Comprehensive spatial differentiation of territorial communities: case of Zhytomyr region

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ABSTRACT

Goal of the research. In 2014 in Ukraine the massive decentralization reform has been initiated. It aimed to transform many single administrative units into much larger territorial communities. Spatial differentiation of the newly consolidated communities by values of their proximity to large cities and urban areas within the case of Zhytomyr region is the goal of the article.

Methods of the research. Zhytomyr region is one of the most successful in Ukraine on implementation of the administrative reform, decentralization and best practices of the communities' integration. The region had been selected for the in-depth study taking into account its central location, economic situation and the environment. Data of the State statistics agency of Ukraine, governmental and non-governmental institutions and Google Maps was applied to conduct the research and identify the territories' groups.

The research results. Aiming to perform spatial typology of the newly consolidated territorial communities we differentiated them depending on their proximity to cities and other urban centers firstly. Consequently three types of the communities have been defined: neighboring, relatively remote, and faraway. Distance of the communities to urban centers relates with their area and people size: the closer a territorial unit is located to the city, the smaller is its area and population. Other words, the proximity of a community to the city determines its economic capacity much more than its population and area. Statistical relations between duration of the communities' consolidation and their spatial types prove the faraway and relatively remote communities have been united earlier than the neighboring. Taking into account the average number of settlements belonging to the one consolidated community it is revealed the closer to the regional center communities include less number of settlements. Two-dimensional classification of the communities by their proximity to regional and rayon centers confirms communities located close to cities and towns have better opportunities for the development.

Novelty of the research results. The presented methodological approach to comprehensive differentiation of the territorial communities can be applied to identify their challenges, threats and prospects. For this purpose, the algorithm is proposed which combines indicators of spatial differentiation of rural areas, their economic status, social infrastructure, and the environment.

Practical significance. The proposed methodological approach to spatial differentiation of rural territories is aimed assisting representatives of the communities, local self-government bodies and state authorities to develop and refine local strategies and programs, update coherent plans and identify target communities for certain projects.

Keywords: power reform, decentralization, territory, spatial differentiation, consolidated territorial community, economic capacity, methodology, algorithm.

Introduction. Till the present time Ukraine is composed of 25 regions. The regions consist of 490 sub-regions (rayons), which include almost 30 thousands of single administrative units (cities, towns, and villages). In 2014 following political shocks and redevelopment of the state its administrative structure started to be transformed too. Soon the reform of power decentralization has been initiated. Expectedly in a few years over 1300 new territorial communities would be consolidated from single administrative units like towns and villages [1]. Up to date in Ukraine 924 territorial communities have been consolidated. That means over 70% of Ukrainians live in such communities which area reaches 40% of the state. Foreign experts recognize the consolidation process goes up pretty fast and has many

chances to finish up soon enough. The leading regions are Zhytomyrs'ka (55 newly consolidated local communities), Chernigivs'ka (45), Zaporiz'ka (48), Dnipropetrovs'ka (62), and Khmelnyts'ka (47) [2].

Being under transformation current techniques of collecting data on people living in the new communities in Ukraine do not provide much information about spatial differentiation of the involved areas. In particular, it is hard to find out how the territories differ, what is their demographic status, social, economic situation and so on. For the time being statistic information about the newly consolidated local communities is limited by their official profiles and sporadic publications in the national mass media. For a researcher it makes certain diffi-

culties if assessing the status and flow of the decentralization reform. Lack of the statistics as well impedes performance of the territorial communities' differentiation by social, economic, spatial and other indicators. However such the differentiation has to be the primary factor for policy making and national budgeting.

Review of recent researches and publications. Novosak and others revealed the socioeconomic and environmental differences of rural areas in the Czech Republic depending on support of local action groups (LAGs) by the LEADER program. Two crucial dimensions of the rural differentiation were tackled, namely rural aspects and socioeconomic disadvantages. The methodology involved the extraction of rural disadvantage factors (exploratory factor analysis), and the creation of the rural areas' clusters (K-means clustering). The study revealed LAGs may be a highly relevant place-based instrument of the rural development [3]. M. Chrzanowska and M. Zielinska-Sitkiewicz evaluated the spatial differentiation of rural areas in Mazowieckie Province in Poland and the linear ordering was used to determine the level of socioeconomic development supplied with the synthetic measures. The results of the study were consistent with core-periphery theory [4].

Because of rapid industrialization and urbanization in Asia some Chinese academicians pay more attention on narrowing of societal, economic, life, and environmental gaps between urban and rural areas. For the goal D. Chen and others contributed into elaboration of urban-rural equalized development (URED). They established an appraisal indicator system consisting of 17 variables that described spatial allocations, economic development, social services, quality of life, and ecological environment [5]. Tao and others analyzed the spatial differentiation of the idle rural residential land (IRRL) and with the quantitative research discovered crucial changes in the human-land relationship during rural development. They opposed idle rural residential land and metropolitan suburbs and differentiated them by the method of geographically weighted regression. Practically it used to show how the government should enhance the positive interaction of industry, population and land to promote the coordinated development of urban and rural areas [6].

