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REGIONAL SETTLEMENT SYSTEMS IN UKRAINE: FEATURES OF DEVELOPMENT IN TERMS OF DECENTRALIZATION REFORM

Administrative and territorial reform in Ukraine is an extremely important stage in the development of our country. Decentralization creates new challenges for the regions, gives local authorities new powers, duties and responsibilities. For a comprehensive analysis of the possibilities and prospects of decentralization reform, it is important to analyze the existing world experience in implementing of the similar regional development programs in different countries. The implementation of such reforms in highly developed and developed countries is usually more successful than in developing countries, mainly due to the unpreparedness of local governments to the transformation of socio-political relations. Domestic and foreign scholars who have researched the course of decentralization reform in Ukraine note that it is extremely important to make appropriate changes to the Constitution of Ukraine and consolidate them at the highest state level. Decentralization reform, of course, cannot be considered as a universal tool for solving all existing problems of Ukraine, but it is an extremely important step towards comprehensive development of our country, taking into account the needs of the state and regions, the specifics of each, and the possibility for more effective implementation of regional policy measures by expanding the powers of local authorities.

Thus, according to the new division, the largest districts in terms of population, the centers of which are the largest cities in Ukraine: Kharkiv, Odesa and Dnipro, which account for 4.8%, 3.8% and 3.2% of the population of the country's districts, respectively. Zaporizhia district of Zaporizhia region, Lviv district of Lviv region account for 2.4-2.1% of the population. Based on the cluster analysis of 119 newly formed districts of Ukraine by the Ward method, according to 24 indicators as of 2020, 8 clusters were identified. Cluster analysis of the regions of Ukraine by a similar method according to the level of urbanization allowed to identify 6 clusters. The established features should be taken into account in forming plans and programs of regional development, which should be scientifically substantiated, take into account the peculiarities of decentralization of power and contribute to improving the level and quality of life of the population.

Keywords: decentralization reform, administrative-territorial system, spatial-statistical analysis, districts of Ukraine, territorial communities.

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РЕГІОНАЛЬНІ СИСТЕМИ РОЗСЕЛЕННЯ В УКРАЇНІ: ОСОБЛИВОСТІ РОЗВИТКУ В УМОВАХ РЕФОРМИ ДЕЦЕНТРАЛІЗАЦІЇ

Адміністративно-територіальна реформа в Україні є надзвичайно важливим етапом у розвитку нашої держави. Децентралізація влади обумовлює нові виклики для регіонів, наділяє місцеву владу новими повноваженнями, обов'язками та відповідальністю. Для комплексного аналізу можливостей та перспектив реформи децентралізації важливим є аналіз вже існуючого світового досвіду впровадження аналогічних програм регіонального розвитку в різних країнах світу. Впровадження такого роду реформ у високорозвинених та розвинених країнах зазвичай є більш успішним, ніж в країнах, що розвиваються, здебільшого через не підготовленість органів місцевого самоврядування до трансформації суспільно-політичних відносин. Як вітчизняні, так і закордонні науковці, які досліджували хід реформи децентралізації в Україні, зауважують, що надзвичайно важливо внести відповідні зміни до Конституції України та закріпити їх на найвищому державному рівні. Децентралізаційна реформа, авжеж, не може розглядатись як універсальний інструмент для вирішення всіх існуючих проблем України, проте є надзвичайно важливим кроком на шляху до комплексного розвитку нашої держави, врахування потреб і держави, і регіонів, специфіки кожного з них, а також можливістю для більш ефективного впровадження заходів регіональної політики за рахунок розширення повноважень місцевої влади.

Так, за новим поділом найбільші за чисельністю райони, центрами яких є найбільші міста України: Харківський, Одеський та Дніпропетровський, на які припадає 4,8%, 3,8% та 3,2% населення районів країни відповідно. На Запорізький район Запорізької області, Львівський район Львівської області припадає по 2,4-2,1%. На основі кластерного аналізу 119 новостворених районів України методом Варда за 24 показниками станом на 2020 р. було виділено 8 кластерів. Кластерний аналіз областей України аналогічним методом за рівнем урбанізації дозволив виділити 6 кластерів. Встановлені особливості мають бути враховані при формуванні планів та програм регіонального розвитку, які мають бути науково обґрунтованим, враховувати особливості децентрації влади та сприяти підвищенню рівня та якості життя населення.

Ключові слова: реформа децентралізації, адміністративно-територіальний устрій, просторово-статистичний аналіз, райони України, територіальні громади.

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РЕГИОНАЛЬНЫЕ СИСТЕМЫ РАССЕЛЕНИЯ В УКРАИНЕ: ОСОБЕННОСТИ РАЗВИТИЯ В УСЛОВИЯХ РЕФОРМЫ ДЕЦЕНТРАЛИЗАЦИИ

Административно-территориальная реформа в Украине является чрезвычайно важным этапом в развитии нашего государства. Децентрализация власти обуславливает новые вызовы для регионов, наделяет местные власти новыми полномочиями, обязанностями и ответственностью. Для комплексного анализа возможностей и перспектив реформы децентрализации важен анализ уже существующего мирового опыта внедрения аналогичных программ регионального развития в различных странах мира. Внедрение такого рода реформ в высокоразвитых и развитых странах обычно более успешно, чем в развивающихся странах, в основном из-за неподготовленности органов местного самоуправления к трансформации общественно-политических отношений. Как отечественные, так и зарубежные ученые, исследовавшие ход реформы децентрализации в Украине, отмечают, что чрезвычайно важно внести соответствующие изменения в Конституцию Украины и закрепили их на самом высоком государственном уровне. Децентрализационная реформа, конечно, не может рассматриваться как универсальный инструмент для решения всех существующих проблем Украины, однако является чрезвычайно важным шагом на пути к комплексному развитию нашего государства, учета потребностей и государства, и регионов, специфики каждого из них, а также возможностью для более эффективного внедрения мероприятий региональной политики за счет расширения полномочий местной власти.

