G. (1957), *Economic Theory and Underdeveloped Regions*, Harper and Row.
- PERROUX FR., (1955), *Economie et espace, essai d'intégration du facteur spatial dans l'analyse économique*, SEDES, Paris;
- PERRY C.A. (1929), *The Neighbourhood Unit 7, Neighbourhood and Community Planning. Regional Survey of New York and its Environs*, New York;
- PETREA D. (1998), *Pragurile de substanță, energie și informații în sistemele geomorfologice*, Edit. Universității din Oradea, Oradea;
- PIATIER A., (1956), *L'attraction commerciale des villes ; une nouvelle méthode de mesure*, Rev. Jurid. et écon. du Sud Ouest, 4;
- POLESE M., WOLFE J. M. (Eds.), (1995), *L'urbanisation des pays en développement*, Paris: Economica, 529 pages;
- PROST M.A., (1965), *La hiérarchie des villes en fonction de leurs activités de commerce et de services*, Paris;
- PUMAIN D., OFFNER J.M., (1996), *Reseaux et territoires. Significations croisées*, Editions de l'Aube, Paris;
- RADEFF A., (1996), *Du café dans le chaudron. Economie globale d'Ancien Régime (Suisse occidentale, Franche-Comté et Savoie)*, Lausanne;
- REILLY W. J., *Methods for the study of retail relationships*, Univ. of Texas Bul., 2944, 1929;
- REYNAUD J.-E., (1841). Villes. in : Leroux, P.-H. & J.-E.Reynaud. *Encyclopédie nouvelle ou dictionnaire philosophique, scientifique, littéraire et industriel offrant le tableau des*

- connaissances humaines au XIXe siècle. Par une société de savants et de littérateurs*, Paris, t. 8, p. 670-687;
- ROCHEFORT M., (1960), *L'organisation urbaine de l'Alsace*, Paris.
- RÖSSLER M., (1989B), *Applied geography and area research in Nazi society: central place theory and planning, 1933 to 1945*, Environment and Planning-D-Society and Space, Vol. 7, No. 4, pp. 419-431;
- SANDU D., (1987), *Dezvoltarea socioteritorială în România*, Editura Academiei, București;
- SANDU D., (1999), *Dezvoltare și sărăcie în satele României*, Sociologie Românească, 1999, 4, 117-138;
- SASSEN S., (1996), *Losing control: sovereignty in an age of globalization*, Columbia University Press, New York, SUA;
- SMAILES A.E., (1944), *The Urban Hierarchy in England and Wales*, Geography, 29, pp. 41-51;
- SOMBART W., (1902), *Der Moderne Kapitalismus*. Munchen and Leipzig, Germany: Duncker und Humboldt. Translated in A. C. Littleton and B. S. Yamey (editors). Studies in the History of Accounting, Introduction (Homewood, IL: Richard D. Irwin, Inc., 1956), 1-13;
- THOMAS J., (1996), *Le Temps des foires. Foires et marchés dans le Midi toulousain*, European History Quarterly, 26, pp 156-158;
- TINBERGEN J., (1964), *Sur un Modele de la Dispersion Geographique de L'Activite Economique*, Revue d'Economie Politique, Numero special, pp. 30-44
- ULLMAN E.L., (1954), *Geography as Spatial Interaction*, Committee on Regional Economic Analysis, Interregional Linkages, Berkeley, pp. 63-71;
- ULLMAN E.L., (1958), *Regional Development and the Geography of Concentration*, Papers and Proceedings of the Regional Science Association, pp. 179-198;
- WARDENGA U., (1996), *Emil Meynen. Annäherung an ein Leben*, Geographisches Taschenbuch 23, 1995-1996, p. 18-43;
- *** <http://dumitru.sandu.googlepages.com/>

Submitted:
March 15, 2010

Revised:
September 7, 2010

Accepted:
October 15, 2010

Published online:
November 26, 2010