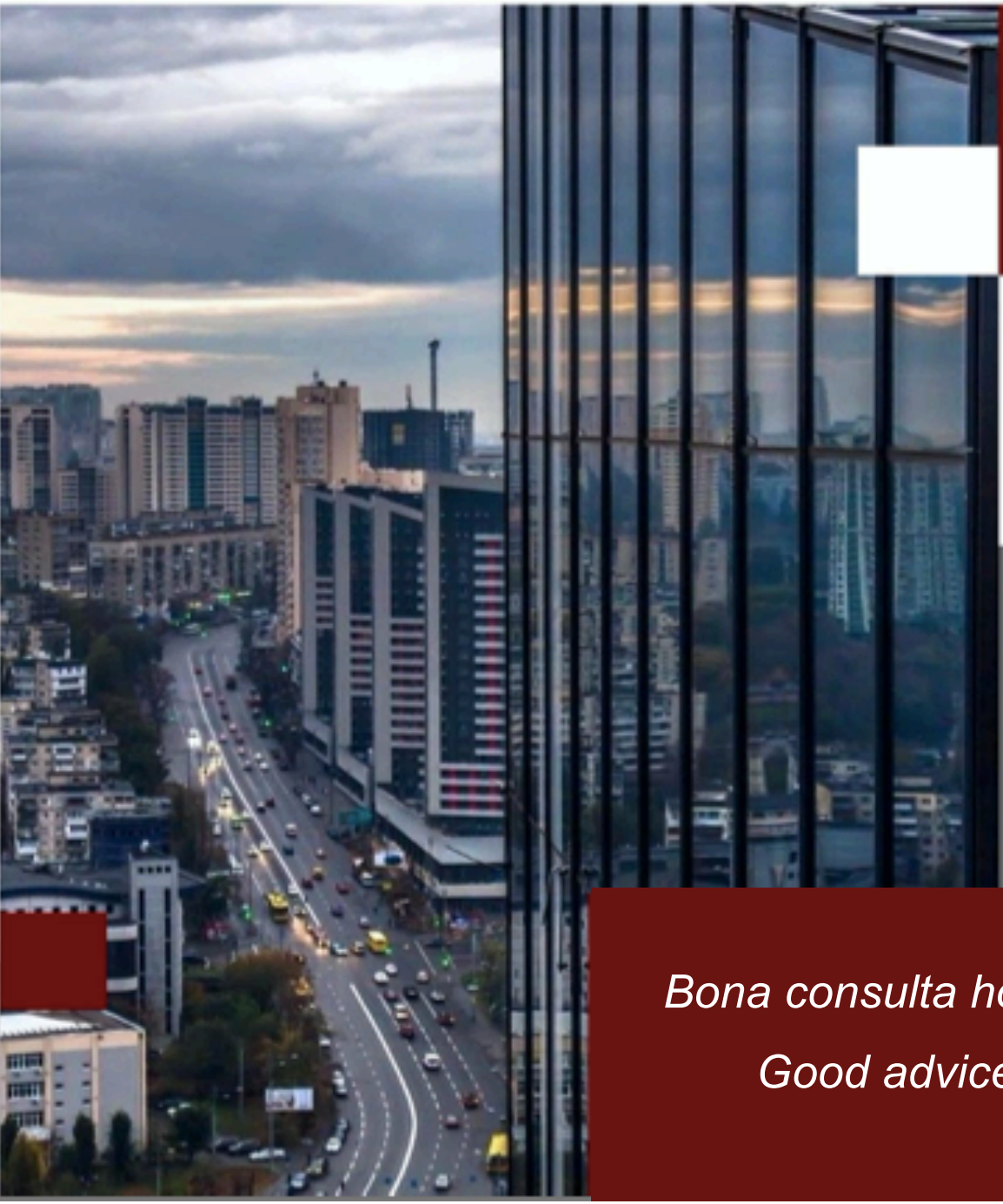
CONSULTING - ENGINEERING GROUP®
VERITEX®

INFORMATION BASE AND ANALYTICS OF THE REAL ESTATE MARKET OF UKRAINE

December 2024



Bona consulta homini optima est!

Good advice is the best!

INTRODUCTION

The absence of a reliable analytical database for real estate transactions, both residential and commercial and industrial, remains one of the biggest obstacles to obtaining reliable data on its actual value.

This significantly complicates the process of conducting valuation, requiring considerable effort from experts to search for market analogs and reduces the accuracy and reliability of the results of such work.

The identified problem is substantial for appraisers and their clients. It does not require detailed explanations, but requires concerted efforts for its gradual resolution.

The VERITEX® Group forms the information and analytical base of the Ukrainian real estate market using appropriate automated and settlement products and application software packages. This allows us to effectively use such a database, to obtain generalized results on a scheduled basis, to formulate patterns in the modern real estate market, and to forecast its priority directions for further development.

The creation of the primary electronic database involves monitoring and accumulating information flows from the existing real estate market and subsequent in-depth processing. This is made possible through the application of methods such as mathematical and statistical analysis, geospatial and cluster analyses, machine learning and modeling, including neural networks and a combination of these methods.

The use of modern database management methods (PostgreSQL), geographic information systems (QGIS), and script libraries (Python) allows us to conduct this initial analysis as efficiently as possible.

The main principles on which the information-analytical database is built include:

- *Maximum coverage of the existing primary information database of the real estate market in Ukraine.*
- *Application of precise mathematical, statistical and other most appropriate modern models and criteria for analyzing large information arrays at all stages of processing the primary database;*
- *Conducting a complete probability-statistical analysis of the primary information database for all categories of real estate, obtaining key parameters of their market status and development evolution.*

- *Continuous verification of interim and final results for compliance within the applied analytical model.*
- *Consistent comparison of the developed analytical apparatus and obtained results with the most recognized domestic and foreign works in this field.*

The implementation of these principles ensures high reliability and accuracy of the obtained results and the conclusions formulated on their basis.

All this is in line with the main goal of creating and providing all interested organizations and professionals with reliable analytics of the state, trends and forecasts of the real estate market with a detailed analysis of the impact of the main pricing factors.

INITIAL INFORMATION BASE AND ITS PRIMARY PROCESSING

Obtaining the initial information base and its primary processing form the basis of the subsequent real estate market analysis and directly affect the results of the entire analysis. Therefore, considerable attention is paid to this initial and quite complex stage of work.

In terms of its structure, the initial information and analytical base of the residential real estate market consists of the following blocks:

- **BLOCK OF APARTMENTS:** primary and secondary market;
- **BLOCK OF LAND PLOTS:** for construction, agricultural, industrial;
- **BLOCK OF HOUSEHOLDS:** separate from land plots and joint with them

The processing of primary data sets for all three of these blocks of real estate is conducted on a unified methodological basis using the mentioned analytical tools. This ensures the unification of the methodology itself and the possibility of conducting a comparative analysis of the results for individual real estate groups.

1. INFORMATION AND ANALYTICAL BLOCK OF THE APARTMENT MARKET

As of the end of 2024, the database, in particular, the volume of the secondary apartment market includes about 2,625,595 unique offers from all over Ukraine. The majority of this market structure (>90%) is made up of 1-2-3-room apartments. The share of these apartments in terms of value is also major.

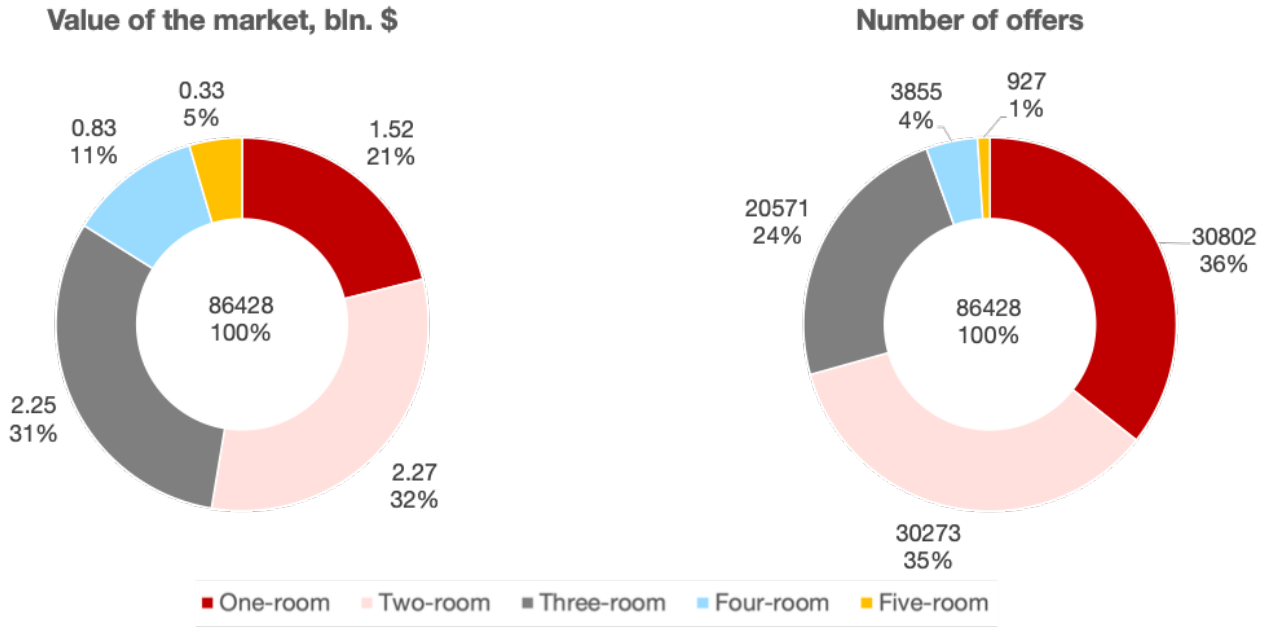


Fig. 1.1. Volume of the secondary apartment market in Ukraine as of December 2024