Так, по новому разделению крупнейшие по численности районы, центрами которых являются крупнейшие города Украины: Харьковский, Одесский и Днепропетровский, на которые приходится 4,8%, 3,8% и 3,2% населения районов страны соответственно. На Запорожский район Запорожской области, Львовский район Львовской области приходится по 2,4-2,1%. На основе кластерного анализа 119 новообразованных районов Украины методом Варда по 24 показателям состоянием на 2020 г. было выделено 8 кластеров. Кластерный анализ областей Украины, выполненный с использованием аналогичного метода по показателям уровня урбанизации, позволил выделить 6 кластеров. Установленные особенности должны быть учтены при формировании планов и программ регионального развития, которые должны быть научно обоснованными, учитывать особенности децентрализации власти и способствовать повышению уровня и качества жизни населения.

Ключевые слова: реформа децентрализации, административно-территориальное устройство, пространственно-статистический анализ, районы Украины, территориальные громады.

Problem definition. The current stage of Ukrainian development is characterized by a number of changes in all spheres of society. Under the influence of a wide range of factors, there are significant transformations of spatial development of regions, in particular, the polarization increases and territorial disparities in regional development, the gap in the level and quality of life of centers and peripheries increases. In accordance with European standards of spatial development, Ukraine has been undergoing administrative and territorial reform for the last five years. Administrative reform is defined as a form of structural organization, improvement and development of the system of public authorities as a single mechanism of the state, formed on the basis of integration of material, financial and human resources, enterprises, institutions, organizations and their interaction,

based on the principles of separation of powers within the current legislation that ensures the implementation of tasks and functions of the state; it is a continuous process in time and space to improve the institutional foundations of the mechanisms of state formation and the state apparatus, the result of which is the socio-economic development of the country [14]. Therefore, according to the reform, a new administrative-territorial structure of Ukraine has been formed, which contains both changes at the local and subregional levels; increased the powers of local communities, which should contribute to the optimization and rationalization of the spatial organization of society, the intensification of socio-economic development, the effectiveness of regional governance [14].

Analysis of previous research. The issue of strati-

fication of regional development, as one of the prerequisites and consequences of administrative-territorial reform, is considered by many domestic and foreign scholars. The experience of European and world countries in the implementation of the decentralization process, problematic and perspective aspects of this process is also extremely important. R. Minas, S. Wright and others performed an analysis of general trends in the implementation of decentralization (or vice versa - centralization) management processes in three European countries [10]. Researchers analyze the available data on the implementation of decentralization in countries around the world to assess how successful they are in decentralization. Their goal is to inform about future interventions in support of decentralized management, demonstrating some important trade-offs that have been updated in the present. Exploring Sweden, they focus on the context of shifting governance from the national to the local level. For the Netherlands, the transfer of control to the local level has taken place recently, and the third example is the United Kingdom, which is a typical example of a country with centralized decision-making in the management system, but local differences in its implementation are possible. Thus, depending on the administrative-territorial structure, form of government, history of the country, traditions and mentality of the population, the reform may have different results and consequences.

J.-P. Faguet explores the features of the impact of decentralized administrative-territorial reform on the transparency of decision-making and reporting about the done work to the population on the experience of different countries [6]. Decentralization, according to the author, can reduce political instability, is a way to limit power by distributing it between different hierarchical levels of government in order to maximize efficiency. But there are a number of countries, in particular in Latin America, where decentralization has led to a deterioration in the macroeconomic and political situation, and some positive results have been seen only in the reform of the second order.

T. Firman consider the decentralization reform in Indonesia, a developing country, as a direct way to fragment regional development, because as a result of the reform the country has created an almost uncontrolled central government, which pursues its own, mostly commercial interests, regardless of the needs of the population which had an extremely negative impact on the country's development [7]. According to T. Firman, the process of decentralization in Indonesia is unique because, unlike many countries around the world, where the transfer of power to the ground stimulated accelerated economic development of the regions, while Indonesia's governance system is on the verge of collapse. Thus, it is important not only to reform the system, but also to prepare local authorities for the responsible implementation of their powers.

P. Bardhan notes that the approach to the transfer of administrative-territorial reform in developed and developing countries should be different [3]. And if in some countries the predominant reason is the stratification of power, in others - overcoming the economic crisis, political unrest, and with excessive use the situation can only get worse.

P. Smoke also outlines a number of issues that should be considered when implementing the reform, because over the past few years, the reform has really become global, and a large number of countries in all regions of the world have launched decentralization processes [18]. However, this type of reform is more complex than it seems at first glance, and for its implementation it is extremely important to carefully analyze and develop a strategic plan, focused on the conditions of a particular country, in order to carry out the reform as effectively as possible.

W. Dudley, who directly researched the administrative-territorial reform in Ukraine, notes that decentralization reform is the main goal of modern transformation processes in Ukraine, and that decentralization reform will allow the Ukrainian economy to achieve a balanced, stable state [5]. The author also emphasizes the need of urgently consolidation of the amendments to the Constitution, which will rethink the role of regions and districts to protect the status of united territorial communities. W. Dudley notes that decentralization reform cannot be seen as a panacea for Ukraine's long-standing problems, such as corruption, poor quality of public services, bureaucracy, but the reform is an important step towards Ukraine's transition to polycentric development, solving many issues in the regions.

The work of many domestic researchers is devoted to the issue of administrative-territorial reform in Ukraine. In particular, A. Pelekhayti and O. Zakhidna analyzed the issue of changing the administrative-territorial structure of our country in the direction of bringing it into line with a single European classification system NUTS [16]. The authors support the process of consolidation of administrative-territorial units in Ukraine, and predict an increase in the efficiency of the system of local government through better selection of more qualified staff. According to the authors, special attention should be paid to the process of decentralization reform in rural areas, as rural settlements are less stable entities than cities and some of them may be on the verge of extinction.

