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RECENT DEVELOPMENT OF RURAL SETTLEMENTS IN NORTHERN PART OF BELGRADE PERIURBAN SPACE

Abstract: Fringe areas of urban regions increasingly occupy the attention of contemporary urban-geographic research. The focus of this paper are rural settlements of suburban space, from the aspect of their demographic and functional transformations. One of the scientific goals is to point – through populational and demo-social indicators – to the impact and spread of urban transition from the periurban to the rural zone, which means spreading of (Belgrade) urban region as well. The first part of the paper defines the rural-urban belt as a complex physical space with complementary social, economical and spatial elements. The second part of the paper is a case study of villages in the northern part of Belgrade metropolitan area (on administrative territory of Vojvodina province), which will point to demo-functional indicators of recent urban transition. Transition of periurban space can be spatially reflected as changes in land use, e.g. transformation into periurban agricultural area. Methods for estimation of the level of urban and functional development of the mentioned rural settlements will be applied in the paper. The results will show that the group of the studied rural settlements demo-functionally fits into Belgrade urban region.

Key words: suburbanization, rural settlements, urban transition.

Determining of periurban area

Closeness of big city is, undoubtedly, starting device of great transformations. Each settlement which exists in its vicinity succumbs to its influences, and area between the city and village is the area of intense inter-actions and transformations. City effect onto surrounding area singled out zones which were differentiated depending on closeness to central settlement. So, the zones within periurbia can be mutually recognized according to degree of functional relations' development, character of changes in population's profesional structure, intensity of daily migrations, degree of agrarian soil transformation, etc. Area in which there are no urban influences or in which they are in the scope that doesn't disturb neither agrarian landscape nor agrarian function, is in scientific terminology known as *rural continuum*. It is not static area because "urban tissue springs up, spreads and bites into remains of agrarian life" by penetration of urban elements (Lefevr, 1974). Agrarian zone is being shaped under urban influences, gets heterogeneous spatial structure and modifies itself into *rural-*

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urban continuum. That is “sensitive” area, which urged urban geographers to find numerous theoretic postulates. According to British theoreticians Lewis and Maund (1976), rural-urban continuum represents transitional zone which is not exclusively of neither rural nor urban function. Transitional zone or transitive zone has been described as environment where city influences are economically and socially the most influential. Thomas (1978) considers that rural-urban continuum represents the area in which agriculture has weak competitive position and where agricultural areas are gradually being fragmented into urbanly based purpose. Agricultural territories, specially those tightly connected to important traffic corridors, with spreading of urban influences, become transitional area which is being determined in geographic literature as “rural-urban continuum”, “rural-urban zone” or “rural-urban ring”. English urban geographer Thomas (1978) has payed special attention to determination of rural-urban zone, and extracted following terms out of geographic literature: “limited fringe”, “extended fringe” (McKain, Burnight, 1953), “suburban fringe zone”, “outlying adjacent zone” (Reinemann, 1960), “inner and outer fringe areas” (Wissink, 1962), “rural non-farm”, “rural farm” (Duncan, Reiss, 1956), “true fringe”, “partial fringe”, “adjacent rural townships” (Myers, Beegle, 1947). In any case, each of these terms designates city influence on surrounding area and spatial changes which each city brings with itself.

Breach of non-agrarian functions into rural settlements spatially reflects on changes regarding use of agricultural soil. Until recently, strictly agricultural soil which had had uniform purpose, changed its original function due to disperse influences of urbanization. In rural-urban area, elements of urban soil interlace with rural ones, characterized by smaller properties, intense agrarian production, daily migrations, smaller population density and fast construction of residence objects (Vresk, 1990).

Rural-urban zone is complex physical area, which is difficult to define and determine spatially, because it implies complementarity of social, economic and spatial elements. Of all indicators which determine their extension, the most commonly used are share of urban and agricultural population, structure of active population, way of soil exploitation, daily migrations of population, etc.

English urban geographer Carter (1995) separates three aspects within studying of rural-urban zone:

- 1) Zone as specific physical area of city region, which is recognizable due to its specific soil exploitation.
- 2) Meaning of area where urbanization violates rural space and where conflicts occur between the ways of urban and rural life style.