The total number of existing offers for sale at the end of 2024 amounted to 86,428 apartments (Fig. 1.1). The largest share of offers for sale falls on one- and two-bedroom apartments, which accounted for 35.64% and 35.03% of the total number of apartments offered for sale, respectively. For three-room apartments, this share is also significant, reaching 23.8%. For 4-, 5- and more-room apartments, respectively, 5.53% of the total number of offers remains.

In monetary terms, the volume of the secondary apartment market in Ukraine in December exceeded $7.2 billion (Fig. 1.1). The largest share belongs to two- and three-room apartments, with 31.48% and 31.21%, respectively, while one-bedroom apartments constitute 21.08%. The share of 4-room apartments in monetary terms is already 11.51%, and for 5-room and more, it is 4.58%.

This picture is quite natural as it reflects the structure of the housing stock, the construction of which has historically evolved over the last decades. The statistical regularities in the distribution of key characteristics and parameters of these distributions are crucial for property valuation, allowing for a comprehensive probabilistic and statistical analysis. The importance of obtaining such distribution parameters is determined by the nature of the data, which has a probabilistic basis.

The indicators of the volume of the secondary market in Ukraine at the end of 2024 in dynamics characterize the general picture, taking into account the influence of various factors that restrained or, conversely, stimulated market activity (Fig. 1.2, 1.3). Thus, we see that the general trend during the first months was downward. Obviously, the reason for the general reduction was and is the full-scale war, which continues to negatively affect the real estate market. Despite fluctuations, the general trend indicates a gradual increase in the number of offers, especially in the second half of the year.

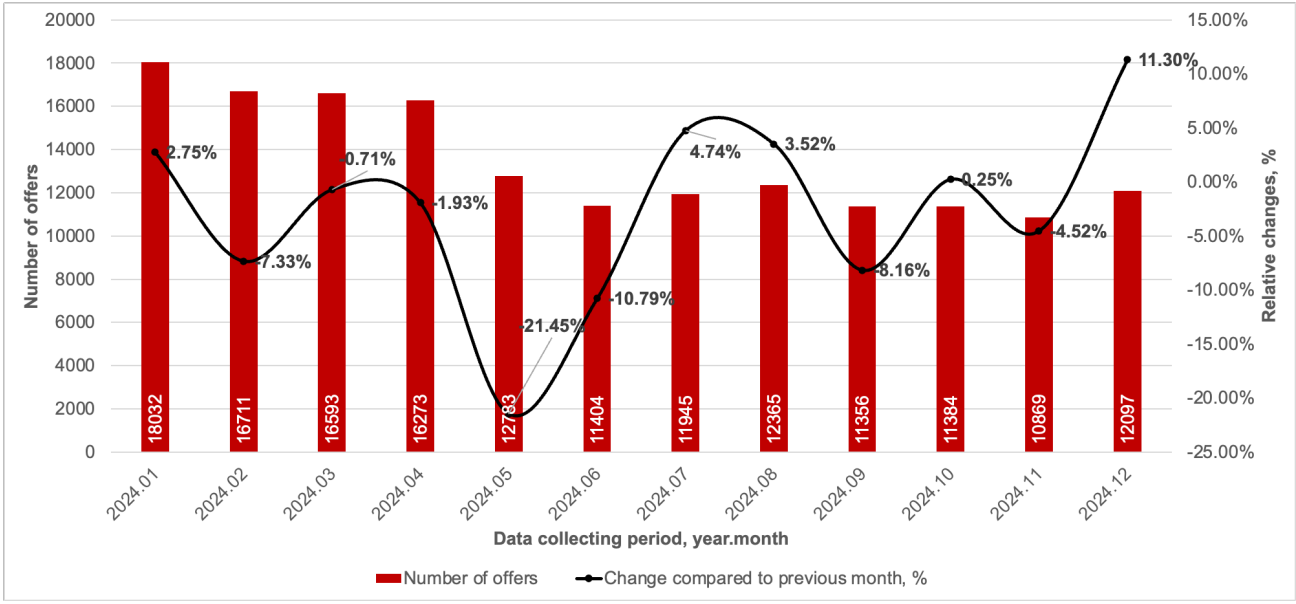


Fig. 1.2. Dynamics of the number of offers on the secondary apartment market in Ukraine as of December 2024

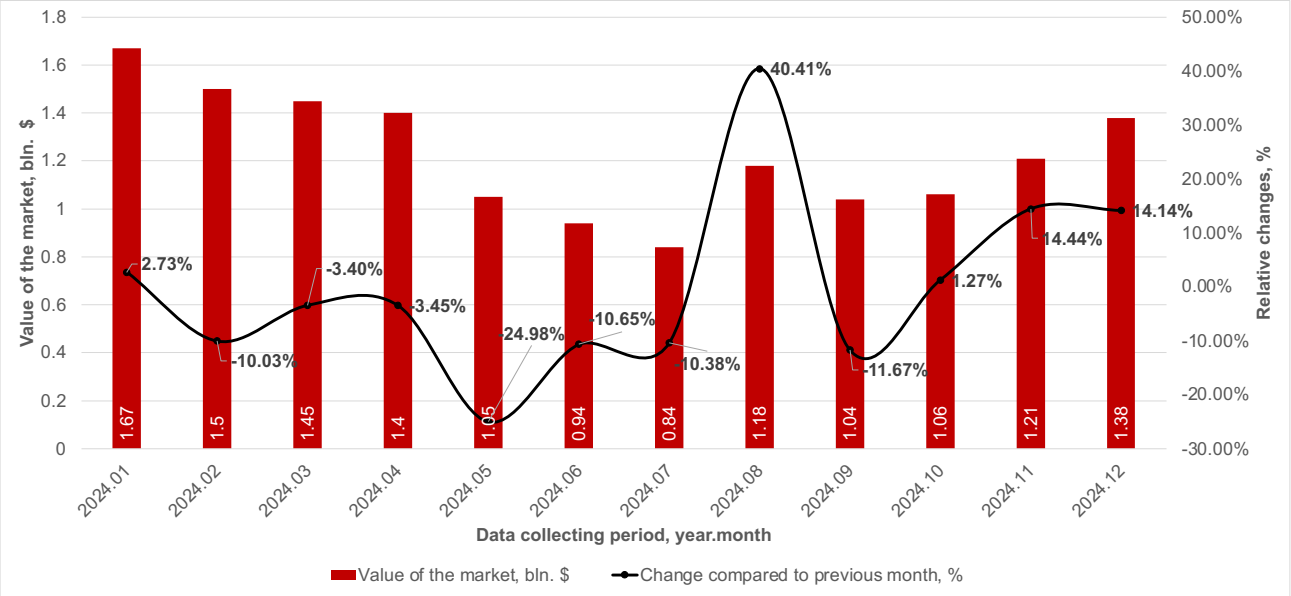


Fig. 1.3. Dynamics of the volume of the secondary apartment market in Ukraine as of December 2024, billion $

Statistical analysis of the total amount of available primary information after its initial filtering based on the Romanovsky criterion for statistical "outliers" shows that the distribution density of one of the main and widely used monetary criteria - the cost per square meter of area - is not symmetrical and has a pronounced positive (right-sided) asymmetry (Fig. 1.4).

