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MODERN STATE OF PRESCHOOL EDUCATION IN DIFFERENT PARTS OF UKRAINE

The role of social factors has increased significantly in modern society. Education is essential for raising the intellectual and cultural level of inhabitants in any country. The purpose of this article is to analyze modern state of preschool education in different parts of Ukraine and to point at regional disparities in accessibility of preschool education services. This article gives analysis to modern state of preschool education in different parts of Ukraine. Research was based on several indicators such as number of children involved in preschool education, number of preschools in different regions of Ukraine, preschool enrollment rates and number of children actually attending preschools per 100 available places. Level of development of preschool education in cities and rural areas has been studied in regional context of Ukraine. It was also calculated social density of preschools and indexes of both territorial concentration and localization of preschools in the country. Social density of preschools was also analyzed in the study.

The highest social density of preschools is typical for the capital of Ukraine – the city of Kiev. The lowest social density of preschool sector services is typical for Poltava, Sumy, Chernihiv and Luhansk regions. The highest concentration of preschools is observed in Kyiv city, and low territorial concentration index is observed in Sumy, Zaporizhia, Donetsk and Kirovohrad regions, Kherson region, Chernihiv region and Luhansk region. High localization index values were observed in Khmelnytsky and Ternopil regions, Zhytomyr and Cherkasy regions, Vinnytsia region, Mykolaiv, Zakarpattia, Rivne, Kirovohrad and Volyn regions and the lowest localization index values were observed in Kyiv city, Kharkiv region, Luhansk and Donetsk regions. Regions of Ukraine have been ranked and grouped in types according to their level of preschool education development. According to the results of the study, three types of regions have been identified. Regions (oblast) of Cherkasy, Khmelnytsky, Vinnytsia, Kyiv, Ternopil and Zakarpattia have been included in the first type (high level of preschool education development). The second type (average level of preschool education development) includes city of Kyiv and regions (oblast) of Zhytomyr, Rivne, Mykolaiv, Dnipropetrovsk, Chernivtsi, Sumy, Kherson, Kirovohrad, Poltava and Kharkiv. Regions (oblast) of Volyn, Ivano-Frankivsk, Chernihiv, Lviv, Odessa, Zaporizhia, Donetsk and Luhansk have been included in the third type (low level of preschool education development).

Keywords: *preschools, preschool services, preschoolers, territorial organization, Ukraine.*

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Problem statement. The role of educational services has increased significantly in modern society. Education is essential for raising the intellectual and cultural level of inhabitants in any country. Equal access to educational services is a prerequisite for successful cultural and socioeconomic development of every region. Preschool education is the initial link of education system, which contributes to improving the quality of education at later levels. Preschool activities help significantly in mental and social development of children, stimulate their talents and contribute to their physical and moral upbringing and maturation.

There was a significant decline in the birth rate in Ukraine at the end of the XX century. Most preschools became redundant and were closed or restructured. At the beginning of the XXI century Ukraine underwent social reforms, which resulted in increased payments to parents for children born, especially for the second and the third child in the family. This resulted in shortage of preschools and shortage of places in remaining preschools. Citizens' needs in preschool education services were no longer met. The study of the current state of preschool education services in Ukraine does not lose its relevance today, because preschools are responsible for comprehensive and balanced development of future generations.

The purpose of this article is to analyze modern state of preschool education in different parts of Ukraine and to point at regional disparities in accessibility of preschool education services.

Analysis of recent research and publications. Issues of territorial organization of education have always been in scientific view. Theoretical provisions of the territorial organization of social sphere in Ukraine, which includes preschool education, are outlined in the scientific works of M. Abramov, S. Kovalev, L. Merkusheva, O. Topchiev, V. Yurkivsky and others. Preschool education in Lviv region was studied by of N. Sinyura-Rostun [10]. I. Zapototska in her work [3] studied territorial organization of the social sphere of Cherkasy region. The geographical features of the location of general educational institutions of the Chernivtsi region has been studied by O. Zayachuk [4], Volyn region – O. Ilyiv [5] etc. K. Sichkarenko studied territorial organization of higher education in Ukraine [11]. The territorial organization of the educational complex of the Chernivtsi region is disclosed in the work of V. A. Dzhaman [1] and others. K. Niemets and others outlined theoretical and methodological foundations of socio-geographical research of the education system of Kharkiv region [8]. Education system of Sumy region, including preschools, has been analyzed in works of O. Kornus [6; 7]. Territorial organization of educational sector of Chernivtsi region was studied by V. Dzhaman [1].