M. Baranovskyi performed a thorough research of administrative-territorial reform in Ukraine, identified the features and problems of the reform, identified the impact on the development of rural areas [2]. The paper highlights the risks for rural areas, and describes the mental problems of the population, which are likely to become problematic aspects of reform (ill-considered approach to the election of village heads, elders, public resistance to the implementation of reforms). M. Baranovskyi also analyzed the peculiarities of the formation of financial decentralization in Ukraine, regional differences in the financial autonomy of the newly formed administrative-territorial units, identified the most subsidized territorial communities.

The author's team of the M.I. Dolishny Institute of Regional Studies of the National Academy of Sciences of Ukraine proposed the methods for implementing administrative-territorial reform, focused on the need to preserve and improve the effective vertical of state power [1]. The need to revise some approaches to the formation of administrative-territorial units of the basic level is argued. The authors paid considerable attention

to the need to address the issues of constitutional support of administrative-territorial reform, as some of its provisions are still not regulated by the provisions of the current Constitution of Ukraine.

A. Melnychuk and K. Hanichenko consider the results of decentralization reform in Ukraine obtained over five years on the example of Kyiv region [9]. The authors identified about 30 insolvent communities within the study area, which indicates the presence of problems in the methodology of their formation. Over time, these communities will not be self-sufficient and will only be able to survive on dotations. That is why when combining them it is necessary to take into account a set of factors of historical and socio-political development of settlements.

Certain aspects of the implementation of administrative-territorial reform have been repeatedly considered by the authors of the article. An analysis of trends in the implementation of administrative-territorial reform in Ukraine was performed, special attention is paid to decentralization in monocentric regions (which, in particular, is Kharkiv region) [8, 11, 12, 13]. An important aspect of decentralization is also the attention to the peripheral districts of the regions, as they risk becoming depressed without appropriate regional policy measures.

The purpose. Of point of view of the change in the administrative-territorial structure of Ukraine and the completion of decentralization reform, it is timely to conduct spatial and statistical analysis of the distribution of human, economic and other types of potential in terms of new districts and communities, finding the levers for their rational use. **The purpose of this work** is to analyze the new administrative-territorial structure of Ukraine at the sub regional level of point of view of the peculiarities of regional settlement systems. The initial data for statistical analysis were the materials of the State Statistics Service of Ukraine [15] of the Ministry of Development of Communities and Territories of Ukraine on decentralization [14, 15].

Presentation of research results. The existing national settlement system of Ukraine was formed over many centuries under the influence of a number of natural-geographical, socio-political, socio-economic and other factors, consists of regional settlement systems, which, in turn, consist of local settlement systems. In Ukraine, in 2015, an administrative-territorial reform was introduced, the essence of which is reduced to decentralization - giving more power to local governments and changing the administrative-territorial division of the country. For a long time before the implementation of the reform, as well as during it - were taking place discussions on the optimal composition and configuration of the new administrative system, the division into communities and districts. A number of studies with a detailed scientific and practical justification for the new administrative division of the regions of Ukraine were discussed in detail. In 2020, the Cabinet of Ministers of Ukraine adopted a number of orders [19] approving the territories of communities in all the regions of Ukraine and defining their administrative centers, according to which 1469 territorial communities were formed, including 31 territorial communities in the temporarily occu-

pied territories of Donetsk and Luhansk regions. Also this year, the Verkhovna Rada of Ukraine adopted the Resolution «Of the formation and liquidation of districts» [17], according to which 136 districts were established in Ukraine, seventeen of them - in the temporarily occupied territories of Donetsk and Luhansk regions, as well as in Crimea.

Thus, according to the new division, the largest districts, the centers of which are the largest cities in Ukraine: Kharkiv, Odessa and Dnipro (fig. 1), which account for 4.8%, 3.8% and 3.2% of the population of the country's districts, respectively. Zaporizhzhya district of Zaporizhia region, Lviv district of Lviv region accounts for 2.4-2.1%. The share of Kryvyi Rih district of Dnipropetrovsk region is 2.1% and it is the largest district of Ukraine, the center of which is not the regional center, also Kramatorsk district of Donetsk region, which accounts for 1.5% of the population. In total 11 districts have a share of the population from 1.5 to 2.0%. Also, 11 districts have a share of the population from 1 to 1.5%. 42 districts contain a share of population less than 0.5 - 1.0%, 47 districts contain a share of population less than 0.5%. The smallest district of Ukraine, where less than 30 thousand people lives, is Verkhovyna district of Ivano-Frankivsk region, the largest - Kharkiv district of Kharkiv region with a population of 1.75 million people. The distribution by area is more even: the largest are Korosten and Zhytomyr districts of Zhytomyr region, Poltava district of Poltava region, Khmelnytsky district of Khmelnytsky region, Chernihiv district of Chernihiv region, Kropyvnytskyi district of Kirovohrad region, their share ranges from 1.8% to 2.0%.

The highest population density is 543.6 persons/km² in Kharkiv district of Kharkiv region, 315 persons/km² in Odessa district of Odessa region, 230 persons/km² in Lviv district of Lviv region, 209 persons/km² in Dniprovskyi district of Dnipropetrovsk region, 196 persons/km² in Mariupol district of Donetsk region, 188 people/km² - Zaporizhia district of Zaporizhia region (fig. 1). Chernivtsi district of Chernivtsi region, Drohobych district of Lviv region, Ivano-Frankivsk district of Ivano-Frankivsk region, Berehiv district of Zakarpattia region, Severodonetsk district of Luhansk region, Bucha district of Kyiv region, Kryvyi Rih district of Dnipropetrovsk region, Bakhmut district of Donetsk region, Kherson district of Kherson region, Mukachevo district of Zakarpattia region, Kolomyia district of Ivano-Frankivsk region, Kramatorsk district of Donetsk region, Uzhhorod district of Zakarpattia region, Fastiv district of Kyiv region have a population density of 100-150 people/km². The population density is less than 25 people/km² in Pologi district of Zaporizhia region, Krasnograd district of Kharkiv region, Skadovsk district of Kherson region, Verkhovyna district of Ivano-Frankivsk region, Korosten district of Zhytomyr region, Shchastyn district of Luhansk region, Bashtansky district of Mykolaiv region, Beryslav district of Kherson region, Koryukivskyi district of Chernihiv region, Berezhivskyi district of Odessa region, Henichesky district of Kherson region, Starobilskyi district of Luhansk region, Svativskyi district of Luhansk region, Novhorod-Siverskyi district of Chernihiv region.