3) Influence of urban expansion onto agricultural soil.

The same author states that all three aspects represent examples of spatial transition which manifest themselves through three transitional phases:

1. Interior zone, which is the closest to city agglomeration, has the most intense urbanly oriented spatial transformations.
2. External ring is basically with rural characteristics of the area in which infiltration of urban elements has just started.
3. "Urban shadow" is area behind external ring in which rare examples of non-agrarian elements and non-agrarian population occur occasionally, represented through examples of daily migrants towards city.

Rural-urban continuum can be characterized by following processes: 1. dis-economy in development of surrounding area and city itself, 2. variability and instability within territorial concept of soil exploitation, 3. prevailing of cheap residing 4. decreasing of agricultural areas and 5. frequent changes in the structure of area purpose (Stamenkovic, Bacevic, 1992).

Instability of soil exploitation means different speculations, which make the soil to frequently change its purpose. It is certain that agricultural soil that once had changed its purpose and entered the field of construction, doesn't return into original agrarian form of exploitation. Infiltration of urban elements into rural area mainly also marks abandoning of agricultural soil. It is being divided up, chopped up and converted most commonly into residing (week-end), production or business lots. The process can be prompt, because soil can be easily capitalized and enables different exploitation. That is the main cause of heterogeneous spatial structure within city environment. Generally speaking, transitional rural-urban zone represents transitional zone of a city, and transformations themselves within change of soil exploitation are useful appearances "which can have influence on revitalization of rural area and contribute in great amount to diversity and bio-diversity of rural areas" (Djordjevic, 1999).

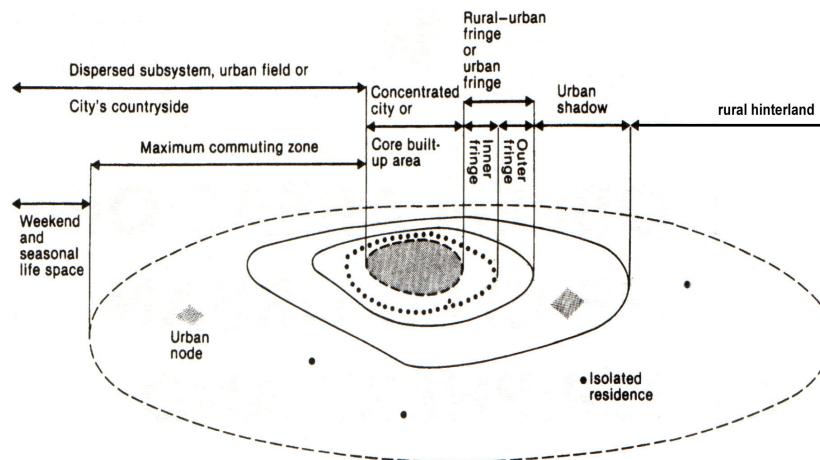


Figure 1. The Form of the Regional city, according to Brayant (Carter, 1995)

Dynamics of rural settlements development in northern part of Belgrade periurban space

Main point of city regions' modern studies is focused on urban-geographic transformations of their marginal parts and territorial-functional scope of urban systems. Therefore, in this paper spatially-functional spreading of Serbian capital would focus itself on certain rural settlements of Belgrade periurban space and their demo-functional transformations. Rural settlements of Southern suburban zone of Belgrade have been thoroughly studied from geographic point¹, therefore this paper would treat group of rural settlements which doesn't enter into administrative, but enter into its functional domain, so they have been subject of huge settlement transformations during last couple of years.

Population is "sensitive" geographic category which reacts to action of socio-economic processes in the most prompt way. Therefore, demographic indicators are very explicit instrument in studying of spatially-functional transformations of each area. Demographic movements, i.e. quality population changes, mainly

¹ Ribar, Cavric, Ljesevic (1993): Spatial development of rural settlements in southern suburban Belgrade zone and process of their fitting into urban Belgrade region, Collection of papers No. XLI, Geographic faculty, Belgrade, 1993.

occur within initial phase of urban transition, which further “infect” other aspects of transformations: functional, physiognomical, morphological, spatial, etc.