Material and methods of research. This study is based on data from the State Statistics Service of Ukraine, which was processed in the geographical aspect. Following indicators were analyzed: number of preschools in different regions of Ukraine, number of children in urban and rural preschools, rates of enrollment in preschools in different regions of the country and number of teachers employed in preschools in different regions of Ukraine. There were used several scientific methods

during this study; among them systematic, analytical-informational, mathematical-statistical, comparative-geographical and others.

Localization index (iL) and territorial concentration index (iTC) of preschools were introduced to study spatial differences in the organization of preschool education sector in different regions of Ukraine.

Localization index (iL) makes it possible to determine how much preschool education sector in a certain region is developed comparatively to the average level in Ukraine. This index makes it also possible to determine how proportional the share of preschools in a certain region of the country is comparatively to the share of its population in a whole country scale.

Localization index (iL) is calculated according to the formula:

$$iL = \frac{p \cdot N}{P \cdot n} \quad (1),$$

(iL is the localization index, p is the number of preschools in the region, P is the number of preschools in Ukraine as a whole, n is the population of the region, N is the population of Ukraine as a whole).

If the value of iL is greater than 1, preschool education sector of the region is well developed comparatively to the average level of the country, and vice versa if it is less than 1.

Territorial concentration index (iTC) is calculated according to the formula:

$$iTC = \frac{p \cdot S}{P \cdot s} \quad (2),$$

(iTC is territorial concentration index, p is the number of preschools in the region, P is the number of preschools in Ukraine as a whole, s is area of the region, S is area of Ukraine as a whole).

This index shows a significant polarization in the location of preschools in Ukraine. As in the previous indicator, the value of this index less than 1 indicates a low concentration of preschools in a particular region, and value higher than 1 indicates concentration of preschools above the average all-Ukrainian level.

One of the important indicators of the development of preschool education is the social density of preschools. This indicator is reflected by coefficient that is calculated according to the following formula:

$$SD = \frac{Presch}{Settl} \quad (3),$$

(SD is social density of preschools, $Presch$ is the number of preschools, $Settl$ is the number of settlements).

All calculations and graphical constructions were made using tools of Microsoft Excel 2010.

Presenting main material. There were 14763 preschools in Ukraine per 01.01.2020 (approximately 5800 in urban areas and 8900 in rural areas). During 2010 – 2019 the number of preschools in Ukraine generally decreased by 0,7%. While number of preschools in urban areas decreased by 9,4% it increased by 0,6% in rural areas during the same period (Fig. 1).

In 2019 among leaders by number of preschools were the following regions (oblast) of Ukraine: Dnipropetrovsk (981), Lviv (825), Vinnytsia (780 preschools), Kyiv (771), Odessa (751), Kharkiv (742) and Khmelnytsky (739 preschools). The lowest number of preschools were in the regions (oblast) of Chernihiv

(432), Chernivtsi (372) and Luhansk (250 preschools). The temporarily occupied territories of Ukraine (the Autonomous Republic of Crimea, separate areas of the Donetsk and Luhansk regions), due to the low reliability of the data on the basis of which the calculation is made, were excluded from this calculation due to the low reliability of data from these regions.

1 230 398 children were enrolled in preschools of

Ukraine at the end of 2019. 936 095 of them attended preschools of urban areas and 294 303 attended rural preschools. The number of children attending preschools fluctuated during 2010–2019, peaking in 2012–2013. During 2010–2014 their number increased by 1,7% and gradually declined ever since. During 2013–2019 the number of children in preschools decreased totally by 13,1% (Fig. 2).