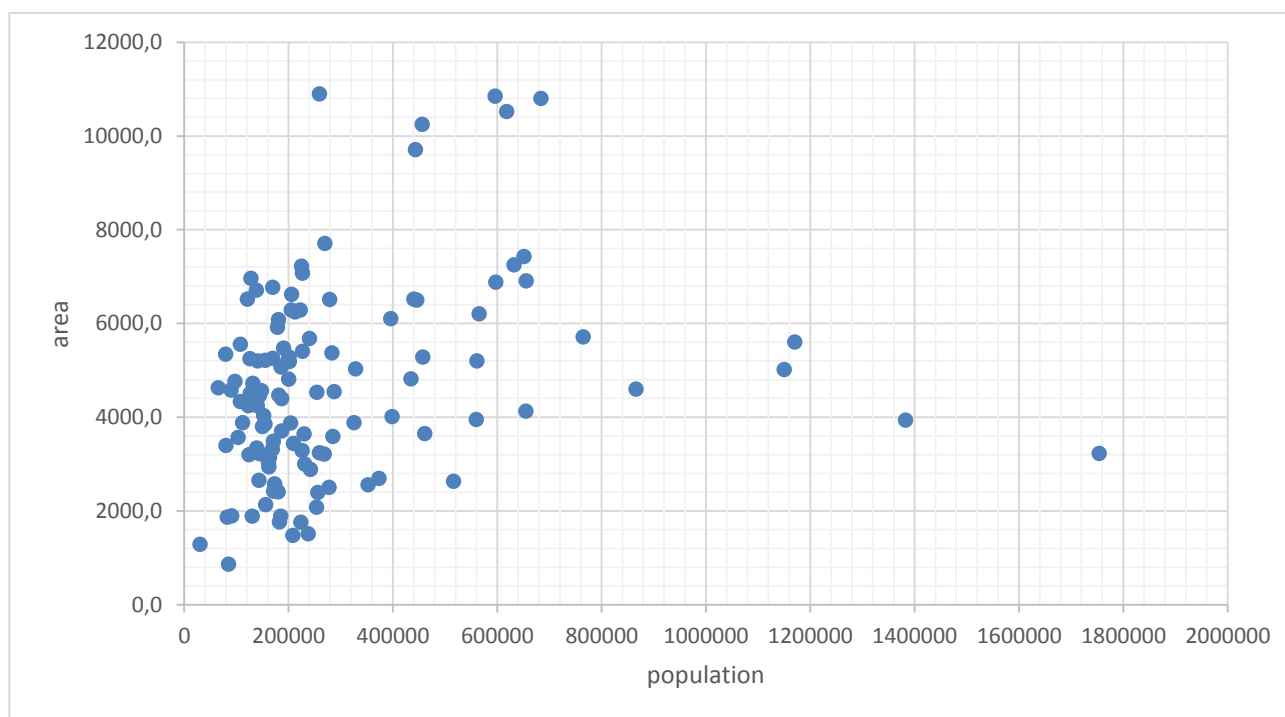


Fig. 1. Distribution of all districts of regions of Ukraine by population and area, 2020 (built according to [14, 15])

According to the level of urbanization is also a significant differentiation (fig. 2): the most urbanized are Severodonetsk district of Luhansk region, Bakhmut and Kramatorsk districts of Donetsk region, Obukhiv district of Kyiv region have a rate higher than 90%. Rural (less than 30% level of urbanization) are Krasnograd district of Kharkiv region, Tulchyn district of Vinnytsia region, Rakhiv district of Zakarpattia region, Synelnykiv district of Dnipropetrovsk region, Shchastyn district of Luhansk region, Zolotonosha district of Cherkasy region, Starobilsky district of Luhansk region, Beryslav region of Kherson region, Berezhivskyi district of Odessa region, Tyachiv district of Zakarpattia region, and Verkhovyna district of Ivano-Frankivsk region is completely rural. There are a number of districts with an extremely high priority ratio of 80-85%: Dniprovsky district and Kryvyi Rih district of Dnipropetrovsk region, Mariupol district of Donetsk region, Zaporizhia district of Zaporizhia region and Kharkiv district of Kharkiv region. Mykolaiv district of Mykolaiv region, Odessa district of Odessa region, Lviv district of Lviv region, Chernihiv district of Chernihiv region, Kherson district of Kherson region, Sumy district of Sumy region, Vinnytsia district of Vinnytsia region, Kropyvnytskyi district of Kirovohrad region, Pavlograd district and Kamyansky district of Dnipropetrovsk region, Berdyansk and Melitopol districts of Zaporizhia region, Kremenchug district of Poltava region have in their composition of large cities and the coefficient of primacy in the range of 50-75%. In all other districts the indicator is less than 50%, and in Tyachiv district of Zakarpattia region, Golovanivsky district of Kirovohrad region, Dniester and Vyzhnytsya districts of Chernivtsi region it is even less than 5%.