Re-structuring of active population into non-agrarian activities, daily migrations of workers and students, changes in exploitation of agrarian soil, are processes during which rural settlements more and more lose their rural identity. Modern demographic, functional and spatial development of rural settlements is in close connection with their geographic location, traffic connection and closeness of bigger cities.

Primary starting point in the paper is recent development of Belgrade agglomeration which widens field of influence into zone of rural settlements (rural continuum). In order to “justify” this hypothesis, demo-economic indicator has been taken into account: share of active population within primary activities. Comparative method has been used to carry out analysis about active population’s contribution within primary activities in rural settlements which belong to Srem part of “Belgrade gravity meso-area” (Bukurov, 1970)². Analysis of the employed’s share within primary activities in rural settlements of Srem got to conclusion that, together with increase of distance from Belgrade, number of the employed within primary activities increases as well. Rural settlements of Stara Pazova municipality (specially Belegis, Vojka and Krnjesevci), which are on administrative border with Belgrade agglomeration, enter the group of mixed settlements, with contribution of workers in primary activities with less than 50%. This group of rural settlements can represent transitional phase between city and suburban settlements on one hand, and purely agrarian ones on the other, whose contribution of the employed in primary activities is bigger than 50%. There is no village in Stara Pazova municipality with more than 50% of the active in primary activities, whereas villages of neighbouring municipalities (Pecinci and Indjija) have bigger number of villages whose contribution of the active in primary activities is over 50%.³ Cause of such population distribution that perform primary activities is the closeness of Belgrade, which induced daily mobility of active population from those villages. One also shouldn’t neglect economic transition that breached through from periurban (Nova and Stara

² According to Bukurov (1970), municipalities Stara Pazova, Pecinci and Indjija belong to Belgrade gravity meso-area, out of which each of them forms local gravity micro-area.

³ In Indjija municipality villages with over 50% of employed in primary activities: Maradik, Novi Karlovci, Novi Slankamen, Slankamenacki vinogradi. In Pecinci municipality: Brestac, Obrez, Popinci, Prhovo, Sibac, Sremski Mihaljevci, Subotiste. In Ruma municipality: Budjanovci, Grabovci, Dobrinci, Donji Petrovci, Kraljevci, Mali Radinci, Pavlovci, Stejanovci.

Pazova) to rural zone of Stara Pazova municipality (Vojka, Belegis, Krnjesevci). Namely, according to Grcic (1993) there are “amortization centers” on exit points from Belgrade and attractive traffic directions, that mitigate mechanical population influx, but can also be centers of Belgrade's industrial unburdening.

Breach through of non-agrarian activities is relevant factor of village's functional transformation. Favourable position of these villages related to employment centers and good traffic connection has influence in the way that good part of active population decided in favour of daily travelling to working place. That is important fact which has contributed to village perseverance, stopping of permanent migration into city centers, but also to the fact that village became active member of geographic environment which work and accumulate values. In territorially-functional structure of peri-urban space, Ilic (1970) classified rural settlements seized by urbanization and market economy into suburban agricultural area or area of constant commercial contacts.

In further research of rural settlements of periurban Belgrade area, villages in Northern part of Belgrade metropolis, which also don't enter into its administrative area, were taken into consideration. In fact, those are settlements that integrate themselves into functional metropolis area of the capital, which has been defined as Belgrade “macro-region” in the Draft of general urbanistic plan of Belgrade 2021. (2001). This urbanistic study defines macro-region as “wider area in which mutual functional relations of smaller cities from the area with Belgrade, city-home, has been registered” (PGUPB, 2001).

Administrative periurban Belgrade area includes parts of Zemun, Vozdovac, Palilula and Cukarica municipalities, and integrates 26 settlements in which 155.000 inhabitants lived in 2002. Complex urbanly-geographic studies should confirm whether following municipalities: in Banat part Pancevo, in Srem – Stara Pazova, Indjija, Pecinci and Ruma, in Kolubara part – Ub, and in Sumadija part Smederevska Palanka and Smederevo, could join metropoliten area of Belgrade in interestly-functional view, apart from 16 municipalities of administrative area (Tosic at al, 2004).

