

Concerning the issue of the peculiarities and the influence of natural resources and conditions on Ukrainian system of the population settlement and distribution

Olha Davidova & Nataliya Zablotska

Chernivtsi Yuriy Fedkovich National University, Ukraine

Abstract: The peculiarities of the settlement of the population illustrated by three regions of Ukraine (specifically mountain, submontane and plain landscapes of Chernivtsi region and typical forest steppe landscape of Khmelnytskyi region) have been revealed. Each of these regions are differentiated by their similar and variable peculiarities of the settlement system formation. The high reliance of the present settlement system on natural conditions and resources has been taken into account.

Keywords: settlement, types of settlement, settlement system, natural resources.

Introduction. The process of settlement has been developed under the influence of continuous and diverse factors which impact some of its elements determined in time and space. To learn the system of such influence, single out the crucial milestones in determining the main directions, let us consider some geographical, economic, social, demographic and ecological groups. If the current resettlement of the population is influenced by some economic, social, demographic and ecological factors, then the arrangement of settlement and a general settlement situation are the results of the influence of natural conditions and resources. Our aim is to discover this very interconnection, case of two neighbouring but non-homogeneous as to the landscapes regions.

Materials and Methods. Such scientists like V. V. Pokshyshevskiy [4], S. O. Kovalyov [3], V. O. Djaman [1] and others investigated the typology of settlement allocation/distribution in their own research papers. Their scientific work is of great importance for us as it is about the regions with similar conditions. The research has been performed on the basis of the data of the General Directorate of Statistics of Ukraine, results of All Ukrainian population census, materials of the General Lands Directorate of Ukraine and cartographic records. This type of research is fundamentally based on application of the following methods such as analysis and synthesis (in order to define the topographic types of settlement and their plan structure), mathematical (to figure out the correlation dependence and the value of the population density) etc.

Results and Discussions. The settlement of the territories of Khmelnytskyi and Chernivtsi regions happened simultaneously, from the banks of the Dniester river up north and east. That is why similar topographic distribution types (valley, riverside and deep large ravine) together with planned structure are peculiar for these regions taking into consideration homogeneous natural resources. In the northern parts of Khmelnytskyi region water parting type of the population distribution with the street layout structure is rather typical comparing to the mountainous region of Chernivtsi region where the most popular are valley and mountainous topographic types with a single layout structure or dispersive distribution.

As far as the distribution of the populated areas is closely interconnected with its settlement process then the indices of the population density will also be different on the whole territory. The thickness of the distribution system shows a different result from that of the population density. There is no clear allocation of the administration units as for the system of the population thickness. We can observe the lowest data of the population thickness in Storozhynets district of 33 settlements per 1000 square kilometres and Vyzhnytsya district of 34 settlements. We believe this is clearly caused by the

size of the administration units primarily their piedmont allocation. The highest indices are proved to be those of Kitsman district containing 97 settlements per 1000 square kilometres. The same tendency can be discovered in Khmelnytskyi region with the highest data of 94 settlements per 1000 square kilometres in Bilohirskyi district and 81 in Krysylyv district. The lowest indices are in Shepetivskyi district mainly due to the forest landscapes.

The population density is also not the same on the investigated territory which in turn depends on many factors. Hence it is not the same in different administration units due to its natural distance from the capital region. Since administration units have different area then when calculating their quantity per population density, their spacious differences also significantly vary and change. In general, the territories of Prydnisteria (the territory being populated long time ago), central parts of the investigated regions are characterised by the highest figures and the territories of Chernivtsi region (recently populated areas) particularly mountainous districts show lower rates.

The city of Kamyanets – Podilsk in Khmelnytskyi region is known for the highest indices in population density as 3624 people per square kilometre. Among other administrative units the leading one is Dunayiv district containing 57 people per square kilometre, the smallest number can also be found in Starokinstyantyniv district - 27 people with the average population density of the region 65 people per one square kilometre. The lowest figures are those of Putyla district of 29 people per square kilometre mainly due to its mountainous location. The average indices of the population density are revealed in Sokyryany, Kelmenets and Vyzhnytsa districts starting from 60 to 80 people per one square kilometre. The districts located around the city of Chernivtsi such as Storozhynets, Hlyboka, Hertza, Novoselytsya, Khotyn and Zastavna are known for their bigger amount - from 80 till 120 people per square kilometre. The highest density is in Kitsman district, 151 people per square kilometre primarily due to its location on transport connection routes between Ternopil and Ivano-Frankivsk regions. The cities of the region subordination such as the city of Chernivtsi have density of 1600 people per square kilometre and more than 1500 people in the city of Nivodnistrovsk.

The expansion of the population is the cause of the set of different actions. Thus, we can observe a close interdependence between the figures of the population density with the total number of the populousness, the coefficient of the correlation is +0,87, the amount of the city residents is +0,83. Such significant factors like the coefficient of the ecological stability and anthropogenic impact $K=+0,096$ and $-0,054$ do not influence the population density accordingly.

At the same time we noted the inconsistency of the gross area of the local district population distribution systems, built in territories and accommodation areas. For instance, the smallest area is Vinkivtsi district population distribution system in Khmelnytskyi region. It takes 17th place as for its built up lands and 13th for the newly built accommodation while Kamyanets - Podilskyi region takes only 2nd place in both cases. It can be explained by the peculiarities of the economic activities of the population and differences in certain distribution conditions (for the city settlements with the priorities of multistoried building apartments to dwell more people in a smaller area than in villages where single houses are prevalent). We should not also neglect the factors of the process of the natural resources of the population (since old age people used to settle down in the territories more advantageous for life).