Kriauciunas and Burneika underlined that after the post-communist period the general transformation of rural areas in Lithuania was deeply influenced by the processes of peripherisation and decreasing economic importance of rural places. With the empirical research mostly based on statistical data analysis the authors concluded that many rural areas close to metropolitan centers were transformed into suburban ones; the rural settlements in recreational areas have been transformed into resort areas; and small peripheral rural settlements were losing population and social infrastructure at very high pace [7].

In Ukraine academic researches on rural development often concern to elaboration of concepts and theoretical grounds on how to integrate structural elements of rural territories into spatial systems and either it is inherent with the decentralization reform [8-10]. It makes more and more emphasis on rural communities which are a driver of the rural development instead of being an element of administrative and territorial structures, self-organized group of people who inhabit a common area and synchronize their efforts in order to improve their economic and social status. Many authors identify rural areas as multifunctional natural, social and economic system with specific quantitative, qualitative, structural, environmental and other features [11, 12]. Remarkably most definitions of rural territories endeavor to touch as many aspects of the territories as possible. Despite the wide variety and multifaceted nature of the definitions they lack clarity if identifying essential and specific features of rural areas. As the result the methodology of rural areas differentiation in Ukraine is vague and does not relate with the European academician practice.

Ukrainian academicians in economic geography made many efforts to develop spatial modeling and planning and research the relevant issues. They are K. Niemets advancing approaches and methods of the spatial analysis [13], K. Mezentsev and G. Pidgrush-ny analyzing social and spatial inequality in Ukraine [14], L. Rudenko and S. Lisovskyi considering European practice and techniques of the spatial differentiation [15], L. Goroshkova and O. Lisovska modeling advanced national administrative and territorial structure for better life and welfare in areas [16], E. Maruniak, O.Golubtsov and V. Nagirna reshaping rural communities and spatial planning in Ukraine [17, 18]. All of them added a lot to methods and approaches of the comprehensive classification of areas and territories.

Goal of the paper. Many Ukrainian and foreign researches – firstly regional economists – as well contributed into spatial differentiation of territories by social and economic indicators. M. Averkina, V. Udovychenko and V. Chemerys [19, 20] study spatial differentiation of urban and rural settlements and areas. Being aware of high significance of the administrative reform in Ukraine I. Storonianska, V. Kravtsiv, and S. Shultz investigate how the distinguished territorial communities manage their finances and develop budgets [21, 22]. Even so ways of how the newly consolidated communities use and manage natural resources within their territories have to be studied thoroughly and certain parame-

ters of the areas have to be scrutinized as well. Multi-criteria spatial differentiation of rural areas in Ukraine is the goal of the article.

Methods and approaches to the research. To achieve the goal and considering economic applicability of the research's results we applied the multi-criteria approach to the definition of rural areas. It includes physical space (landscapes) for settlements and infrastructure; natural environment with dominating pastures, forests, mountains, deserts; low population density (5-10 thousand people per 1 sq.km); agri-industry makes crucial impact into local economy; high transaction costs due to large distances to administrative and industrial centers and others [23, 24]. The territorial approach is based on ideas of the integral development of rural areas taking into account environmental, climatic, demographic, social, and economic differences and shifting the role of agriculture to other economic sectors [25]. Within the approach several concepts have been developed like rural regional development and other [26].

Consequently we defined the following research tasks: 1) the classification of rural areas depending on their distance to urban centers by ordinal statistical methods for setting math limits of the territorial groups variables; 2) the dual spatial differentiation of the rural communities by values of their proximity to large cities and other urban areas in Zhytomyr region; 3) the construction of multi-criteria algorithm for the comprehensive differentiation of rural areas evaluating their spatial, social, economic and environmental status; 4) the interpretation of the research results and it's use for the local policy development.

From the very beginning of the decentralization reform the velocity of the communities' consolidation was not even. In 2016 the number of the newly consolidated communities grew up on 230 per cent comparing to the previous year, in 2017 – on 182 per cent, in 2018 – on 125 per cent, and in 2019 – on 58 per cent. It means the rapidity of the communities' consolidation declines the every year. With t n the current period of time the qualitative attributes of the communities have more significance than their number or the rate of the consolidation. Artificial, sporadic, or unreasonable formation of the communities will complicate drastically their managing in the future and deprive them of many opportunities for the development.

Interpretive tendencies of the communities' consolidation alter as well. For the time being it should be concluded there is the next one circle of the reform. The communities which earlier rejected to join to others now will to consolidate with prosperous and promising units. The reason is as soon as a community has emerged it gets much more author-

ities and funds. Therefore it starts reconstruction of public basic physical and organizational equipment and facilities (e.g., buildings, roads, power and water supply), renovation of sewage systems, waste composition and introduction of social and environmental programs. Observing the advancement neighboring villages and towns would like to join to prosperous and earlier consolidated communities instead of initiating to form a new one. So the communities' enlargement proceeds.