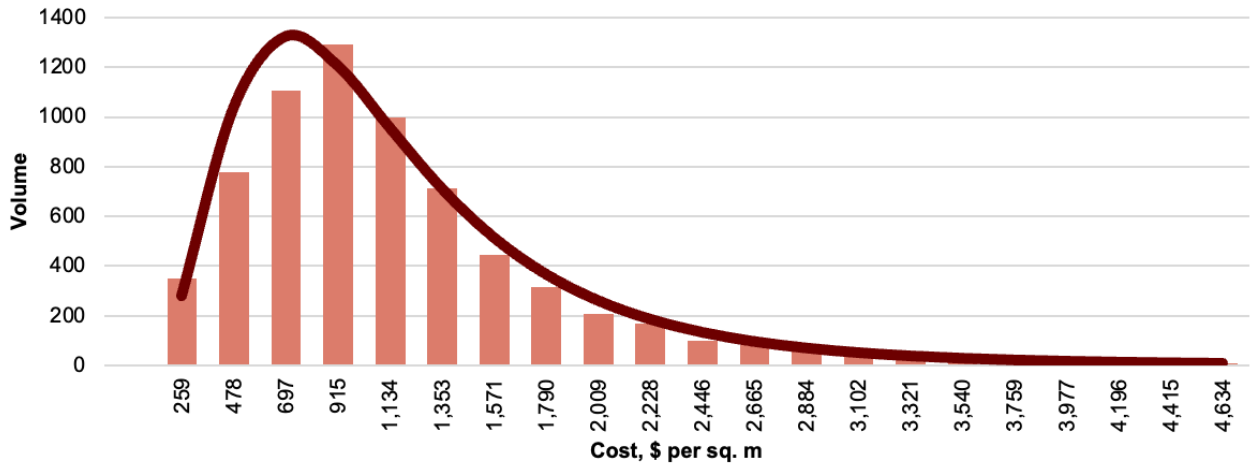


Fig. 1.4. Density of distribution of the cost of 1 sq. m. of apartments in the secondary market of Ukraine as of December 2024

The analysis shows that all distributions of statistical data for certain time periods and geographical regions of this key financial parameter, which is widely used in the valuation of residential and industrial premises, share a similar overall pattern.

Based on this, we repeatedly assessed the consistency of the distributions or their "agreement" with the most well-known theoretical distributions. Such a check was carried out using one of the most statistically powerful criteria - Pearson's $\chi 2$ criterion. Repeated calculations allowed us to conclude that the closest theoretical distribution to the obtained statistical samples is the logarithmically normal distribution of the parameter of the cost of 1 square meter of living space.

This general conclusion is undoubtedly important, as it allows us to estimate the parameters of the closest theoretical distribution from a statistical sample, and therefore to determine with the highest reliability the statistical characteristics of the key financial indicator of value, which is 1 square meter of the analyzed premises.

Since the analysis was carried out primarily for the overall most representative statistical sample throughout Ukraine, we can conclude that this distribution law is most consistent with the theoretical one for the specified monetary parameter - the cost of 1 sq. m. of apartments in US dollars.

Below are the density distributions of the cost per square meter of apartments in the secondary market offerings across Ukraine as a whole and in the largest cities (Kyiv, Odessa, Kharkiv, Dnipro, Lviv) as of December 2024, when approximated by a lognormal distribution law (Fig. 1.5, 1.6). Based on the nature of the distribution and for the convenience of processing real estate market statistics, the sample was logarithmized by the decimal logarithm. The values of the cost per square meter were obtained by the inverse logarithm method applied to aggregated values of the obtained statistical indicators.

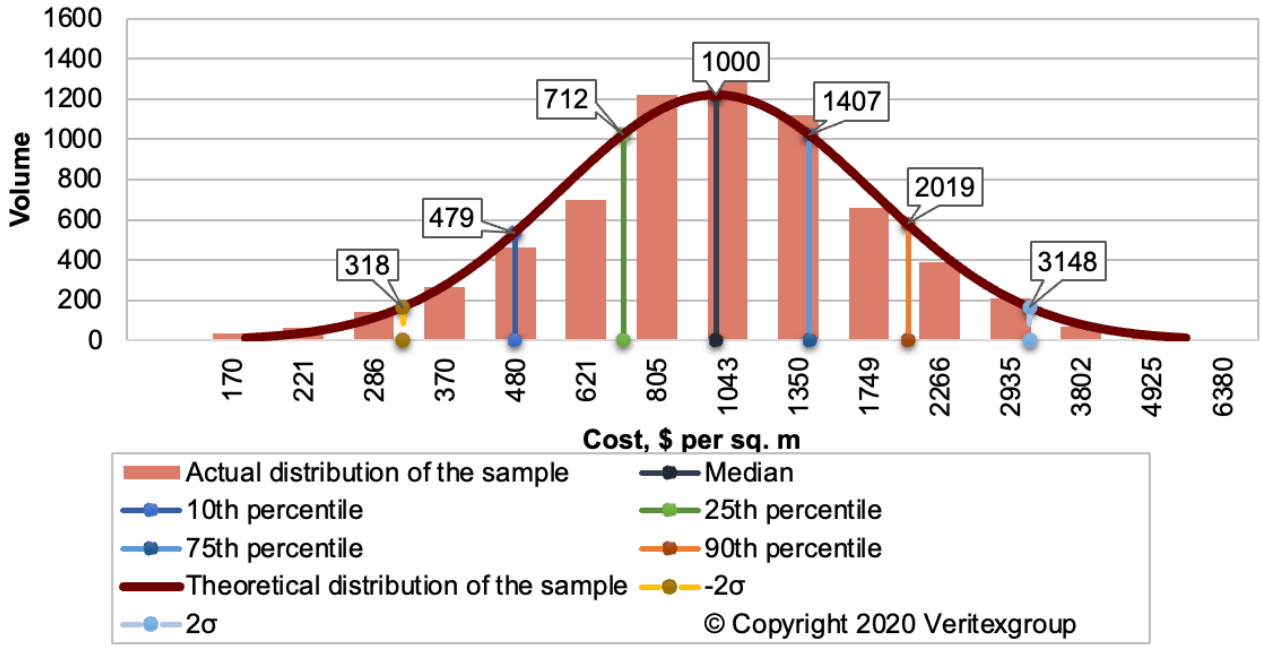


Fig. 1.5. Description of the density of distribution of the cost of 1 sq. m. of apartments in the secondary market of Ukraine as of December 2024 by the log-normal distribution law

Thus, based on the obtained results, we can justify the application of such an approach. Therefore, all further processing of the primary information database is based on determining the parameters of the log-normal distribution law adopted as the theoretical law for the entire general population of the information database on the distribution of the cost per square meter of living space.

The median values of apartment costs in Kyiv, Odessa, Kharkiv, Dnipro, and Lviv on the secondary market in December 2024 were $1537/sq.m., $1000/sqm, $644/sq.m., $842/sq.m., and $1531/sq.m., respectively. Compared to 2023, this indicator decreased in Kyiv, Dnipro, and Kharkiv. In Odesa, it remained stable, while in Lviv it increased. In general, the median cost of apartments in the country is $ 1000 per square meter, so we can observe significant differences in both the levels of average cost for different regions and the degree of their volatility (Table 1.1, Fig. 1.6). At the same time, obtaining only averaged cost indicators for each individual city is not sufficient, considering the geographic zoning and differentiation of cost indicators within the city.

The summary table of distribution parameters for this indicator, including all regional centers without exception, includes not only the mean and median values but also the level of their dispersion and variation, providing a complete

description of the probabilistic and statistical parameters of these distributions (Table 1). In particular, this table provides data for values "mean plus and minus 2σ," corresponding to the limits of 95.46% of the corresponding distribution.