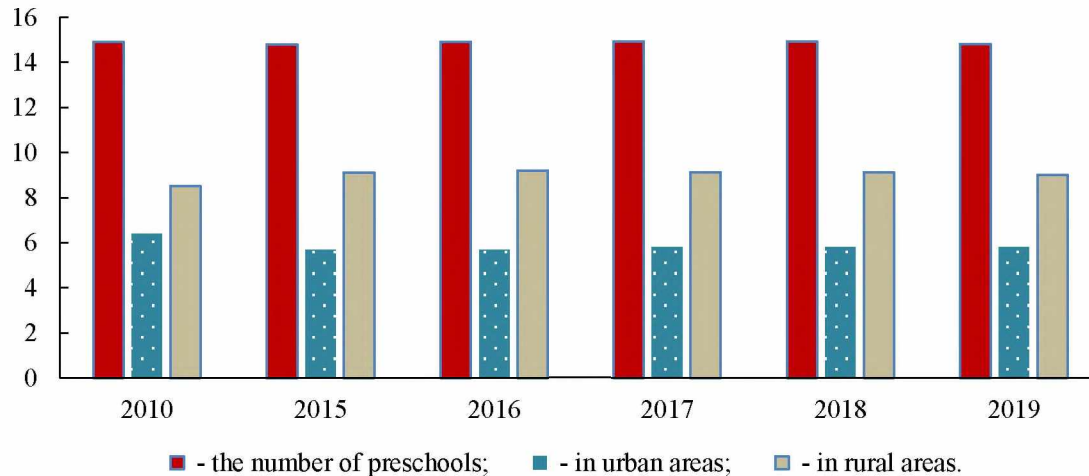


Fig. 1. Number of preschools in Ukraine (in thousands)
(built by the authors according to the data [2; 9])

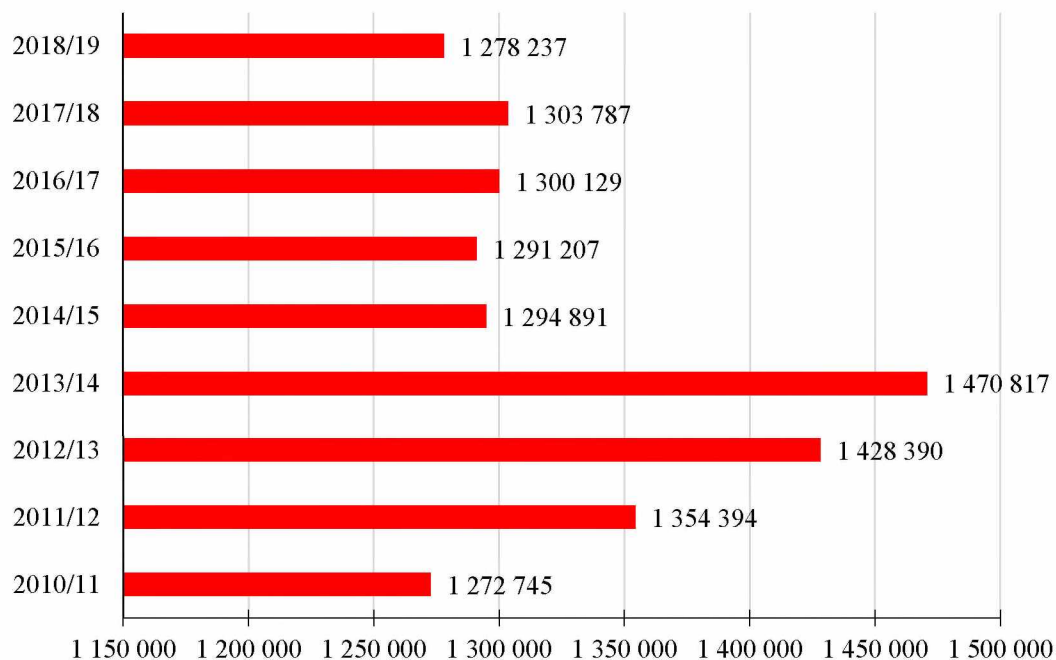


Fig. 2. Number of children in preschools of Ukraine during 2010-2019
(built by the authors according to the data [2; 9])

In 2019 there were around 1 230 000 children in preschools of Ukraine that is 1,8% more than in 2010. Approximately 936 000 of them attended preschools in urban areas that is 2,7% less than in 2010. During the same period the number of children in preschools of rural areas increased approximately to 294 000, which is 16% increase (Fig. 3).

In 2019 there were most children in preschools of Kyiv city (107 547), Dnipropetrovsk region (104 025), Kharkiv region (77 448), Odessa region (72 687), Lviv region (72 143) and Kyiv region (71 715 preschoolers). The lowest number of children were enrolled in preschools of Kirovohrad region (29 849), Chernihiv region (28 609) and Luhansk region (14 458 preschoolers).