Rural settlements included in this paper belong to Vojvodina municipalities that are taken into Belgrade macro-region (Stara Pazova and Pancevo municipalities) and are spatially-functional complementary to Belgrade administrative area. Both municipalities represent local urban systems of different hierarchy level. Due to undeveloped internal functions, Stara Pazova is strongly integrated to Belgrade urban system on spatially-functional way, contrary to Pancevo urban system, which has developed working function due to developed internal

functions and bigger functional capacity, so local population is more referred to Pancevo as central settlement. In this part of Belgrade periurban area, according to demographic, functional, physiomic criteria, suburban settlements has differentiated from village ones. So, geographic literature specially treats suburban settlements Jabuka, Starcevo and Kacarevo (Pancevo municipalities) and Stari and Novi Banovci and Nova Pazova (Stara Pazova municipalities) related to rural settlements of these municipalities.

One of scientific aims in this paper, with help of populational and demo-social indicators, is to point at breach and spreading of urban transition from suburban (periurban) into rural zone, thus spreading of Belgrade urban region. Suburban settlements were focal points of secondary urbanization during 1970's and 1980's of 20th century. They were characterized by expansive increase of population, followed by mechanical influx, intense daily migrations and monofunctional (mainly residing) settling development. Today suburban settlement zone is seized by tertiar phase of urbanization, characterized by re-distribution of active population from secondary to servicing-tertiar activities.

Urban transition in the rural zone is being manifested through active population (de-agrarization) from agrarian into non-agrarian activities, but also through urban, morphological and functional transformations in settlements. In period between last two censuses (1991-2002) decrease in part of the people working in primary activities has been noticed in all settlements, with greatest difference in Glogonj settlements of Pancevo municipality, where de-agrarization process during above mentioned period had been the fastest (table 1). Truthfully, that process has not been of same intensity as the one during second half of 20th century. However, what characterizes transfer of the employed from agrarian into non-agrarian activities at the very beginning of 21st century is privatization and legal real-estate relations which made transition of formerly socially owned agricultural properties into hands of private owners possible. Those processes mark internal re-organization, discharges of technological surplus of labour and re-structuring of working power from non-agrarian into group of secondary and tertiar activities.

Serbia in general is facing the problem of depopulation; however, role of Belgrade as half of concentration has influenced the increase in number of population in its periurban parts. Last census in 2002 has shown that mechanical influx of population hadn't been aimed only in direction of expansive suburban settlements, but rural settlements in the surrounding area of Belgrade also become attractive to migrate to. Nevertheless, refugee population has

significantly contributed to mechanical influx, specially to rural settlements in Srem related to ones in Banat (table 1).

In urban-geographic researches socio-economic structure of population is oftenly being used as methodological approach in determining of settlement's level of urbanisation. Following variables are being used for its determination: share of active population that performs occupation, share of active agricultural population within total of active population and share of households that are without agricultural farms (Tosic, 1999). Values of these variables for each village have been put into table 1. Settlement's level of urbanisation has been divided into five levels: 1. Urban, 2. More urbanized, 3. Less urbanized, 4. On the threshold of urbanization and 5. Rural settlements. It has been concluded, by method of separation of settlements according level of urbanizing⁴, that six rural settlements within Belgrade periurban area belong to other, i.e. higher level of settlement urbanizing, yet villages Dolovo (Pancevo municipality) and Krnjesevci (Stara Pazova municipality) due to high part of active population in agriculture, have border values towards lower level of urbanization. Still, according to socio-economic indicators, above mentioned settlements don't belong to rural ones. Closeness of Belgrade and its gravitational effect has certainly made influence on structure of active population, decrease in share of active agricultural population and share of households with agricultural farms.

For example, determining of urbanization level of suburban settlements in NW part of Belgrade metropolis (Stara Pazova municipality) has shown that group of three suburban settlements (Stari and Novi Banovci and Nova Pazova) belong to first i.e. the highest level of urbanization. That means that socio-economic indicators in the northern part of Belgrade functional space have classified settlements of the suburban zone into "urban type" and settlements of rural zone into type of "higher level of urbanization".

⁴ 1) *City*: share of active agricultural population within total of active population ≤ 10 , share of active performing occupation ≥ 70 , share of households without agricultural farm ≥ 70 .