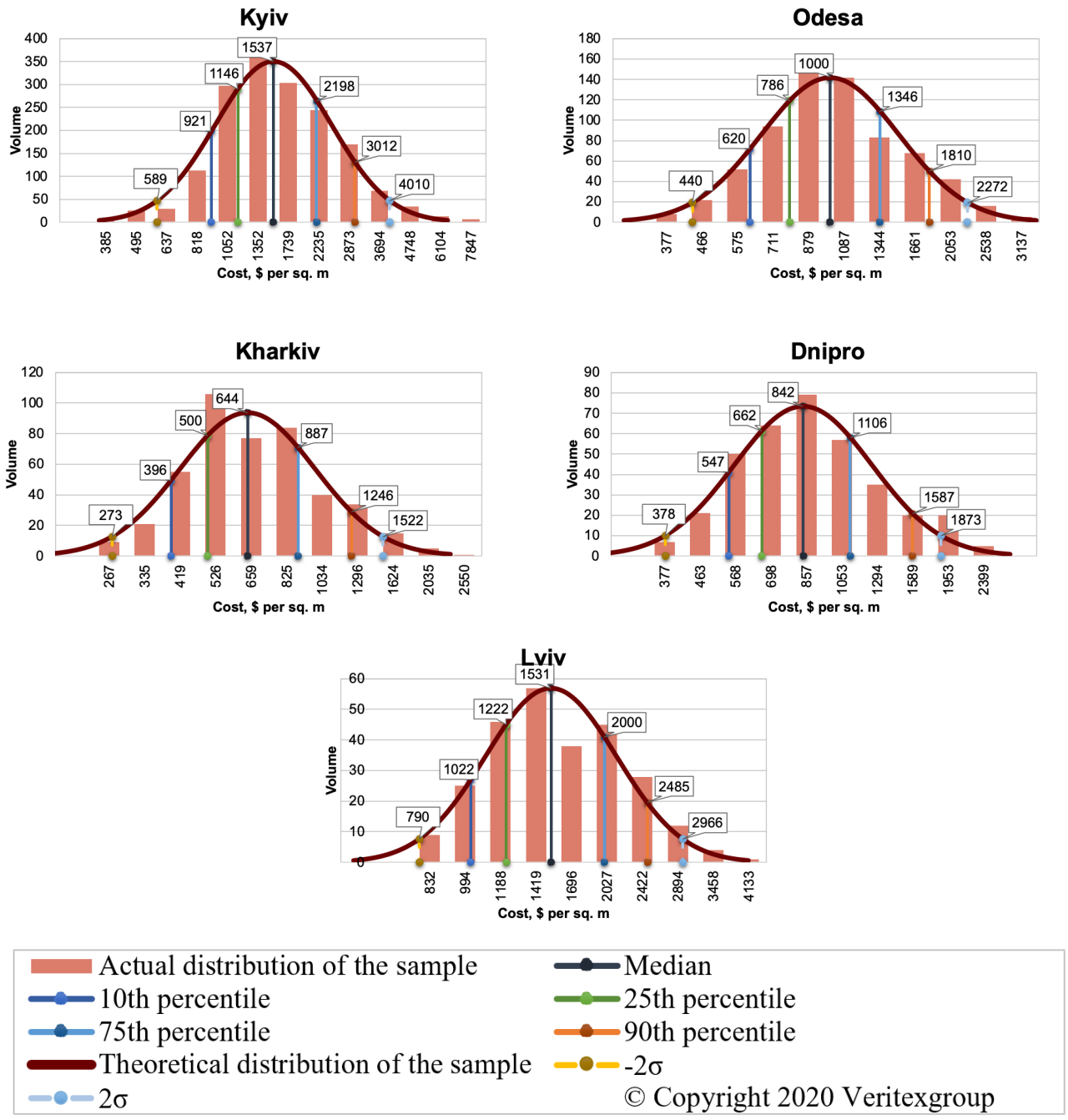


Fig. 1.6. Description of the density of distribution of the cost of 1 sq. m. of secondary market apartments in the largest cities of Ukraine as of December 2024 by the log-normal distribution law

Table 1.1. Parameters of distributions of the cost per square meter of secondary market apartments in regional centers of Ukraine as of December 2024

Region	Supply volume	Median (μ)	Average price	S_{lg} (σ)	Coefficient of variation	Lower bound of the confidence interval	Upper bound of the confidence interval
Kyiv	44733	3.20	1834.42	3.22	0.20	0.30	645.54
Odessa	18170	3.00	1104.01	3.01	0.17	0.26	455.56
Kharkiv	10030	2.86	805.87	2.87	0.18	0.27	322.50
Dnipro	7181	2.96	1015.30	2.97	0.16	0.25	423.87
Lviv	4339	3.18	1641.56	3.19	0.15	0.22	774.88
Ivano-Frankivsk	3448	2.97	1016.09	2.98	0.14	0.21	494.19
Zaporizhzhia	3177	2.74	587.19	2.75	0.14	0.22	289.88
Khmelnytskyi	2892	2.92	873.09	2.93	0.11	0.17	496.31
Mykolaiv	2103	2.79	650.29	2.79	0.13	0.20	333.39
Vinnytsia	1570	3.05	1158.89	3.05	0.11	0.17	658.17
Uzhhorod	1365	3.13	1413.16	3.13	0.15	0.23	680.34
Poltava	1277	2.96	985.94	2.97	0.14	0.21	482.84
Ternopil	1270	2.98	944.99	2.96	0.11	0.17	563.29
Rivne	1127	3.01	1067.48	3.01	0.12	0.18	591.08
Chernihiv	1076	2.90	873.68	2.92	0.14	0.21	428.14
Cherkasy	1033	2.96	982.44	2.97	0.13	0.19	511.08
Sumy	973	2.81	689.41	2.82	0.13	0.20	351.94
Chernivtsi	965	3.01	1088.82	3.02	0.12	0.19	581.36
Lutsk	741	2.99	1023.83	2.99	0.12	0.18	570.05
Zhytomyr	701	3.02	1071.96	3.01	0.12	0.19	595.38
Kropyvnytskyi	517	2.89	803.63	2.89	0.11	0.17	468.71
Kherson	119	2.63	444.20	2.63	0.13	0.20	231.82

It is important to establish the correlation between the cost per square meter and the total area of apartments. The analysis of this relationship for one, two, and more room apartments shows that the average cost per square meter is relatively stable up to the total area of approximately 60-65 square meters. Only starting from this level of total area, a significant increase in the cost per square meter is observed. The dependence of the average cost on the area of apartments is presented below in the form of ranges (Figure 1.7, Figure 1.8).

The curve reflecting the dependence of price on area is non-linear. This means that with an increase in area, the price per square meter does not increase proportionally. At the initial stage, when the area of the apartment is small, a more intensive increase in the price per square meter is observed. This may be due to the high demand for compact apartments, especially among

young people and families with a small number of children. In the range of medium areas, there is some stabilization of the price per square meter, which is explained by the fact that apartments of medium area are the most in demand on the market. For apartments of large area, an increase in the price per square meter is again observed, because such apartments are usually located in prestigious areas of the city, have an improved layout and additional amenities.

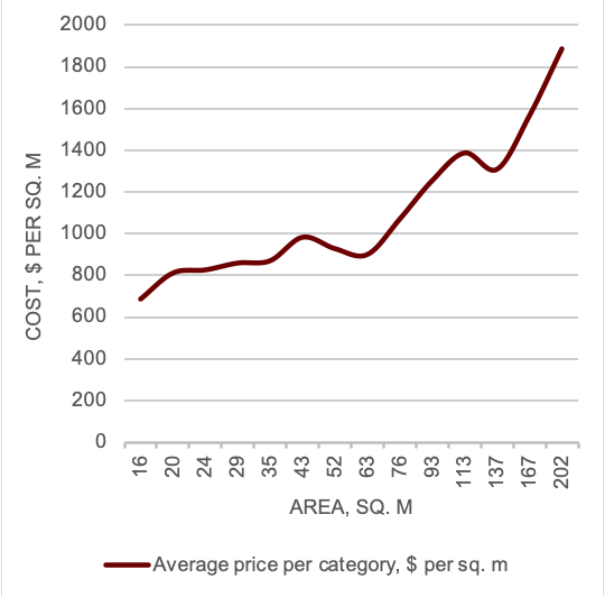


Fig. 1.7. Dependency of the average cost on the area of apartments in Ukraine in December *2024*

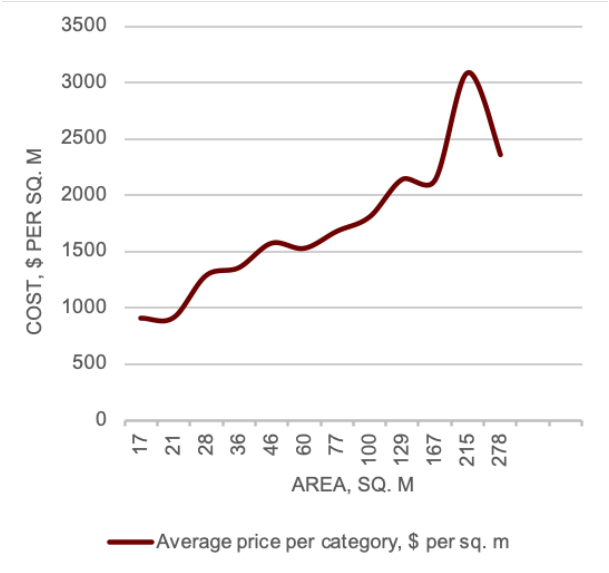


Fig. 1.8. Dependency of the average cost on the area of apartments in Kyiv in December 2024

At the same time, for one-bedroom apartments, the dependence of the cost per square meter on the apartment's area is directly proportional, as with the increase in the area, a single living room becomes more spacious, and the value of one square meter becomes larger.