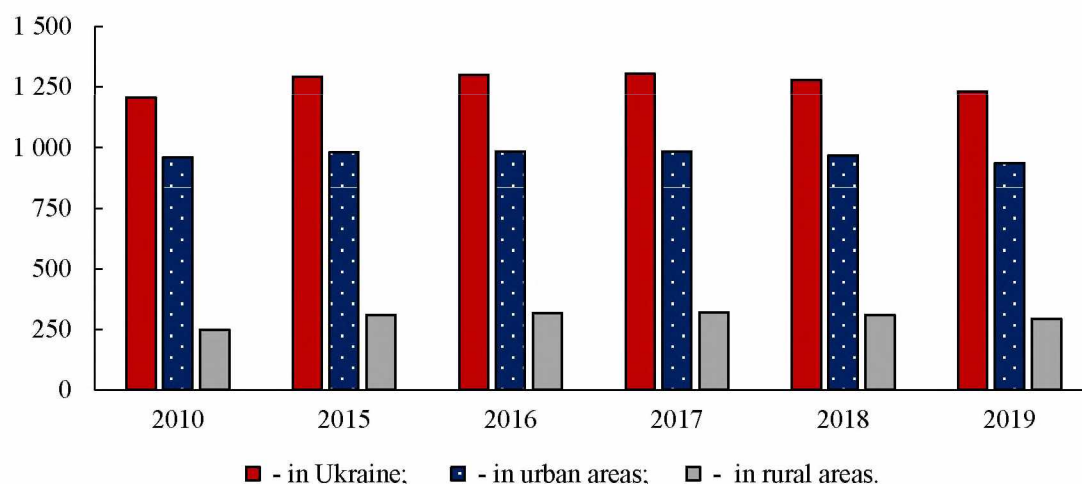


Fig. 3. Number of children in preschools of Ukraine (in thousands)
(built by the authors according to the data [2; 9])

The highest numbers of children attending preschools of urban areas were in Kyiv city (107 547), Dnipropetrovsk region (92 816), Kharkiv region (68 166), Lviv region (54 389), Odessa region (53 026), Kyiv region (48 975), Zaporizhia region (44 383) and Donetsk region (42 294 preschoolers). The lowest numbers were in Kherson (24 174), Volyn (23 752), Chernihiv (23 329), Ivano-Frankivsk (22 564), Kirovohrad (22 502), Zakarpattia (20 351), Ternopil (19 295), Chernivtsi region (16 169) and Luhansk region (11 681 preschoolers).

As for the preschools of rural areas of Ukraine, there were most children in them in 2019 in Zakarpattia region

(24 333), Kyiv region (22 740) and Odessa region (19 661 preschoolers). While on the opposite end of the scale were preschools of rural areas in Sumy region (6 387), Chernihiv region (5 280), Donetsk region (3 933) and Luhansk region (2 777 preschoolers), what makes quite a sense taking into consideration low birth rates in these regions of Ukraine in previous years.

An important indicator that shows both quality and level of preschool education is the number of enrolled preschoolers per 100 available places. During the studied period this number decreased by 6,25%. In urban areas it decreased more rapidly (6,5% decrease) than in rural ones (2,4% decrease) (Fig. 4).

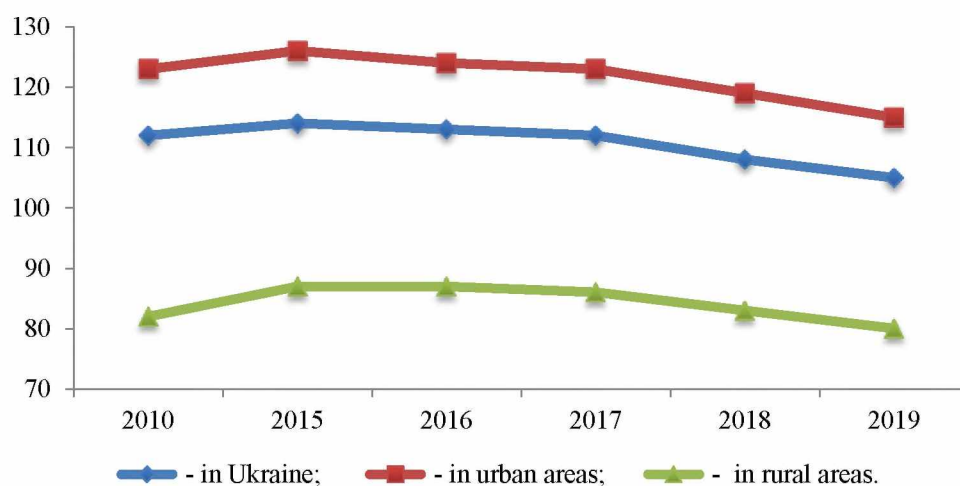


Fig. 4. Number of children enrolled in preschools per 100 available places
(built by the authors according to the data [2; 9])