Zhytomyr region is one of the most successful with regard to carrying out of the reform and best practices of the communities' consolidation. Taking into account the location, economic and environmental situation, variable experiences and interim results of the reformation, the region has been chosen for the case study. Firstly the communities' territories have been differentiated by proximity to large cities and other urban centers. Data of the State statistics agency of Ukraine, Press-center of "Decentralization" initiative [27, 28], Central election commission of Ukraine and Google Maps was used to assess distances from centers of the communities to Zhytomyr city and districts (rayons) by main car roads.

The first step of the comprehensive methodology provides classification of rural areas depending on their distance to urban centers. For the typology ordinal statistical methods have been applied [29]. In order to set math limits of the territories' groups (neighboring, relatively remote, and faraway) ranges of the intervals have been calculated with the following formula:

$$i = (X_{\max} - X_{\min}) / n,$$

where i is an interval's range;

$X_{\max}$ and $X_{\min}$ are maximal and minimal variables accordingly in the data set;

n is number of the groups (three of them in our case).

The research results. Basing on the combined statistic information three types of rural communities have been attributed depending on their proximity to large cities and other urban territories. Preliminary for that objective we measured distances from centers of the communities to rayon centers and Zhytomyr city (Table 1).

It is concluded that Olevska, Narodytska, and Bilokorovytska communities are the most faraway, and Teterivska, Stanyshivska, and Glybochytska communities are the most neighboring.

Average area of one neighboring to Zhytomyr city community is 250,6 km²; relatively remote – 284,7; faraway – 767,8 km². Average number of people for the identified types of the communities respectively is 8 000, 8 800 and 15 600 people. It means the proximity of territories to the large city

affects the area and population size of a consolidating community: the closer it is located to Zhytomyr, the smaller are its area size and number of people, and vice versa. It proves the community's proximity to the city results predetermines its economic capacity more than its population and area size [27]. In

Table 1

Spatial types of territorial communities depending on their proximity to the regional center (Zhytomyr city)*

Group name and its limits, km	Number of communities in the group	Group share in the total, %	Standard deviation, km	Mean, km	Variation, %
I. Neighboring (7,9 – 48,2)	15	31,2	15,9	27,6	58,6
II. Relatively remote (52,3 – 98,8)	25	52,1	13,9	75,3	18,5
III. Faraway (107,0 – 164,0)	8	16,7	18,0	129,9	13,9

*Source: classified with data [2]

Zhytomyr region relatively remote communities predominate and 25 of them make over half of all the consolidated communities, 42 per cent of their area and 47 percent of the population size. Two faraway communities of Ovruch and Olev towns are the most populated in the region.

Relevance between time of the territorial communities' consolidation and their type has been overviewed as well. It proves that faraway and relatively remote communities had been consolidated earlier than neighboring since average period of those communities existing is 19.4, 18.7 and 15.9 months accordingly. Comparison of numbers of settlements in the every type of the consolidated communities revealed that closer to the regional center communities are smaller (they have less size of the units) and vice versa. Accordingly the average number of settlements in neighboring communities is 14.7 units, in relatively remote – 18.8, in faraway – 35.8.

Earlier administrative districts (rayons) in Zhytomyr region had been pre-differentiated by their proximity to the regional center as neighboring, relatively remote and faraway and the above mentioned statistic approach have been applied. Consequent conclusion is the closer the district is located to Zhytomyr city, the more number of the communities has been consolidated there. Particularly in every the neighboring rayon 2.4 communities have been associated, in the relatively remote – 2, in the faraway – 1.8.

It is obviously that the proximity or remoteness of a territorial community to the regional center is not the only spatial parameter determining its economic positions and prospects. Distance of a community to a rayon center has to be considered as well since in towns being district centers administrative bodies, many enterprises and social infrastructures had been being concentrated before ex-USSR broke. Therefore next we classified the newly consolidated communities by their proximity to rayon centers on the three groups and with the same methodology (Table 2). As the result we identified almost half of the communities as neighboring, one third as relatively remote and one six as faraway units.

Dual spatial classification of the newly consolidated territorial communities by values of their proximity to the regional and rayon centers is the second step of the methodology. It evaluates social and economic prospects of the communities reliably and in depth. Evidently the communities close to both the regional and rayon centers are in more favorable position and have better opportunities for economic development. In return faraway by both parameters communities probably stay worse. More arguable is the situation when the first step of the spatial classification identifies a community as neighboring but the second one – as faraway, and vice versa (Table 3).