Factor analysis is a cornerstone in processing large volumes of data. It allows predicting and modeling the influence of various factors on the target indicator. Without collecting systematically organized market information and its in-depth analysis, the study of the impact of individual factors is impossible.

Below is an example of factor analysis of the influence of the floor (Table 1.2), type of renovation (Table 1.3), and number of rooms (Table 1.4) in the secondary housing market on the cost per square meter, considering the building's floor level (distinguishing between new and old construction) and location. It is assumed that major cities and the rest of Ukraine have different dynamics of local economic processes.

Table 1.2. Dependence of the median cost of 1 square meter on the building's floor level, location, and apartment floor

Number of floors at the building	Location	Floor of the apartment	Median cost, $ per m2	Absolute difference with the baseline, $ per m2	Relative difference from baseline, %
More than 9 floors	Ukraine as a whole	First	1149	-607	-34.57%
		Average	1756	0	0.00%
		Last	1552	-204	-11.62%
	The biggest cities *	First	1215	-652	-34.92%
		Average	1867	0	0.00%
		Last	1858	-9	-0.48%
	Other cities	First	1024	-191	-15.72%
		Average	1215	0	0.00%
		Last	891	-324	-26.67%
Less or exactly 9 floors	Ukraine as a whole	First	1068	-137	-11.37%
		Average	1205	0	0.00%
		Last	1186	-19	-1.58%
	The biggest cities *	First	1198	-227	-15.93%
		Average	1425	0	0.00%
		Last	1484	59	4.14%
	Other cities	First	923	-46	-4.75%
		Average	969	0	0.00%
		Last	872	-97	-10.01%

* Kyiv, Dnipro, Lviv, Odessa, Kharkiv

Table 1.3. Dependence of the median cost of 1 square meter on the building's floor level, location, and the category of apartment renovation

Number of floors at the building	Location	Floor of the apartment	Median cost, $ per m2	Absolute difference with the baseline, $ per m2	Relative difference from baseline, %
More than 9 floors	Ukraine as a whole	Housing condition	1528.5	0	0%
		Just built	1353	-175.5	-11%
		Cosmetic repair	965	-563.5	-37%
		Eurorenovation	1537	8.5	1%
		Author's project	2259	730.5	48%
	The biggest cities *	Housing condition	1742.25	0	0%
		Just built	1959	216.75	12%
		Cosmetic repair	1035	-707.25	-41%

		Eurorenovation	1616	-126.25	-7%
		Author's project	2359	616.75	35%
	Other cities	Housing condition	1065.5	0	0%
		Just built	847	-218.5	-21%
		Cosmetic repair	747	-318.5	-30%
		Eurorenovation	1206	140.5	13%
		Author's project	1462	396.5	37%
Less or exactly 9 floors	Ukraine as a whole	Housing condition	1235	0	0%
		Just built	1000	-235	-19%
		Cosmetic repair	879	-356	-29%
		Eurorenovation	1228	-7	-1%
		Author's project	1833	598	48%
	The biggest cities *	Housing condition	1527	0	0%
		Just built	1476	-51	-3%
		Cosmetic repair	985	-542	-35%
		Eurorenovation	1406	-121	-8%
		Author's project	2241	714	47%
	Other cities	Housing condition	968.75	0	0%
		Just built	859	-109.75	-11%
		Cosmetic repair	788	-180.75	-19%
		Eurorenovation	1012	43.25	4%
		Author's project	1216	247.25	26%

* Kyiv, Dnipro, Lviv, Odessa, Kharkiv

Table 1.4. Dependence of the median cost of 1 square meter on the building's floor level, location, and the number of rooms

Number of floors at the building	Location	Floor of the apartment	Median cost, $ per m2	Absolute difference with the baseline, $ per m2	Relative difference from baseline, %
More than 9 floors	Ukraine as a whole	1	1371	0	0.00%
		2	1457	86	6.27%
		3	1479	108	7.88%
		4	1919	548	39.97%
		5	2818	1447	105.54%
	The biggest cities *	1	1510	0	0.00%
		2	1637	127	8.41%
		3	1636	126	8.34%
		4	2083	573	37.95%
		5	2787	1277	84.57%
	Other cities	1	1131	0	0.00%

		2	1101	-30	-2.65%
		3	1002	-129	-11.41%
		4	962	-169	-14.94%
		5	2947	1816	160.57%
Less or exactly 9 floors	Ukraine as a whole	1	972	0	0.00%
		2	914	-58	-5.97%
		3	853	-119	-12.24%
		4	952	-20	-2.06%
		5	1217	245	25.21%
	The biggest cities *	1	1083	0	0.00%
		2	1137	54	4.99%
		3	1104	21	1.94%
		4	1336	253	23.36%
		5	1540	457	42.20%
	Other cities	1	893	0	0.00%
		2	779	-114	-12.77%
		3	703	-190	-21.28%
		4	666	-227	-25.42%
		5	837	-56	-6.27%

* Kyiv, Dnipro, Lviv, Odessa, Kharkiv

Based on the obtained results, it can be stated that the floor of the apartment affects the cost differently, depending on the location and type of building fund. In new buildings, apartments on the top floor usually have the best panoramic views. Apartments on the top floor in old buildings do not have such an advantage, so their cost decreases. Therefore, in new buildings, the top floor is more expensive than the first, and vice versa for the old fund. The cost of the first and last floors for the old fund in major cities is approximately at parity.

The analysis of the impact of the renovation class on the cost of housing allows us to conclude that the price difference between a habitable condition and cosmetic repairs is practically absent in major cities, regardless of the type of building fund. In turn, the presence of euro renovation or elite-level housing significantly increases its cost.

An important element of the analysis of the initial information base of the real estate market is the determination of the time dynamics of its development. The analysis of the dynamics of apartment prices in Ukraine in 2024, presented in Fig. 1.9, 1.10 and 1.11, demonstrates heterogeneity and dependence on regional characteristics.

The first half of 2024 was characterized by relative price stability in most markets. However, starting from the third quarter, there has been an increase in housing costs, especially in large cities such as Kyiv, Kharkiv and Lviv. This may be due to the resumption of economic activity, a decrease in inflation and an increase in demand for housing.

At the same time, the opposite trend is observed in Dnipro - a decrease in prices. This may be due to ongoing security risks and the consequences of military actions that scare away potential buyers.

Odesa demonstrates relative price stability throughout the year, which may be due to the characteristics of the local market and its sensitivity to seasonal factors.

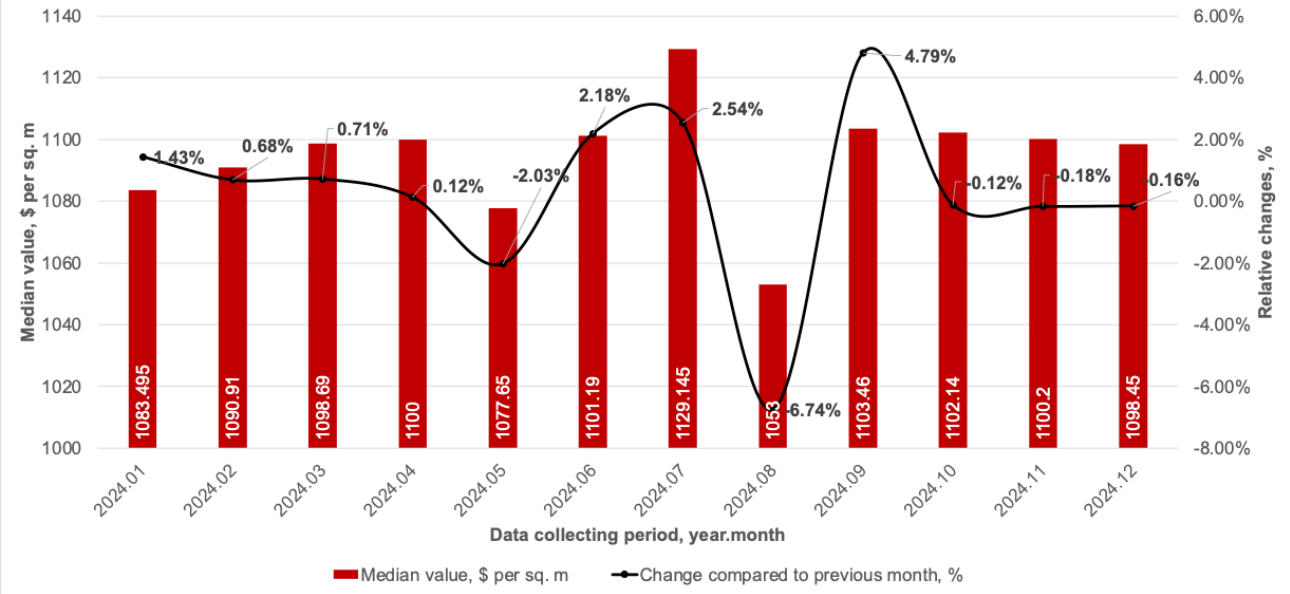


Fig. 1.9. Dynamics of changes in the median value of the cost per square meter of apartments in the secondary housing market in Ukraine as of December 2024