At the end of 2019 this number for Ukraine as a whole country was 105 enrolled preschoolers per 100 available places. The busiest preschools were in Kyiv city (111) and the western regions of Ukraine: Lviv region (124 preschoolers per 100 places), Volyn and Ivano-Frankivsk region (122 preschoolers per 100 places in each one). This situation shows significant need for additional places in preschools of these regions of the coun-

try. On the opposite end of the scale were Kharkiv and Kirovohrad regions (97), Kherson region (94), Donetsk region (92), Cherkasy region (91) and Luhansk region (88 preschoolers per 100 places).

1 154 609 children were enrolled in preschools of Ukraine per 01.01.2020. 183 154 of these were under age of 3 and 971 455 were 3 years old or older. 806 132 places (69.8%) in preschools of urban areas were occu-

pied by 146 653 children under age of 3 and by 659 479 children aged 3 or older. 348 477 children (30.2%) attended preschools of rural areas in 2019. 36 501 of them were under age of 3 and 311 976 were aged 3 or older.

One of the significant indicators that characterize the level of development of preschool education sector is the preschool enrollment rate. It should be noticed that during 2010-2019 it increased by 9.4% for Ukraine as a whole, which is a very positive trend. There were 6,25%

increase in urban areas and 21,2% increase in rural areas during this period (Fig. 5).

A certain place in the study was given to enrollment rate of preschoolers aged 3-6 years old. During the studied period it decreased in Ukraine as a whole, both in urban and rural areas, by 1.8% and 4% respectively (Fig. 6). It should be also noticed that it was at its peak in 2018.

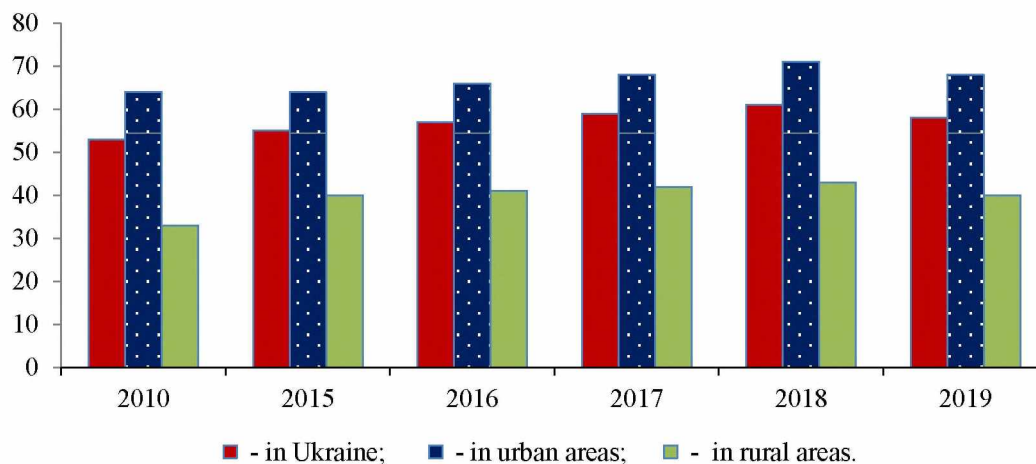


Fig. 5. Preschool enrollment rate in Ukraine
(built by the authors according to the data [2; 9])