A cluster analysis was performed to analyze the territorial features. It allowed to divide all 119 districts of Ukraine into clusters, ie groups, which included adminis-

trative-territorial units with the most similar characteristics of the administrative-territorial structure and settlement of the population. Euclidean distance was used as the distance coefficient, Ward's method was chosen among the methods. 24 indicators for 2020 were used for cluster analysis:

- Number of settlements;
- Number of communities, including urban, township and rural;
- Number of councils, including urban, township and rural;
- The share of the population, including in terms of urban, township and rural councils;
- The share of area, including in terms of urban, township and rural councils;
- Index of population concentration, including in terms of urban, township and rural councils;
- Density of the population;
- The level of urbanization;
- Coefficient of primacy.

The data obtained as a result of calculations are visualized in the form of a dendrogram (fig. 3). The districts of Ukraine are characterized by significant differentiation of indicators and are formed into eight clusters.

The first cluster includes Vinnytsia district of Vinnytsia region, Chortkiv district of Ternopil region, Ivano-Frankivsk district of Ivano-Frankivsk region, Bila Tserkva district of Kyiv region, Korosten district of Zhytomyr region, Kropyvnytskyi district of Kirovohrad region, Chernihiv district of Chernihiv region, Ternopil district of Ternopil region, Lviv district of Lviv region, Kovel district of Volyn region, Kamyanets-Podilsky district of Khmelnytsky region, Lutsk district of Volyn region, Shepetivka district of Khmelnytsky region, Kremenchug district of Poltava region, Pavlograd district of Dnipropetrovsk region, Myrhorod district of Poltava

region, Dubensky district of Rivne region, Sumy district of Sumy region. These administrative-territorial systems are characterized by low population density and fairly even distribution throughout the territory.

The second cluster includes Pokrovsky district of

Donetsk region, Zhytomyr district of Zhytomyr region, Khmelnytsky district of Khmelnytsky region, Poltava district of Poltava region. Regional centers play an important role in the general structure of population settlement in these administrative-territorial systems.

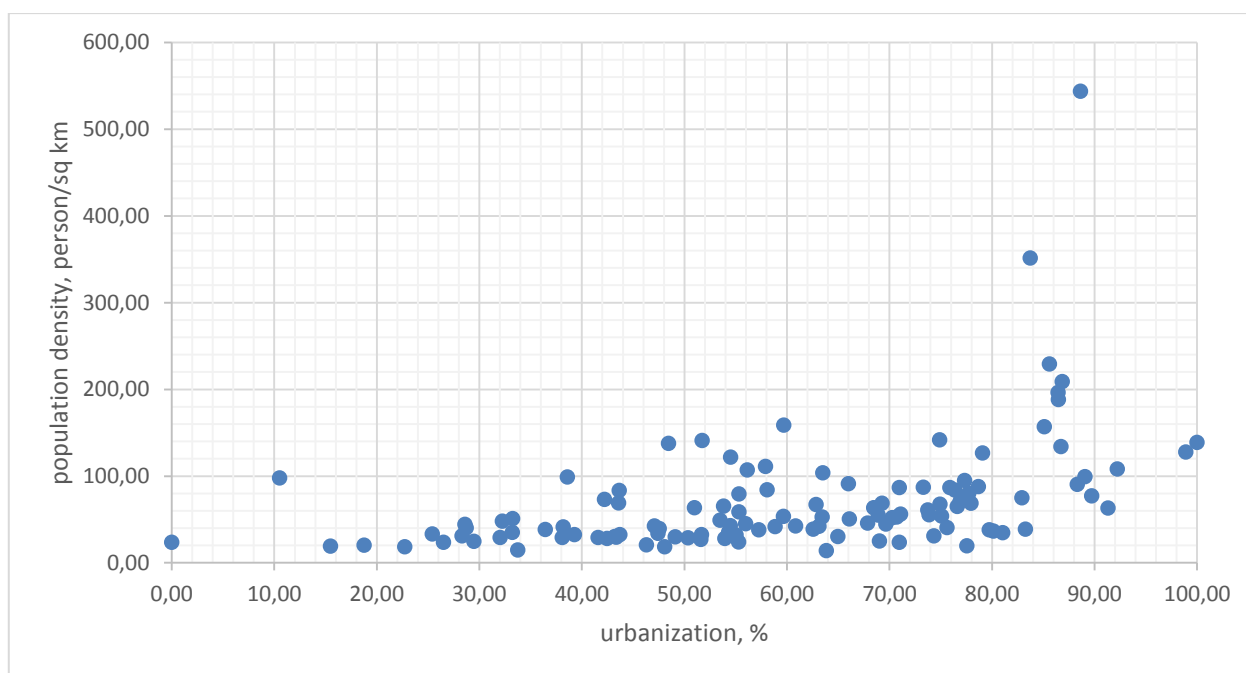


Fig. 2. Distribution of all the districts of regions of Ukraine by level of urbanization and population density, 2020 (built according to [14, 15])

The third cluster includes Gaisinsky district of Vinnytsia region, Zvenigorod district of Cherkasy region, Rivne district of Rivne region, Uman district of Cherkasy region, Mykolayiv district of Mykolayiv region, Cherkasy district of Cherkasy region, Chernivtsi district of Chernivtsi region, Novograd-Volynsky district of Zhytomyr region, Romensky district of Sumy region, Podilskyi district of Odessa region, Pryluky district of Chernihiv region, Voznesensky district of Mykolayiv region, Kupyansky district of Kharkiv region, Sambir district of Lviv region, Stryi district of Lviv region, Konotop district of Sumy region, Nizhyn district of Chernihiv region, Lubny district of Poltava region, Bohodukhiv district of Kharkiv region. Administrative-territorial systems of this cluster are characterized by low population density, fairly even distribution of population, high share of township and rural councils.