The table above shows the most communities

Table 2

Spatial types of territorial communities in Zhytomyr region depending on their proximity to rayon centers*

Group name and its limits, km	Number of communities in the group	Group share in the total, %	Group share in total area size of the communities, %	Group share in total people size of the communities, %
I. Neighboring (up to 16,5)	23	47,9	65,5	73,0
II. *Relatively remote* (16,6 – 33,0)	18	37,5	23,1	18,8
III. *Faraway* (33,1 and above)	7	14,6	9,4	8,2

*Source: classified with data [2]

Table 3

Dual spatial classification of the consolidated territorial communities
in Zhytomyr region by their spatial types*

	Type of the community	Proximity to the regional center		
		Neighboring	*Relatively remote*	*Faraway*
Proximity to the rayon center	*Neighboring*	(N-N)** Vysokivska village Hlybochytska village Hryshkovetska village Korostyshivska town Martynivska village Oliyivska village Pulynska village Stanyshchivska village Teterivska village	(R-N)** Baranivska town Bronykivska village Brusylivska village Kvitneva village Lyubarska village Popilnianska village Radomyshlska town Romanivska village Khoroshivska village	(F-N)** Yemilchynska village Luhanska village Narodnytska village Ovrutska town Olevska town
	Relatively remote	(N-R)** Vilska village Kurnenska village Slovechanska village Chervonenska village	(R-R)** Andrushkivska village Vyshevytska village Horshchykivska village Dubrivska village Irshanska village Krasnopilska village Myropilska village Novoborivska village Potiyivska village Rayhorodska village Sokolivska village Ushomyrska village Chyzhivska village	(F-R)** Kornynska village
	Faraway	(N-F)** Pishchivska village Semenivska village	(R-F)** Barashivska village Dovbyska village Chopovytska village	(F-F)** Bilokorovetska village Horodnytska village

*Source: authors' appraisal.

**Types of the communities classified by their proximity to regional and rayon centers accordingly are identified as the following:

    N-N – neighboring, neighboring; *R-N* – relatively remote, neighboring;

    F-N – faraway, neighboring; *N-R* – neighboring, relatively remote;

    R-R – relatively remote, relatively remote; *F-R* – faraway, relatively remote;

    N-F – neighboring, faraway; *R-F* – relatively remote, faraway;

    F-F – faraway, faraway.

are relatively remote (*R-R*) and neighboring (*R-R*) by both scales (13 and 9 units accordingly) as well as of the remote-neighboring (*R-N*) type (9 units). Conclusively the decision-makers should pay special attention if social and economic measures of the being developed plans are systematic and comprehensive enough in case of faraway communities (*R-F*: Barashivska, Dovbyska, and Chopovytska; *F-R*: Kornynska; *F-F*: Bilokorovetska and Horodnytska) since they are as far away as possible from both regional and district centers. It has sense to take the conclusions in account if developing the communities' strategies and supplying programs.

The third step of the methodology suggests composition of the multi-criteria algorithm for the comprehensive differentiation of rural areas evaluating their spatial, social, economic and environmental status. Methodological approach to constructing algorithm of territorial differentiation by certain parameters *per se* has been described in earlier papers (see, for example, [30]). Taking into account the developed tool of spatial differentiation of the territories we propose to use it as the algorithm of comprehensive classification of rural communities too. Taking into account the legal recommendations on how to elaborate local policy papers [31, 32], we have sorted the parameters forming the algorithm in the following blocks: spatial type, economic status, social infrastructure, and environmental situation (Figure 1).
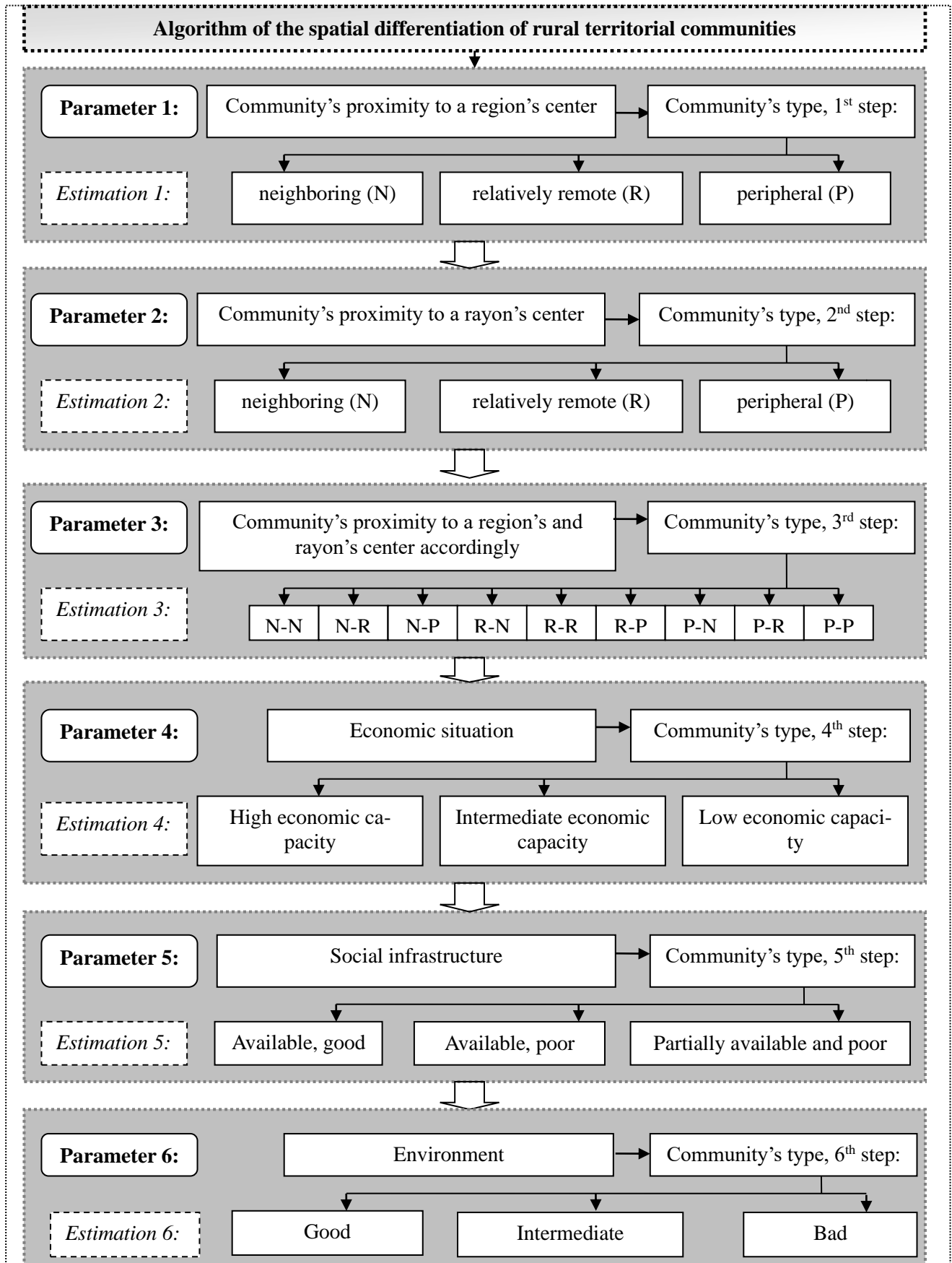
Algorithm of the spatial differentiation of rural territorial communities