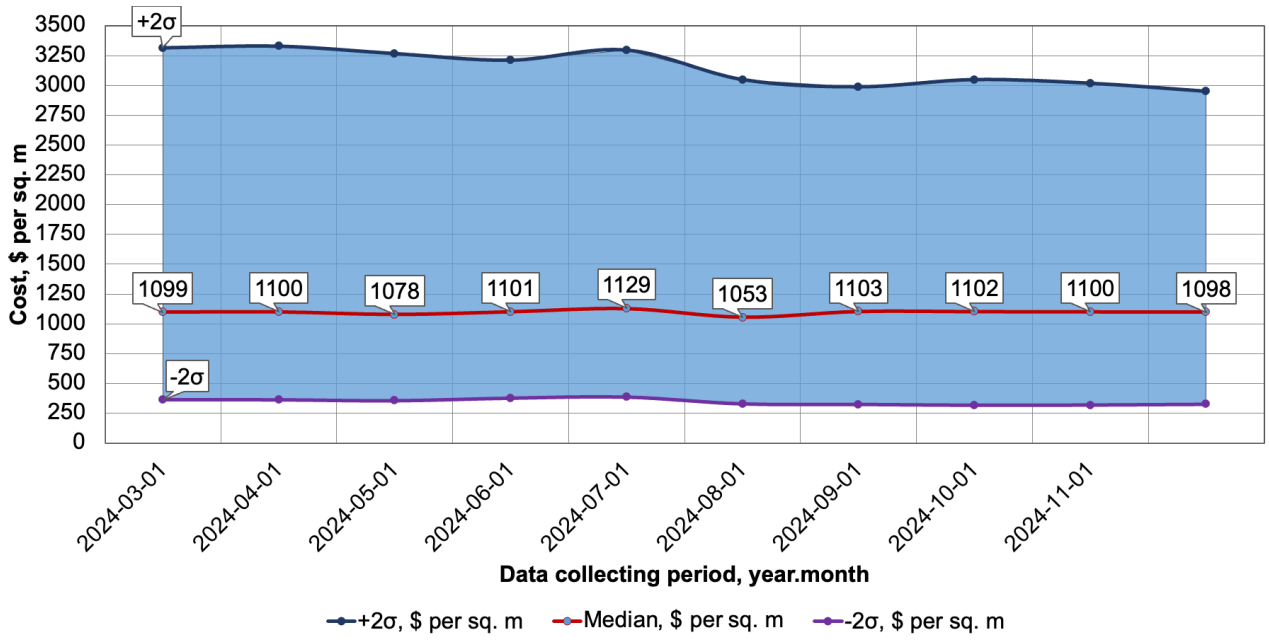
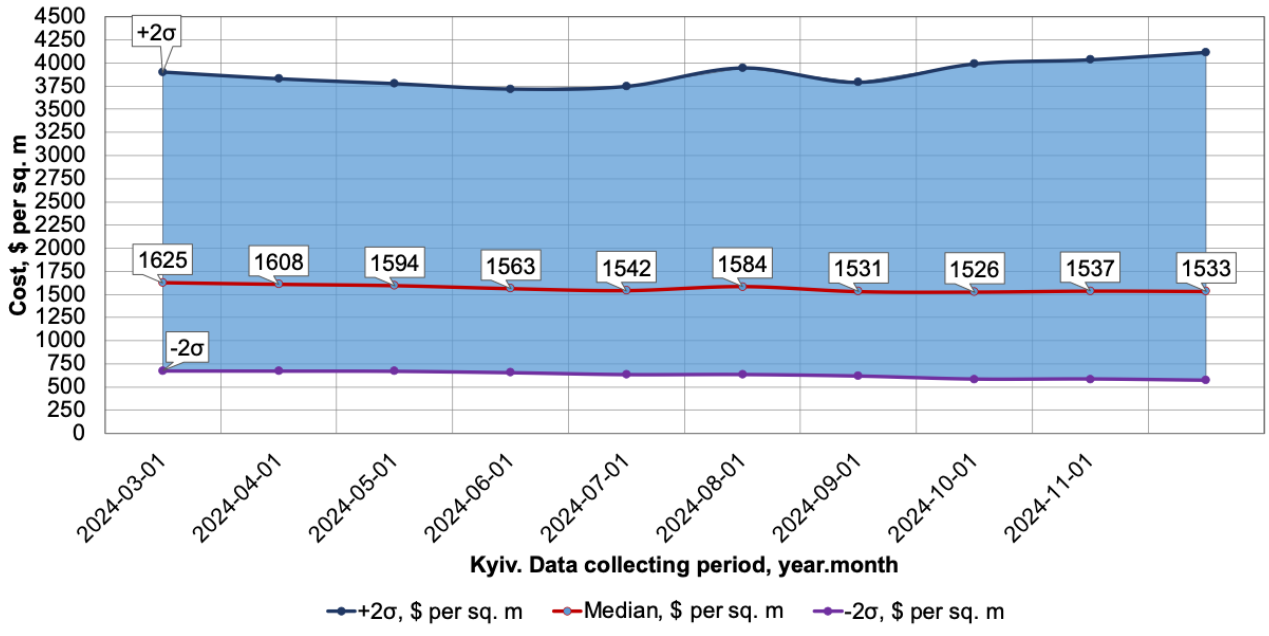
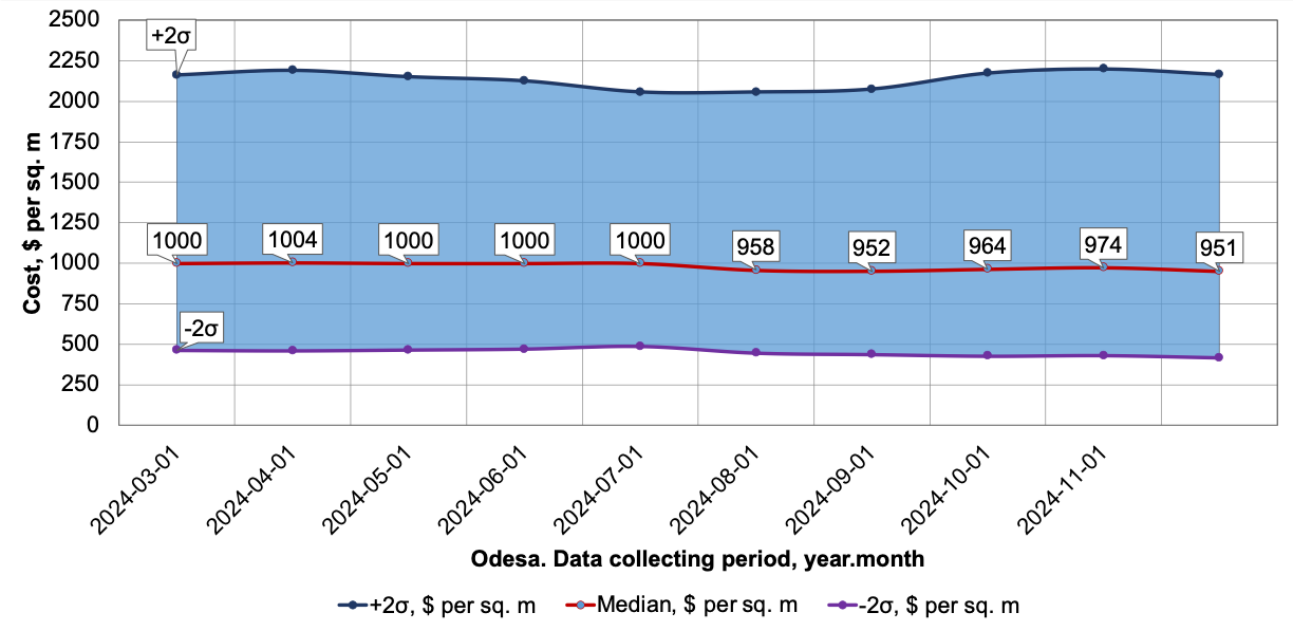


Fig. 1.10. Dynamics of the median and marginal (95.46%) levels of the cost per square meter of housing in Ukraine as of December 2024