The fourth cluster includes Zhmerynskyi district of Vinnytsia region, Khmilnytskyi district of Vinnytsia region, Pologi district of Zaporizhia region, Novoukrainsky district of Kirovohrad region, Bashtansky district of Mykolayiv region, Shostka district of Sumy region, Loziv district of Kharkiv region, Iziium district of Kharkiv region, Chuguiv district of Kharkiv region, Koryukiv district of Chernihiv region, Novgorod-Siversky district of Chernihiv region, Kamyansky district of Dnipropetrovsk region, Kramatorsk district of Donetsk region, Zolochiv district of Lviv region, Yavoriv district of Lviv region, Obukhiv district of Kyiv region, Chervonohrad district of Lviv region, Kremenets district of Ternopil region. The systems of this cluster are characterized by a

low population and its uniform distribution.

The fifth cluster includes Dniprovskyi district of Dnipropetrovsk region, Zaporizhia district of Zaporizhia region, Kryvyi Rih district of Dnipropetrovsk region, Odessa district of Odessa region, Kharkiv district of Kharkiv region. This cluster is formed by the largest industrial administrative-territorial systems of Ukraine. They are characterized by the largest population, the predominant importance of the regional center in the overall structure of settlement, a high coefficient of primacy and the level of urbanization.

The sixth cluster includes Mohyliv-Podilskyi district of Vinnytsia region, Oleksandriia district of Kirovohrad region, Kakhovka district of Kherson region, Melitopol district of Zaporizhia region, Volodymyr-Volynskyi district of Volyn region, Volnovakha district of Donetsk region, Sarny district of Rivne region, Okhtyrka district of Sumy region, Kalush district of Ivano-Frankivsk region, Kolomyia district of Ivano-Frankivsk region, Berezivsky district of Odessa region, Zolotonosha district of Cherkasy region, Tulchyn district of Vinnytsia region, Golovanivsky district of Kirovohrad region, Kamin-Kashirsky district of Volyn region, Henichesky district of Kherson region, Vyshgorod district of Kyiv region, Svativsky district of Luhansk region, Starobilsky district of Luhansk region, Rozdilnyansky district of Odessa region, Krasnograd district of Kharkiv region, Varasky district of Rivne region. Administrative-territorial systems are characterized by a fairly even distribution of population and low density.

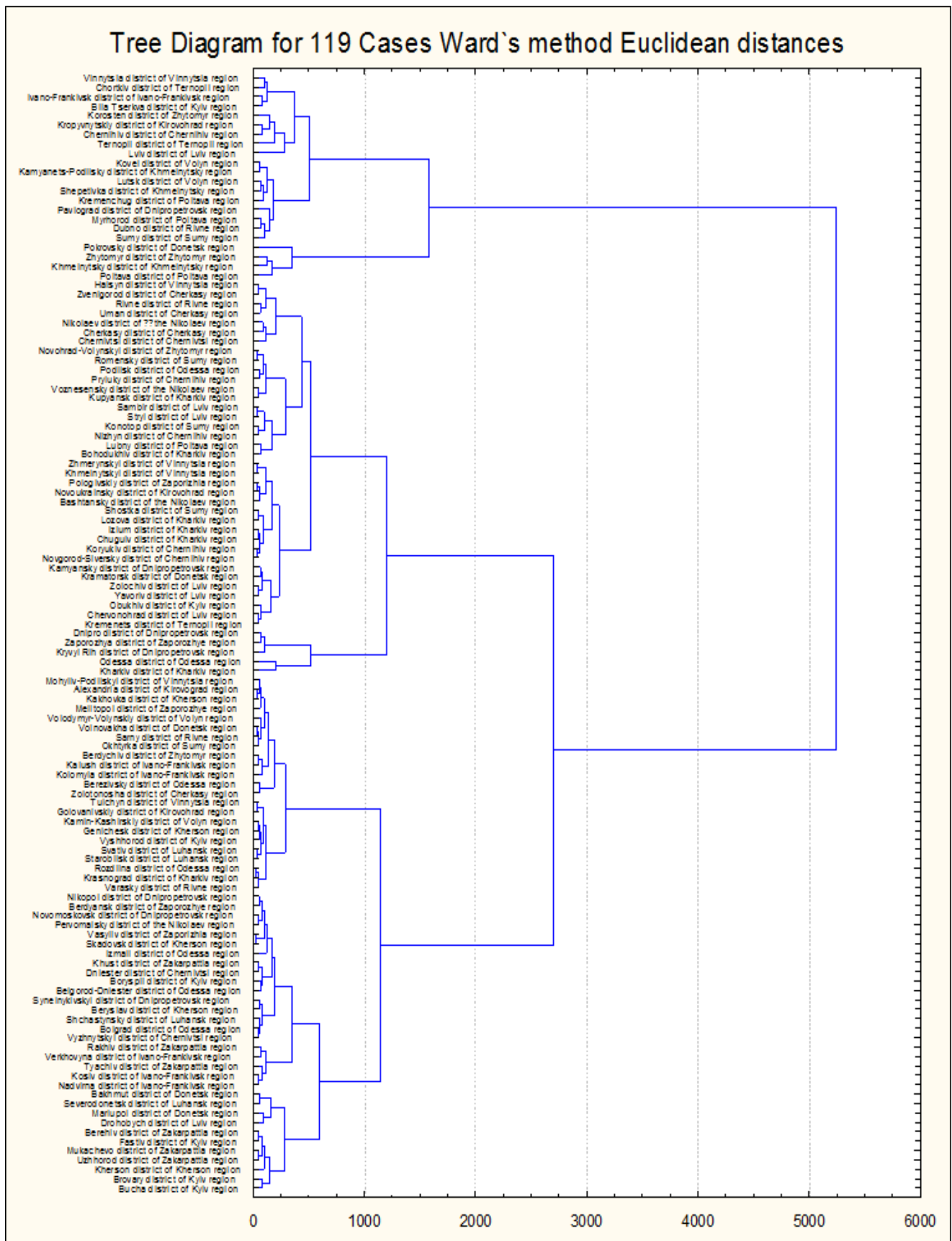


Fig. 3. Dendrogram of clustering of regions of Ukraine according to the peculiarities of the settlement system, 2020 (built on the results of cluster analysis)