Parameter 1: | Community's proximity to a region's center → Community's type, 1st step:

Estimation 1: | neighboring (N) | relatively remote (R) | peripheral (P)

Parameter 2: | Community's proximity to a rayon's center → Community's type, 2nd step:

Estimation 2: | neighboring (N) | relatively remote (R) | peripheral (P)

Parameter 3: | Community's proximity to a region's and rayon's center accordingly → Community's type, 3rd step:

Estimation 3: | N-N | N-R | N-P | R-N | R-R | R-P | P-N | P-R | P-P

Parameter 4: | Economic situation → Community's type, 4th step:

Estimation 4: | High economic capacity | Intermediate economic capacity | Low economic capacity

Parameter 5: | Social infrastructure → Community's type, 5th step:

Estimation 5: | Available, good | Available, poor | Partially available and poor

Parameter 6: | Environment → Community's type, 6th step:

Estimation 6: | Good | Intermediate | Bad

Fig. 1. Algorithm of the spatial differentiation of rural areas evaluating
their social, economic and environmental status *(authors)*

Particularly, economic situation in rural communities is appraised by total revenues per an inhabitant and budget subsidy level (ratio of basic to reverse subsidy). Currently available data on economic status of rural communities in Ukraine is shown on Figure 2.

Considering Zhytomyr region (Table 4) Oliyivska community has the largest revenue per an inhabitant (8 242 UAH), and Sokolivska community – the least (783 UAH). 32 communities of the region receive basic subsidies from the national budget, and seven have reverse subsidies. Sokolivska community receives the largest basic subsidy (44