2) *More urbanized*: share of active agricultural population within total of active population ≤ 15 , share of active performing occupation ≥ 70 , share of households without agricultural farm ≥ 20 .

3) *Less urbanized*: share of active agricultural population within total of active population ≤ 30 , share of active performing occupation ≥ 50 , share of households without agricultural farm ≥ 10 .

4) *On the threshold of urbanizing*: have to fullfill two out of three conditions.

5) *Rural settlements*. Do not fullfill any of the conditions.

“Within complex process of socio-economic transformation, transitional phases of urbanization change successively, which is spatially and timely demonstrated by demographic, functional and physiognomic changes” (Tosic, 1999). So the above mentioned researches have shown that rural settlements in Northern part of Belgrade functional area represent part of rural-urban composition in which processes of urban transition have already started. According to figure 1. those are villages of external zone of rural-urban continuum, where there is decrease in share of the active in agriculture, where non-agrarian activities breach through, where soil oftenly change its purpose (industrial zones at exit from Belegis, Vojka, Krnjesevci settlements) and where there is high share of daily migrants within total of active population⁵. For example, high share of workers-daily migrants in Vojka village (Stara Pazova municipality) classifies that settlement into suburban type.

Table 1. Demo-social indicators of urbanization

Settlement ¹	Number of population 2002.	Index of change in No. of popul. 1991/2002	Share of active populat. in primary activities 1991.	Share of active population in primary activities 2002.	Share of households without agricultural farms ² (in %)	Share of active agricult. within total of active populat. (in %)	Share of the employed performing occupation ³ (in %)
Belegis	3116	122.6	44.2	39	66.6	25.4	71.5
Vojka	5012	109.4	32	30	50.8	21.6	75.7
Krnjesevci	1025	131.6	50.8	44	59.2	36.7	84.6
Glogonj	3178	96.7	25.8	15.2	54.4	13.7	64.9
Ivanovo	1311	94	37	32.7	44.5	25.6	78.6
Dolovo	6835	102	51.2	46	61.8	40	70

Source: 2002. Census – Comparative review of number of inhabitants, book 9, RSB, Belgrade, 2003
1991. Census – Activity and sex, book 7, FSB, Belgrade, 1994.

Remark: ¹Villages Belegis, Vojka and Krnjesevci belong to Stara Pazova municipality, and Glogonj, Ivanovo and Dolovo to Pancevo municipality, ²in total number of households, ³in total of active population

Together with transformation of socio-economic structure, rural settlements also change their functional orientation. From purely agrarian, they turn away to polyfunctional development, both through re-structuring of active population towards non-agrarian activities, but also through market affirmation of rural

⁵ Data about part of workers-daily migrants for settlements Belegis 46,5%, Krnjesevci 28,0% and Vojka 67% (2002) were obtained by special processing of data from Republic Statistics Bureau 2004.

settlements. Although one should bear in mind that active population of those rural settlements is mainly represented by daily migrants who work in neighbouring employment centers (Belgrade, Pancevo, Stara Pazova). Separation method of functional type of settlement⁶ has concluded that no rural settlement belong to purely agrarian one. As settlements with agrarian-service function (Vojka, Krnjesevci and Dolovo), agrarian-industrial (Belegis), industrial-service (Glogonj) and industrial-agrarian (Ivanovo), they get character of mixed suburban settlements. These rural settlements go through evolutionary path of functional transformations like settlements of suburban zone did during 1970's and 1980's of the last century, which points out to process of successive spreading of urbanization. Spreading of urbanization process has been transferred to neighbouring zone of rural settlements, therefore spreading of rural-urban zone, according to Carter (1995), actually "presents metropolitan growth".

Summary

Recent urban-geographic development of rural settlements that are functionally (but not administratively) an integral part of Belgrade metropolitan area, includes the following processes:

- **Demographic:** mechanical inflow and greater concentration of population, as well as qualitative changes in demographic, especially economic structures of population;
- **Functional:** purely agrarian settlements have turned into mixed type of settlements; In the villages of the suburban zone, agriculture is not a dominant function any more; By tertiarization of rural economy, the dichotomy between villages and the town has diminished; Through intensive and specialized agriculture, the villages of periurban zone are turning towards (urban) market;
- **Spatial:** agricultural land changes its purpose into production-residential area; Rural settlements situated close to the major traffic corridors become attractive as locations of industrial zones.