The seventh cluster includes Nikopol district of Dnipropetrovsk region, Berdyansk district of Zaporizhia region, Novomoskovsk district of Dnipropetrovsk region, Pervomaisky district of Mykolayiv region, Vasyliv district of Zaporizhia region, Skadovsk district of Kherson region, Izmail district of Odessa region, Khust district of Zakarpattia region, Dniester district of Chernivtsi region, Boryspil district of Kyiv region, Belgorod-Dniester district of Odessa region, Synelnykiv district of Dnipropetrovsk region, Beryslav district of Kherson region, Shchastyn district of Luhansk region, Bolgrad district of Odessa region, Vyzhnytskyi district of Chernivtsi region, Rakhiv district of Zakarpattia region, Verkhovyna district of Ivano-Frankivsk region, Tyachiv district of Zakarpattia region, Kosiv district of Ivano-Frankivsk region, Nadvirna district of Ivano-Frankivsk region. These administrative-territorial systems are characterized by uneven distribution of population across the territory and low density.

The eighth cluster includes Bakhmut district of Donetsk region, Severodonetsk district of Luhansk region, Mariupol district of Donetsk region, Drohobych district of Lviv region, Berehiv district of Zakarpattia region, Fastiv district of Kyiv region, Mukachevo district of Zakarpattia region, Uzhhorod district of Zakarpattia region, Kherson district of Kherson region, Brovary district of Kyiv region, Bucha district of Kyiv region. They are characterized by a dense network of settlements and a high level of urbanization.

The introduction of administrative-territorial reform at the subregional level provided for the preservation of the existing division at the level of the regions of Ukraine. The regions of Ukraine differ significantly in the models of spatial development, features of center-peripheral interaction, territorial concentration, etc. In Ukraine, in general, there are such poles of socio-economic development as Kyiv, Kharkiv, Dnipro, Odessa, Zaporizhia, Lviv, which are the largest cities in the country and have a wider area of influence, beyond wide range of functions. Regarding the settlement network, we note that the high population density with a high density of settlements is inherent in Lviv region, which is due to the large number of small towns in the structure of the regional settlement system. High population density with a mediocre density of settlements is observed in Ivano-Frankivsk, Chernivtsi, Zakarpattia and Dnipropetrovsk regions. The medium population density with a high density of settlements is typical for Khmelnytsky and Ternopil regions, with medium density of settlements - Kharkiv region, with low density of settlements - Zaporizhia, Odessa and Kyiv regions. The identified territorial disparities of the settlement system of Ukraine emphasize the need to establish general spatial and statistical features taken into the attention the intra-regional disparities in the spatial development of each of the regional systems. For most of the western regions of Ukraine a characteristic feature is the lack of attraction to large cities, the development of rural and township areas. The primacy coefficient reflects the share of the first (main) city in the regional settlement system. Its lowest value is in Zakarpattia (9.2%), Ivano-Frankivsk,

Kyiv and Luhansk regions (in particular, the latter two do not include regional centers due to the special status of the capital, which is not part of the regional settlement system, in Luhansk region - due to lack of data on the regional center and its temporary occupation). High level of indicators in Odessa, Mykolaiv and Zaporizhia regions (44%), the highest - in Kharkiv region - 54%. This indicator also indicates about the features of monocentric/polycentric models of spatial development of regional settlement systems: the higher it is, the higher is monocentricity and vice versa.

Establishment of territorial features of regional settlement systems of Ukraine was carried out on the basis of the performed cluster analysis. It allowed to perform the grouping of regional settlement systems of Ukraine, to divide them into clusters, which include regions with the most similar ecistic characteristics. Euclidean distance was used as the distance coefficient, Ward's method was chosen among the methods. For cluster analysis were used absolute and relative indicators such as the number of settlements; districts; territorial communities; local councils (including the division into urban, township and village); their share in the overall structure by area and population; area; areas of urban, township and rural councils; population in terms of urban, township and rural councils; indicators of population density; indicators of urbanization; priority coefficient; population concentration index in terms of regions of Ukraine. The results of cluster analysis are presented in the form of a dendrogram - clustering tree (fig. 4), where are differ six clusters. The first cluster is formed by Chernivtsi, Luhansk, Kherson and Zakarpattia regions. These regions are characterized by low population density, fairly even distribution of the population, high proportion of township and rural councils. The second cluster consists of Ternopil, Kyiv, Cherkasy and Ivano-Frankivsk regions. The regions included in this group are similar in terms of territorial distribution of the population. The only exception is Kyiv region with the city of Kyiv, which forms the capital's agglomeration. The third cluster is formed by Mykolayiv, Zaporizhia, Odessa, Rivne, Kirovohrad and Volyn regions. They are characterized by a dense network of urban settlements and a high level of urbanization. Mykolaiv, Odessa and Zaporizhia regions are characterized by industrial specialization. The fourth cluster is formed by Donetsk, Sumy and Dnipropetrovsk regions. The regions of this group are characterized by a dense network of urban settlements and a high level of urbanization. The fifth cluster is formed by Kharkiv, Poltava and Lviv regions. These regions are characterized by high population. In these regions, the region centers play a predominant role in the general structure of settlement, high coefficient of primacy and level of urbanization. Intra-regional differences are due to the area of influence of administrative centers. The sixth cluster is formed by Zhytomyr, Chernihiv, Khmelnytsky and Vinnytsia regions. These regions are the most similar in terms of ecistic characteristics. They are characterized by low density and fairly even distribution of the population.