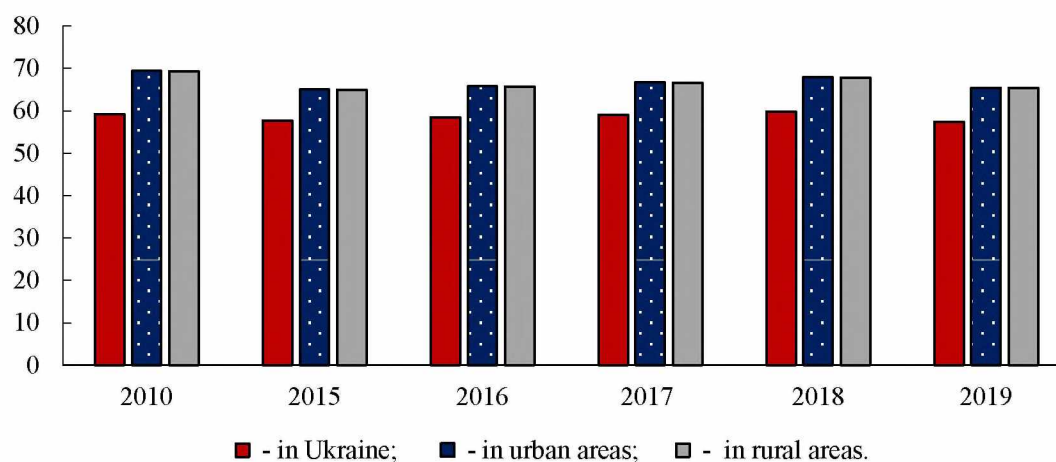


Fig. 6. Preschool enrollment rate in Ukraine among 3-6 year old children
(built by the authors according to the data [2; 9])

In Ukraine as a whole, 58% of country's preschoolers are enrolled in preschools. Among the regions with highest enrollment rates are Sumy region (73%), Kyiv region (71%), Poltava region (70%), Cherkasy region (69%), Khmelnytsky region (68%), Vinnytsia region (67%), Zhytomyr region (66%), Mykolaiv and Chernihiv regions (66% in each one) and Kherson region (65%). The lowest enrollment rates are in Volyn and Zakarpattia regions (54% in each one), Lviv region (52%) and Ivano-Frankivsk region (47%).

In 2019 preschool enrollment rate in urban areas of Ukraine was 68%, which is 4% more than in 2010. The

highest enrollment rates were in urban preschools of Vinnytsia and Poltava region (89% in each one), Khmelnytsky region (88%), Sumy region (86%), Zhytomyr, Rivne and Cherkasy regions (85% in each one), Chernivtsi region (84%), Chernihiv region (83%), Ternopil region (81%) and Kirovohrad region (80%). The lowest enrollment rates were in urban preschools of Dnipropetrovsk region (69%) and Odessa region (66%) as well as in Kyiv city (62%).

In 2019 preschool enrollment rate in rural areas of Ukraine was only 40%, although it is 7% more than in 2010. The highest enrollment rates were in rural pre-

schools of Kyiv region (59%), Cherkasy region (50%), Mykolaiv and Kherson regions (49%), Zakarpattia region (46%) and Vinnytsia region (45%). The lowest enrollment rates preschool education was in rural preschools of Odessa region (38%), Dnipropetrovsk, Ternopil and Kharkiv regions (37% in each one), Volyn, Zaporizhia and Chernihiv regions (36% in each one), Ivano-Frankivsk and Lviv regions (29% in each one).

Territorial concentration index (iTC) was used to determine polarization in the location of preschools in Ukraine. This indicator shows correlation between the region area and the number of preschools in the region. It is clear that the highest concentration of preschools is observed in Kyiv city (iTC=30.5). Among other regions with high territorial concentration index are Zakarpattia region (1,9), Chernivtsi region (1,8), Ternopil region (1,7), Lviv region (1,5), Khmelnytsky region (1,4), Ivano-Frankivsk region (1,3), Dnipropetrovsk, Cherkasy and Vinnytsia regions (1,2 in each one). Low territorial concentration index is observed in Sumy, Zaporizhia, Donetsk and Kirovohrad regions (0,7 in each one), Kherson region (0,6), Chernihiv region (0,5) and Luhansk region (0,3). The rest of the regions have iTC close to 1. Territorial concentration index values less than 1 indicate low concentrations of preschools in studied regions of Ukraine. Values higher than 1 indicate optimal location of preschools in studied regions.

Localization index (iL) was used to determine preschool education sector development in certain regions of the country comparatively to their share of population in a whole country scale. Localization index values higher than 1 are quantitative expressions of the process of territorial specialization. High localization index values were observed in Khmelnytsky and Ternopil regions (1.6 in each one), Zhytomyr and Cherkasy regions (1.5 in each one), Vinnytsia region (1.4), Mykolaiv, Zakarpattia, Rivne, Kirovohrad and Volyn regions (1,3 in each one). The lowest localization index values were observed in Kyiv city (0.6), Kharkiv region (0.7), Luhansk and Donetsk regions (0.3 in each one). This index shows the degree of preschool concordance to the population level and to the areas where people choose to settle. Localization index has proven that the number of preschools is directly dependent of the population number in the area.