By initiating demographic transformations of the rural zone, gravitational impacts of Belgrade have contributed to its functional and physiognomic alterations, which is an aspiration of balanced urban-regional development of the Capital.

⁶ Method of separation of functional type of settlement can be seen in paper Tomic (1999): Spatially-functional relations and connections in nodal region of Uzice; Ph.D work, Geographic Faculty, Belgrade.

The future urban-geographic research of Belgrade metropolitan area should be systematically expanded to its entire functional area. The results of the research would point to a disproportion between the northern (Vojvodina) and southern (Sumadija) parts of Belgrade functional (non-administrative) area. It is one of the complex questions of unbalanced urban-regional development of the Serbian capital, which is not in the domain of this paper. It is related to administrative borders between central Serbia and the province of Vojvodina, in the northern part of the Belgrade metropolitan area. A wide zone of non-agrarian settlements is being formed around big centres. Therefore, the future geographical research will face a complex task of studying the courses of urban transition, which is the main initiator of a number of processes: transformation of qualitative structures of population, development of the commuting process, functional transformation of settlements (especially tertiarization), moving of the present and formation of future industrial facilities, and other urban-geographic processes in periurban area.

References and sources

- Bukurov B. (1970): *Gravitacione sfere vojvodjanskih gradova* (Gravitational Spheres of Vojvodina towns). Posebna izdanja SANU, Spomenica knj. 44, p. 119 – 139, Beograd.
- Carter H. (1995): *The Study of Urban Geography*. Arnold, London.
- Grcic M. (1993): *Razvoj industrije u suburbanoj zoni Beograda* (Development of industry in Belgrade suburban zone). Zbornik radova geografskog fakulteta, br. XLI, Geografski fakultet, Beograd, p. 259-268.
- Djordjevic D. (1999): *Kvazi – poljoprivredno zemljiste u juznoj prigradskoj zoni Beograda* (Quasi-agricultural land-use in southern peri-urban zone of Belgrade). Glasnik SGD, sveska LXXXIX, br. 1, Beograd, p. 21-31
- Ilic J. (1970): *Karakteristike funkcionalnih odnosa izmedju grada i okoline sa posebnim osvrtom na SR Srbiju* (Characteristics of functional relations between town and its surroundings, with particular reference to Serbia). Stanovnistvo 3-4, Institut drustvenih nauka, Centar za demografska istrazivanja, Beograd. p. 167 – 187.
- Lefevr A. (1974): *Urbana revolucija* (Urban revolution), Nolit, Beograd.

Lewis G, J. Maund D. J. (1976): The Urbanisation of the Countryside: A Framework for Analysis. *Geografiska Annaler*, Series B, Human Geography, Vol. 58, Swedish Society for Anthropology and Geography, p. 17-27.

Popis stanovništva 2002. godine, Poljoprivredno stanovništvo prema aktivnosti i polu, knj. 7, RZS, Beograd, 2004.

Popis 1991. godine, Stanovništvo – Aktivnost i pol, knj. 7, SZS, Beograd, 1994.

Prednacrt generalnog urbanistickog plana Beograda 2021, Urbanisticki Zavod Beograda, Beograd, 2001.

Stamenkovic S, Bacevic M. (1992): Geografija Naselja (Geography of settlements). Geografski fakultet PMF, Beograd.

Tosic D. (1999): Prostorno-funkcijski odnosi i veze u nodalnoj regiji Uzica (Spatial-functional interaction in Uzice nodal region). Doktorski rad, Geografski fakultet, Beograd.

Tosic B, Matijevic D, Lukic V. (2004): Dunavsko-moravski koridor – Naselja (Danube-Morava Corridor – Settlements). Posebna izdanja SANU, knjiga 62, Beograd.

Thomas D. (1978): The Urban Fringe: Approaches and Attitudes. Suburban Growth – Geographical Processes at the Edge of the Western City, Edited by James H. Johnson, London.

Vresk M. (1990): Osnove urbane geografije (Basics of Urban Geography). Skolska knjiga, Zagreb.