2500
2250
2000
1750
1500
1250
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250
0
Cost, $ per sq. m
+2σ
-2σ
1000
1004
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1000
1000
958
952
964
974
951
2024-03-01
2024-04-01
2024-05-01
2024-06-01
2024-07-01
2024-08-01
2024-09-01
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Odesa. Data collecting period, year.month
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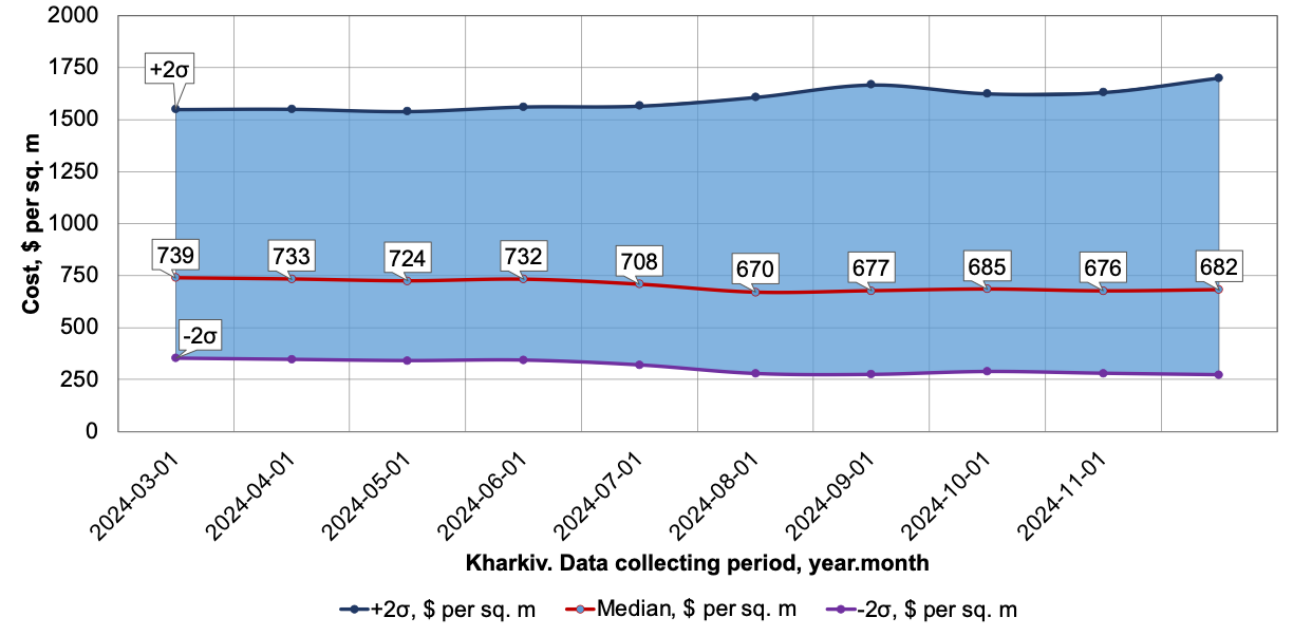
2000
1750
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Cost, $ per sq. m
+2σ
-2σ
739
733
724
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708
670
677
685
676
682
2024-03-01
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2024-06-01
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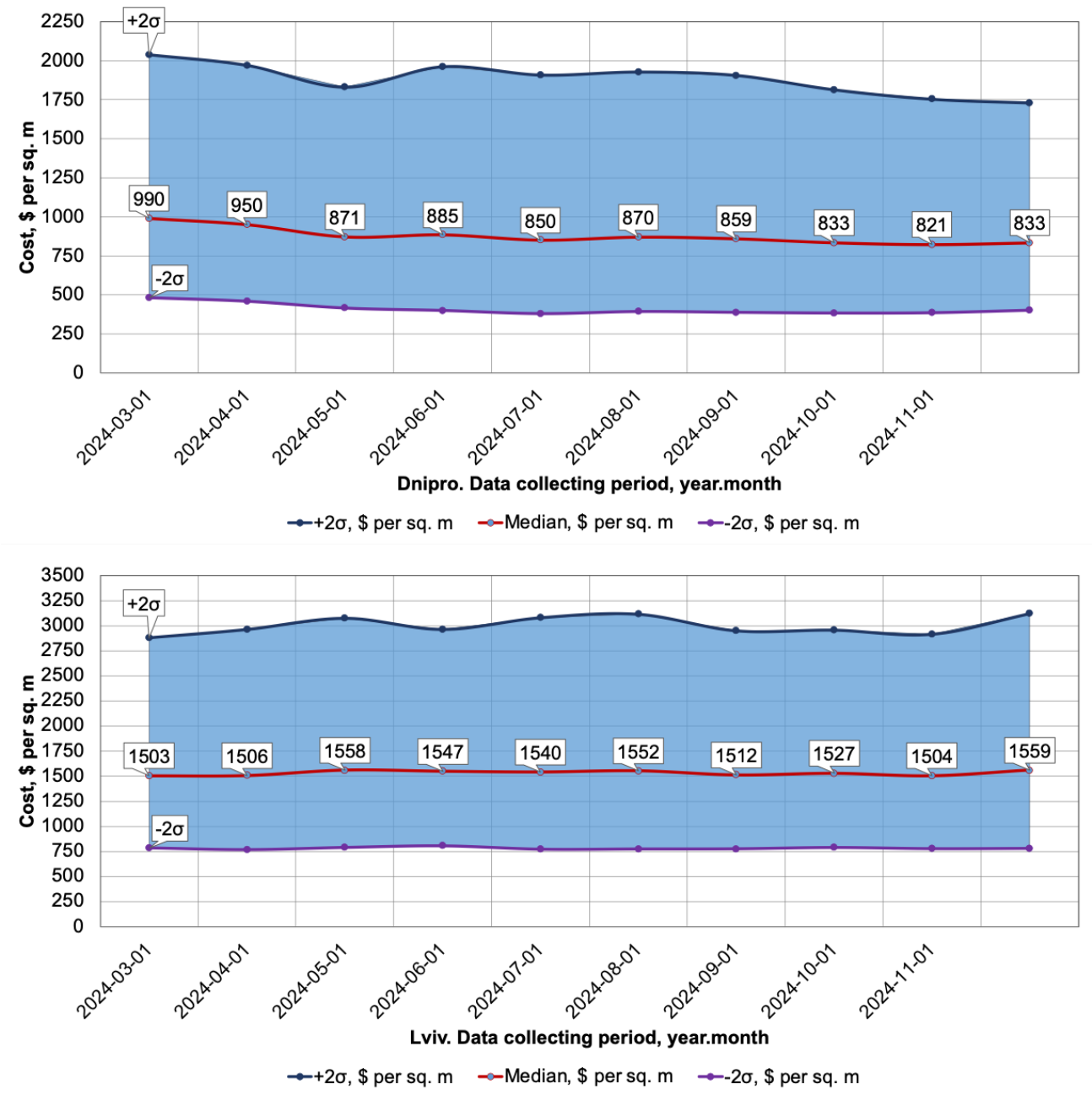


Fig. 1.11. Dynamics of the median and margin (95.46%) levels of the cost per square meter of housing in the largest cities as of December 2024.

Analysis of the dynamics of dispersion and coefficient of variation in the housing market of Ukraine in 2024 revealed interesting regional differences (Fig. 1.12, 1.13). In the first half of the year, a general decrease in the level of price variability was observed, which indicates a certain stabilization of the market. However, in the second half of the year, the situation changed.

Kyiv, Odessa and Lviv demonstrated an increase in dispersion and coefficient of variation, which indicates an increase in the heterogeneity of

housing prices in these cities. This may be due to various factors, such as increased investor activity, increased demand for certain market segments or changes in the regulatory field.

In contrast, in Kharkiv and Dnipro, where the situation remains more complicated due to the consequences of hostilities, a smoothing of the price difference is observed, which may be associated with a decrease in overall activity in the market.