per cent of the total revenue). Total revenues of a community per an inhabitant indicate its sovereign financial resources and abilities to pay for essential public goods. Budget subsidy level (share of basic subsidy or reverse subsidy in total revenues) specifies either a community is dependent on the national budget or not. In the first group (communities with population over 10 thousands) the highest subsidy level is 27.4% (Khoroshivska unit), in the second one (communities with population of 5-10 thousands) – 44.2% (Sokolivska unit), and in the last one (up to 5 thousands of people) – 32.3% (Martynivska unit).
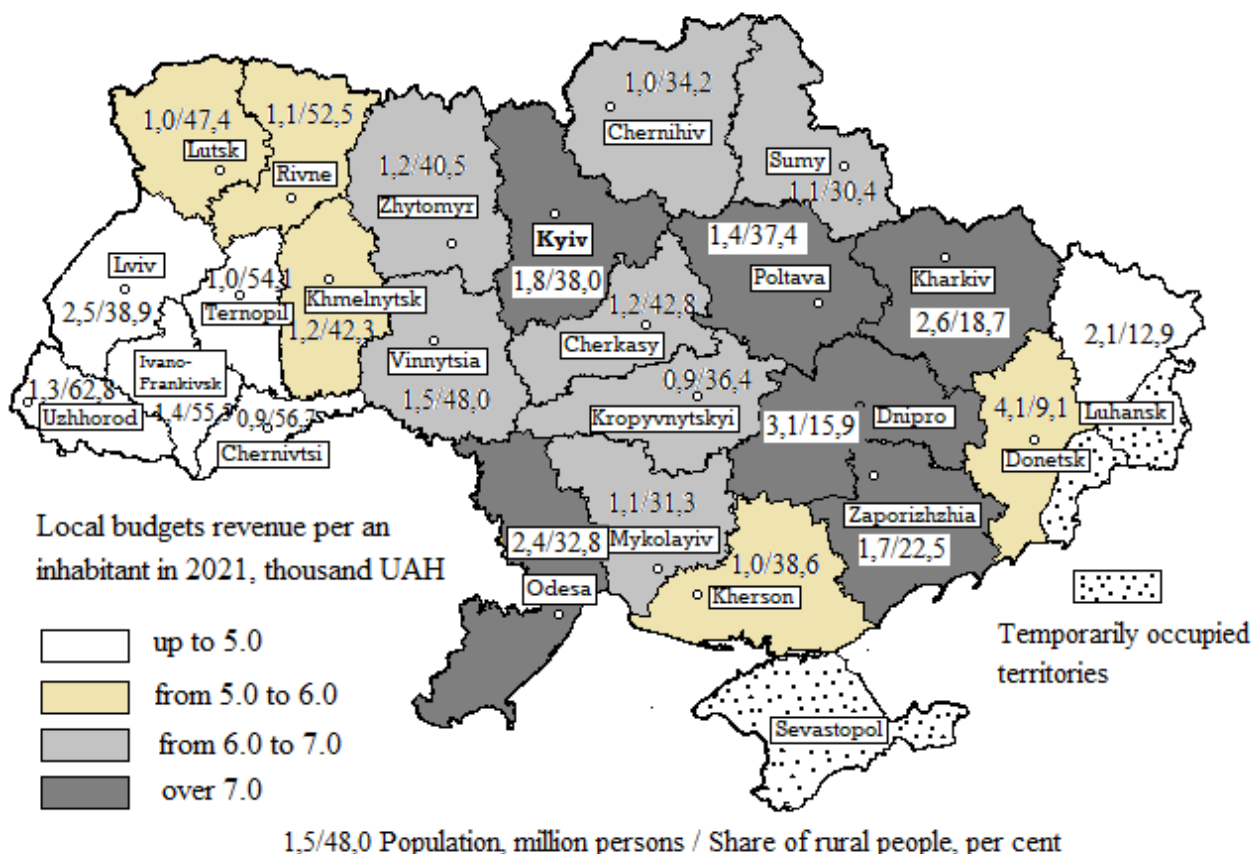

Fig. 2. Relevance between the ratio of population to share of rural people and local budgets revenues
(authors)

Taking into account the results we suggest it is worthy to consider in depth either the communities with low financial capacity should be reformatted and joined to close communities. Despite currently those communities have no many opportunities for the development, the joining would give a good chance to optimize territorial structures of the units, improve efficiency of the local governing, and attract more investments due to a larger territory and more labor force. Finally it makes capital investments into the community more efficient. In the same time in order to make sound proposals for policy makers it is essential to explore more specific financial indicators of the communities, identify

causal relations between social and industrial infrastructure capacity, the entrepreneurship, natural resources, demographic status and so on.

It is worthy to say about limitation of the statistical analysis. Primarily we proceeded from the point a community's own revenues includes personal income tax, real estate tax, land payment, and some others. The income data for territorial communities in Ukraine is available only for those of them which have been established until 2016. With all of the above mentioned data on economic status of communities one would differentiate them by the degree of their economic capacity from high to medium and low. Social status of communities is not

Table 4

Budget indicators of the newly consolidated rural communities in Zhytomyr region in the 1st half of 2020*