Social density of preschools was also analyzed in the study. This indicator makes it possible to estimate the level of proportionality between the preschool location and the existing settlement network of the region. The highest social density of preschools is typical for the capital of Ukraine – the city of Kiev. As for the other regions, the indicator is higher than the all-Ukrainian one (0.04) in Chernivtsi, Zakarpattia and Dnipropetrovsk regions (0.07), Odessa and Kyiv regions (0.06), Zaporizhia, Kherson, Cherkasy and Ivano-Frankivsk regions (0,05 in each one). The lowest social density of preschool sector services (0.02) is typical for Poltava, Sumy, Chernihiv and Luhansk regions.

To determine the level of preschool education development in different regions of Ukraine the ranking method was used. The following indicators were ranked: preschool enrollment rates, social density of preschools, territorial concentration of preschools, localization of preschools and the number of enrolled preschoolers per

100 available places. According to the sum of ranks, regions of Ukraine were grouped into three types.

Cherkasy, Khmelnytsky, Vinnytsia, Kyiv, Ternopil and Zakarpattia regions were included in type I (high level of preschool education development) due to significant enrollment rates in preschools, smaller number of children in preschools per 100 available places, high social density of preschools, etc.

Type II (average level of preschool education development) includes city of Kyiv and regions of Zhytomyr, Rivne, Mykolaiv, Dnipropetrovsk, Chernivtsi, Sumy, Kherson, Kirovohrad, Poltava and Kharkiv. It should be noticed that Kyiv city did not reach to type I (highest level) due to city's overcrowded preschools, low enrollment rates among children of preschool age (only 62% of them attended preschools) and one of the lowest localization indexes of preschools in the whole country.

Volyn, Ivano-Frankivsk, Chernihiv, Lviv, Odessa, Zaporizhia, Donetsk and Luhansk regions were included in type III (low level of preschool education development). It is predictable for Donetsk and Luhansk regions due to lack of data for the most indicators. Other regions of type III have typically low indexes of territorial concentration and localization of preschools, except for Lviv and Ivano-Frankivsk regions. Type III regions are also characterized by overcrowded preschools and they take last place in consolidated ranking. In particular, Lviv and Ivano-Frankivsk regions have the highest numbers of children (124 and 122 accordingly) per 100 available places in their preschools. At the same time enrollment rates are low, for example only 47% of children of preschool age in Ivano-Frankivsk region, 52% in Lviv region and 55% in Odessa region attend preschools.

Conclusion. Conducted research gave the opportunity to study modern state of preschool education in different parts of Ukraine and to identify territorial disparities throughout the country.

According to the results of the study, three types of regions have been identified. Regions (oblast) of Cherkasy, Khmelnytsky, Vinnytsia, Kyiv, Ternopil and Zakarpattia have been included in the first type (high level of preschool education development). The second type (average level of preschool education development) includes city of Kyiv and regions (oblast) of Zhytomyr, Rivne, Mykolaiv, Dnipropetrovsk, Chernivtsi, Sumy, Kherson, Kirovohrad, Poltava and Kharkiv. Regions (oblast) of Volyn, Ivano-Frankivsk, Chernihiv, Lviv, Odessa, Zaporizhia, Donetsk and Luhansk have been included in the third type (low level of preschool education development).

Imperfect territorial organization of preschool education sector in Ukraine often results in unequal access to preschools for large amounts of country's population. This leads to low preschool enrollment rates in some regions of Ukraine and overcrowded preschools in other parts of the country.

Conducted research is an important contribution in understanding the ways in which preschool education sector of Ukraine can be improved in the future. Results of this study can be used for developing social infrastructure plans in both urban and rural areas of the country.

Remedy and relief in current situation can be achieved by more efficient capacity utilization of existing

preschools, supplying them with better equipment, building new preschools, enrolling more children of preschool age in preschools etc.

Given all above, it is necessary to continue research

on this topic to find comprehensive solutions of existing problems and to provide citizens of Ukraine with equal access to affordable and high quality preschool education.

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