Having analysed the structure of the land of the investigated regions, we can see that the fraction of the built up lands is more than 4 per cent, particularly 0,88 percent of the gross area. Moreover, the population does not occupy forest or water areas which are used as agricultural land uses containing more than 77 per cent of the whole territory of the investigated regions.

While calculating the population density, we take the gross area as a territory index and that is why we get the probability of the land settlement not advantageous for living such as forest and water areas. Since together with the applied index we offer to use the Index of the population thickness of the built up territory which in turn would show the population density of the active advantageous lands. *The population thickness of the built up territory* is the level of the territory development in construction demonstrating the number of the population per area unit. This can be calculated as a following correlation:

$$G=N/S \tag{1}$$

G is a population thickness of the built up territory; N - number of the population; S - the area occupied by construction.

Such cities like Chernivtsi and Khmelnytskyi are determined by the greatest indices of the population thickness. Thus, Khmelnytskyi district settlement system can be singled out for its highest rates as well, 2861 people per one square kilometre of the built up land. These calculations had a great impact on Kamyanets-Podilskyi and Slavuta district settlement systems. The special attention has been drawn by the results obtained in Polonskyi district of Khmelnytskyi region, the figures of which take the second place since on this very territory there are the least built up lands including only 47 settlements per populousness of 47 thousand people, and Putyla district of Chernivtsi region, having the highest rate of the population density of the built up lands. The last in this list of the indices of the population thickness is Starokostyantyniv district of Khmelnytskyi region (860) with the units of the land area advantageous for living 860.

If we consider the indices of the population thickness of the built up territories of Chernivtsi region we will get a rather opposite picture than that of the population density. So the least population density of the built up territories is observed in Kelmenets district counting 1370 people per one kilometre. This is explained by more or less flat salience, the absence of unfavourable phenomena, chernozem soil and the least wooded area in the region. In Sokyryany district it contains 1564 people per one kilometre, in Vyzhnytsa district -1720 people representing such a small population density so that major part of the local population live near the valleys riversides of the Cheremosh and Siret rivers where the river valleys are quite wide. In Khotyn district the density of the built up territories is 1725 people per square kilometre and Novoselytsya district of 1886 people per square kilometre which is undoubtedly caused by the long history of the territory settling and today it is presently constrained through some economic factors and the development of the region. Next one is Kitsman district (2143 people per square kilometre) and Zastavna district (2033 people per square kilometre). Such density is caused due to its direct location to the city of Chernivtsi as well as in Zastavna and Kitsman districts. The most populated areas are also those on the territories around the Cheremosh and Prut rivers, motor ways of the city of Ivano-Frankivsk (the villages of Nepolokivtsi, Luzhany and Mamayivtsi) and auto routes leading to the town of Zalishchyky (the town of Kitsman and the village of Lashkivka). In Hlyboka and Storozhynets districts the numbers are 2144 and 2221 people per square kilometre accordingly. In Putyla district the density of the built up territories is 2770 people per square kilometre. Such density is caused by the natural conditions of the salience, the so called "closeness" to the mountains and the forced built up environment. Among other districts the biggest is Hertsa district containing 2862 people per square kilometre and we believe the reason for it is primarily the ethnic factor. In the city of Chernivtsi this density corresponds to 3890 people per square kilometre.

Although the category of the built up lands consists of the lands dedicated for the accommodation construction, industrial business, commercial and public affairs, transport roads and routes, technical infrastructure etc., the population is allowed to occupy the territories dedicated for the accommodation/housing construction only. In order to determine and research the compactness of the population distribution let us introduce the index of the population thickness for the accommodation area. *The thickness of the population of the housing territory* is defined as a level of compactness of the population which demonstrates the number of the population distribution per area unit occupied by the accommodation construction that can be calculated as their correlation:

$$Z=N/S_n \tag{2}$$

Z is the index of the population thickness of the housing territory, N - the amount of habitants, S_n - the area of the territory occupied by the housing / accommodation construction.

Thus, the largest number of the population of the built up territory per one square metre is revealed in Polonskyi district settlement system of Khmelnytskyi region as well as in Kitsman district settlement system of Chernivtsi region consisting of 11,8 thousand. The lowest level of the population settlement thickness of built up land is fixed in Starokostyantyniv district (2188 people per square

kilometre). The fundamental factors influencing this distribution are the amounts of settlement in the district, their functional value and populousness.

Having analysed and compared all the above suggested data, we can confirm that the absolute leader on the territory of Chernivtsi region is Kitsman district as on this very stage it has the best distribution system and Kamyanetsk - Podilskyu administration units for Khmelnytskyi region.

Conclusions. Taking into consideration all the results of the undertaken research we can confirm that the contemporary development of the settlement and distribution system in particular first of all depends on the inter-urban connections. In fact, as we can see the highest settlement figures are those of the administration units located in the areas of intensive connections with the centres of the regional distribution systems. To sum it up, the role of historical and natural constituents is undeniable and the modern development of the distribution system was mainly formed on the basis of the natural factors and resources.

Bibliography

1. Джаман В.О. Регіональні системи розселення: демографічні аспекти / Василь Олексійович Джаман. - Чернівці: Рута, 2003. - 392 с.
2. Заблотовська Н. До питання про вплив природних умов на розміщення населених пунктів (на прикладі поселенської мережі Хмельницької області) / Н.Заблотовська // Часопис соціально-економічної географії. Випуск 5 (2). – Харків: 2008. – С. 212.
3. Ковальов С.А. География населения СССР: учебное пособие [для студ. высш. учебн. заведений] / С.А. Ковальов, Н.А. Ковальская. – М.: МГУ, 1980. – 285 с.
4. Покцишевский В.В. Население и география. Теоретические очерки / В.В.Покцишевский – М.:Мысль,1978.- 315 с.