Community name	Area, sq.km	Population in 2020, thousands	Total revenue per an inhabitant, UAH	Budget subsidy level (ratio of basic to reverse subsidy), %
Communities with population over 10 thousands				
Popilnianska	499.1	16.6	2816.6	-0.9
Stanyshivska	286.8	16.9	2810.6	-4.0
Glybochytska	180.5	10.9	2454.9	16.8
Brusylivska	626.1	14.5	1931.6	3.5
Slovechanska	1331.6	11.4	1752.3	15.5
Lubarska	760.8	26.0	1727.8	0.0
Lugynska	990.8	15.7	1461.4	20.8
Yemilchynska	1484.6	22.1	1383.9	17.6
Pulynska	534.6	14.2	1208.0	20.9
Khoroshivska	588.8	18.2	1190.9	27.4
Communities with population from 5 thousands to 10 thousands				
Oliyivska	310.3	8.3	8242.1	-27.0
Ushomyrska	652.4	9.9	5345.6	-21.8
Chyzhivska	434.3	7.0	4163.4	-14.0
Irshanska	243.7	9.2	2672.3	0.0
Semenivska	220.5	5.2	2424.3	0.0
Narodytska	1281.9	9.5	2062.8	8.2
Krasnopilska	339.7	7.7	2048.6	0.0
Myropilska	163.2	7.1	2023.0	0.0
Novoborivska	213.3	8.4	1834.6	21.3
Teterivska	275.9	9.6	1790.3	9.9
Vilshanska	219.6	6.6	1611.2	4.5
Vchorayshenska	269.9	5.2	1554.1	6.4
Dovbyska	225.7	9.0	1501.3	15.3
Bronykivska	444.0	8.0	1477.1	23.7
Horodnytska	483.6	8.3	1377.1	26.1
Kornynska	240.8	5.6	1304.2	24.3
Chopovytska	359.4	6.0	1299.4	29.3
Chervonenska	158.8	5.6	1254.9	20.5
Bilokorovytska	103.8	5.8	1188.5	25.5
Rayhorodska	252.2	7.2	1147.8	22.2
Hryshkovetska	215.1	9.7	1115.4	29.7
Kurnenska	325.9	8.0	1032.9	39.3
Barashivska	498.4	6.9	808.9	43.1
Sokolivska	228.4	6.0	783.6	44.2
Communities with population up to 5 thousands				
Kvitneva	158.9	4.1	3171.3	-7.2
Vysokivska	97.2	2.4	3020.5	4.7
Andrushkivska	140.3	3.9	2866.0	-7.5
Horshchykivska	133.4	2.9	2065.7	0.0
Vyshevytska	148.0	3.2	1801.0	14.0
Shvaykivska	132.4	4.3	1782.6	0.0
Pishchivska	193.4	3.9	1732.4	21.6
Potiyivska	257.6	3.5	1575.9	24.1
Vilska	171.2	3.1	1409.8	25.9
Martynivska	190.5	2.6	1109.2	32.3
Dubrivska	174.7	3.8	1100.0	31.7

*Source: calculated with data [27, 28]

limited with existence of social buildings like schools, hospitals, and roads. It is important to take into account technical condition of such facilities (satisfactory or unsatisfactory), cold and hot water supply, sewerage, saving-energy windows, time of capital and current repair etc. Accordingly, community social infrastructure can be defined as I. Available, good quality; II. Available, poor quality; III. Partially available, poor quality or none at all. Social infrastructure is evaluated based on statistical information available to rural communities. Presently statistical passports of territorial units lack that information. Even more problematic is communities do not provide information on use of natural resources located on their territories and about state of the environment. Regarding the latter, State statistical agency of Ukraine provides information on the environmental status of rural areas by number of water spots to which enterprises dispose of contaminated wastewater, illegal landfills and mineral fertilizers and chemical depots. With these data we propose to evaluate ecological status of rural areas using index method [29] from satisfactory to unsatisfactory.

Consideration of the best approaches to interpretation of the research results and it's use for the local policy development is the last point of the methodology. Some of the approaches we deliberated in the next section.

Discussions and conclusions. In 2014 in Ukraine the massive decentralization reform has been initiated. It aimed to transform many single administrative units – primarily villages and little towns – into much larger territorial communities. Although the reform has not been finished yet it provided the certain results and revealed the tendency. Particularly academicians and policy-makers inquire into the implicit root causes of why certain communities consolidate and either it makes their economic and social life better. We believe the elaborated methodology responds the inquiry and provides easy and comprehensive approach to multicriteria spatial differentiation of the communities. It consists of the dual spatial classification of rural areas depending on their distance to large cities and other urban centers; application of the multi-criteria algorithm for the comprehensive differentiation of the territories evaluating their spatial, social, economic and environmental status; and the interpretation of the research results and it's use for the local policy development.

Zhytomyr region is one of the most successful in Ukraine concerning implementation of the administrative reform, decentralization and best practices of the communities' integration. The region had been selected for the in-depth study taking into account its central location, economic situation and the environment, varying experience and number of the territorial communities which have been consolidated in short time. Aiming to perform spatial typology of the newly consolidated territorial communities we differentiated them depending on their proximity to cities and other urban centers firstly. Consequently three types of the communities have been defined like neighboring, relatively remote, and faraway. It is concluded that distance of the communities to urban centers relates with their area and people size. The closer a territorial unit is located to the city, the smaller is its area and population, and vice versa. Other words, the proximity of a community to the city determines its economic capacity much more than its population an area.

Statistical relations between duration of the communities' consolidation and their spatial types prove the faraway and relatively remote communities have been united earlier than the neighboring. Taking into account the average number of settlements belonging to the one consolidated community it is revealed the closer to the regional center communities include less number of settlements, and vice versa. Also placements of the communities to district centers are taken into account. Two-dimensional classification of the communities by their proximity to regional and rayon centers confirms communities located close to cities and towns have better opportunities for the development. And communities differentiated as faraway by the both differentiation approaches are in much worse position. Finally we aimed suggesting proposals on how local self-government agencies and leaders of the newly consolidated communities can impact into accumulation of economic capacity and social responsibility support. The proposed methodological approach to spatial differentiation of rural territories can be introduced into the practice of local and regional agencies to refine the development strategies and update coherent plans and programs. The proposals are relevant for both rural and urban areas.