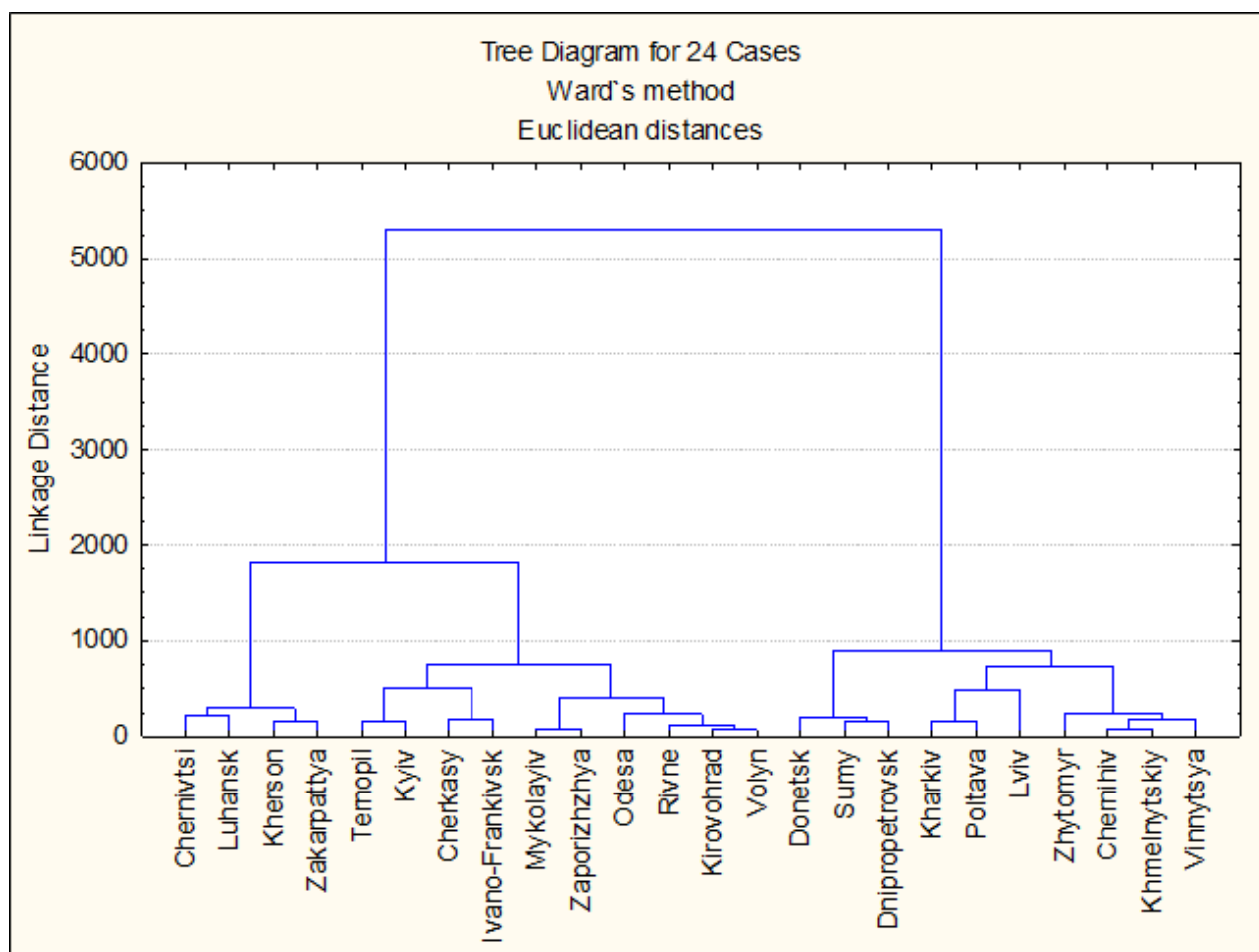


Fig. 4. Dendrogram of clustering of regions of Ukraine according to the peculiarities of the settlement system, 2020 (built on the results of cluster analysis)

Conclusions. The issues of population resettlement, regulation of center-peripheral models, search for opportunities for polycentric models of spatial development and reduction of territorial disparities in the level and quality of life of the population in Ukraine are surprisingly acute. In response to such a social demand in Ukraine in 2015 was introduced an administrative-territorial reform, which provides changes at the local and subregional levels. In 2020, the Cabinet of Ministers of Ukraine adopted a number of orders approving the territories of communities in the regions of Ukraine and determining their administrative centers, according to which 1469 territorial communities were formed, including 31 territorial communities in the temporarily occupied territories of Donetsk and Luhansk regions. In 2020, the Verkhovna Rada of Ukraine adopted the Resolution «On the formation and liquidation of districts», according to which 136 districts were established in Ukraine, seventeen of them in the temporarily occupied territories of Donetsk and Luhansk regions, as well as in the Autonomous Republic of Crimea. Within the regional settlement systems of Ukraine, which we consider as the region and the Autonomous Republic of Crimea, there are unique features of the spatial distribution of the population, which should be defined and taken into account in the formation of plans and programs of regional development, which should be scientifically based on de-

centralization of power and contribute to improving the level and quality of life of the population. The introduction of decentralization reform is in line with European standards for territorial development, the effort to transfer power «to the ground» and the maximum involvement of the public in management decisions and territorial development.

The research of current trends and prospects of the development of newly formed districts and communities is an urgent challenge for socio-economic geographers, in particular because we get a completely new system of statistical indicators for these administrative-territorial entities, and it is extremely important to determine the range of research methods and techniques of monitoring the state of regional sociogeosystems of Ukraine. Spatial-statistical analysis allowed to perform a complex synthetic grouping of regions of Ukraine taking into account the features and characteristics of subregional settlement, as well as grouping of newly formed districts of Ukraine taking into account the features and characteristics of local settlement. The established features should be taken into account in forming plans and programs of regional development, which should be scientifically substantiated, take into account the peculiarities of decentralization of power and contribute to improving the level and quality of life of the population.

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