The presented methodological approach to the comprehensive differentiation of the territorial communities can be used to identify their problems, threats and development prospects. For this purpose, the algorithm is proposed which combines indicators of spatial differentiation of rural areas, their economic status, social infrastructure, and the environment. Practically it helps representatives of the communities, self-government bodies and state authorities develop local programs and plans and identify target communities for special local projects.

The next-step research considers complying of the methodology with a sophisticated math analysis. Firstly, it is going to confirm the obtained results with the rural areas clustering. Secondly, with the augmented multilayer list of variables assessing the

rural areas in more details the exploratory factor analysis will be applied to identify core reasons of the territories decline and the driving forces. Finally, the hypothesis if the research results impact into the development of core-periphery theory will be veri-

fied and some implications for the policy-making guide will be produced in order to turn the processes of peripherisation and deprivation of the rural areas back.

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Комплексная пространственная дифференциация территориальных общин на примере Житомирской области

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В статье представлены методологические основы комплексной пространственной дифференциации объединенных территориальных общин в Украине по показателям их расположения к крупным городам и урбанизированным центрам; соответственно выделены приближенные, относительно отдаленные и периферийные территории. Доказано, что близость объединяющихся территориальных общин к областным и районным центрам детерминирует их экономическую состоятельность существеннее, чем площадь территории и численность населения: периферийные общины имеют большую площадь, количество населенных пунктов в своем составе и жителей, а приближенные - наоборот. Более того, периферийные и отдаленные общины объединились раньше чем приближенные: скорость принятия соответствующих решений объясняется их большей актуальностью для

экономически менее способных общин. Эти и другие выводы подтверждены на примере Житомирской области. Разработан алгоритм комплексной дифференциации сельских территорий по ряду социально-экономических и экологических параметров. Экономическое положение общин оценено по показателям среднего общего удельного дохода жителей и уровня дотационности бюджета. С учетом численности жителей выделены общины высокой, средней и низкой экономической состоятельности. Социальная инфраструктура по показателям численности объектов и их состояния оценена как достаточная надлежащего качества, достаточная ненадлежащего качества и недостаточная ненадлежащего качества. Для дифференциации общин по уровню благополучия экологической ситуации (удовлетворительная, посредственная, угрожающая) применены показатели количества водных объектов, в которые предприятия сбрасывают загрязненные сточные воды, несанкционированных свалок и складов ядохимикатов. Предложены способы применения методологических и практических результатов исследования для разработки представителями органов самоуправления местных стратегий развития; обоснована целесообразность присоединения общин с низкой экономической способностью к другим с тем, чтобы способствовать оптимизации структуры административных образований, повышению эффективности их управления и привлечению инвес-тиций.

Ключевые слова: *административная реформа, децентрализация, территория, пространственная дифференциация, объединенная территориальная община, экономическая состоятельность, методология, алгоритм.*

Комплексна просторова диференціація територіальних громад на прикладі Житомирської області

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У статті представлено методологічні засади комплексної просторової диференціації об'єднаних територіальних громад в Україні за показниками їх наближеності до великих міст та урбанізованих центрів; відповідно виділено наближені, відносно віддалені та периферійні території. Доведено, що наближеність територіальних громад, які об'єднуються, до обласних та районних центрів детермінує їх економічну спроможність значно більшою мірою, ніж площа території та чисельність населення: периферійні громади мають більшу площу, кількість населених пунктів у їх складі та мешканців, а наближені – навпаки. Більше того, периферійні та віддалені громади об'єдналися раніше за наближені до великих центрів: швидкість ухвалення відповідних рішень пояснюється більшою їх актуальністю для економічно менш спроможних громад. Ці та інші висновки підтверджено на прикладі Житомирської області. Розроблено алгоритм комплексної диференціації сільських територій за соціально-економічними та екологічними параметрами. Економічний стан громад оцінено за показниками середнього загального питомого доходу мешканців та рівня дотаційності бюджету. З урахуванням чисельності мешканців виокремлено громади високої, середньої та низької економічної спроможності. Соціальна інфраструктура за показниками чисельності об'єктів та їх стану оцінена як достатня належної якості, достатня неналежної якості та недостатня неналежної якості. Для диференціації громад за рівнем благополуччя екологічної ситуації (задовільна, посередня, загрозлива) застосовано показники кількості водних об'єктів, до яких підприємства скидають забруднені стічні води, несанкціонованих сміттєзвалищ та складів отрутохімікатів. Запропоновано способи застосування методологічних та практичних результатів дослідження для розробки представниками органів самоврядування місцевих стратегій розвитку; обґрунтована доцільність приєднання громад з низькою економічною спроможністю до інших з тим, аби сприяти оптимізації структури адміністративних утворень, підвищенню ефективності їх управління та залученню інвестицій.

Ключові слова: *адміністративна реформа, децентралізація, територія, просторова диференціація, об'єднана територіальна громада, економічна спроможність, методологія, алгоритм.*