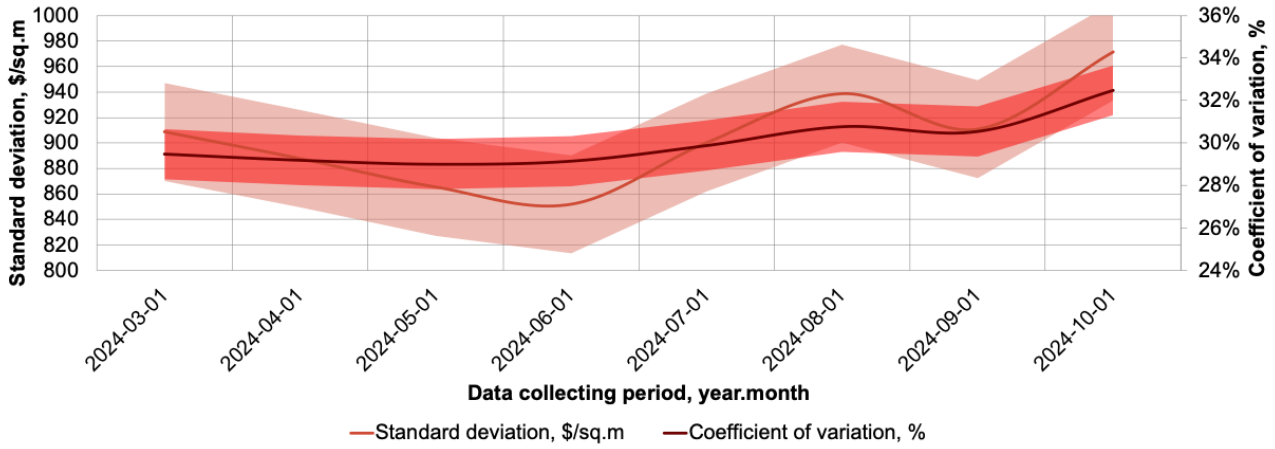
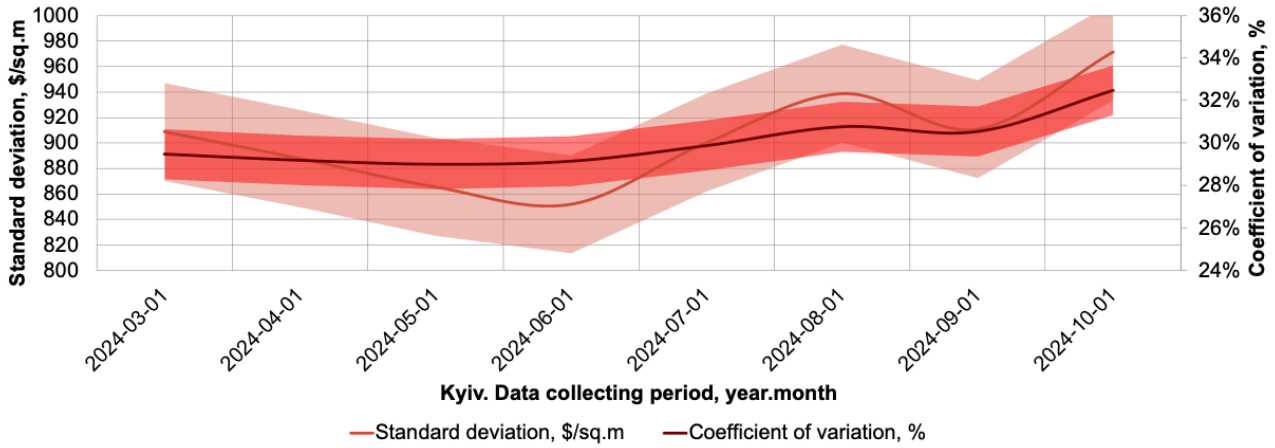
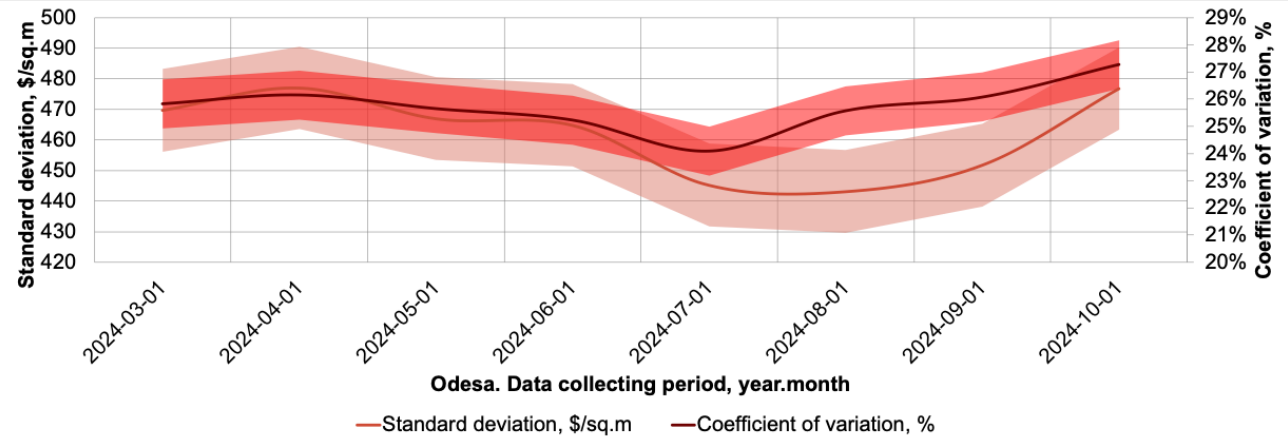
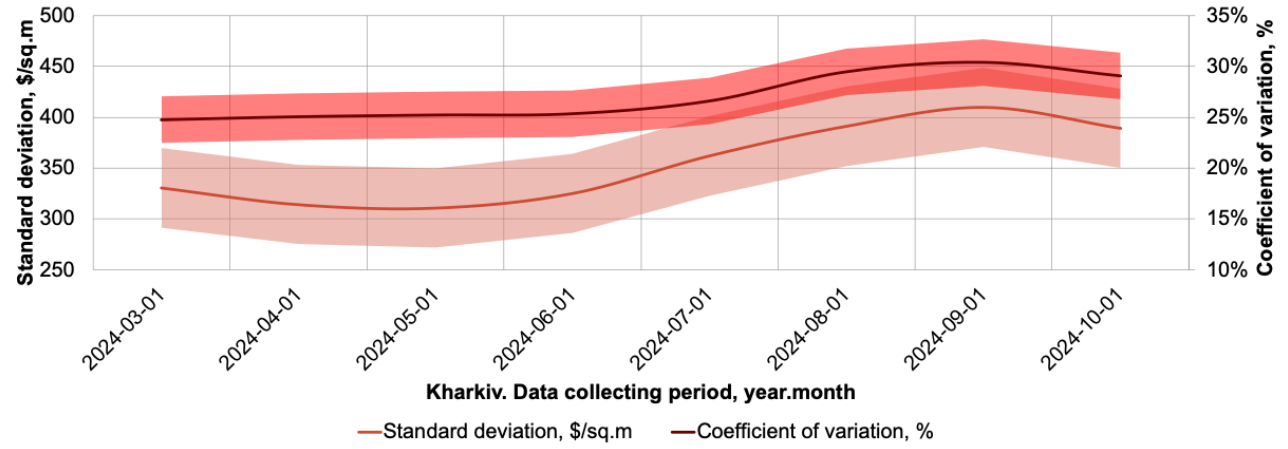
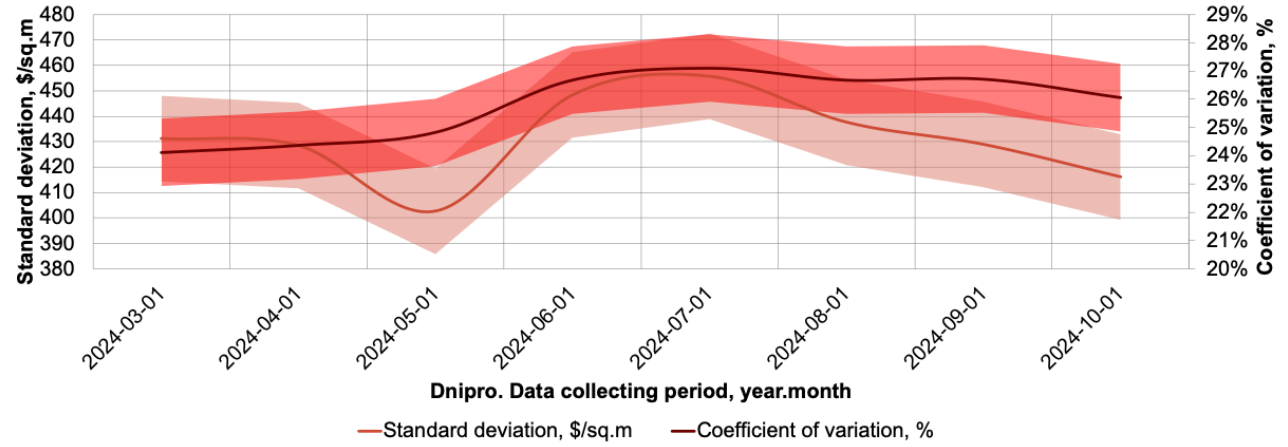


Fig. 1.12. Dynamics of dispersion and coefficient of variation of the cost of 1 sq. m. in the secondary housing market in Ukraine as of December 2024




Standard deviation, $/sq.m
500
490
480
470
460
450
440
430
420
Coefficient of variation, %
29%
28%
27%
26%
25%
24%
23%
22%
21%
20%
2024-03-01
2024-04-01
2024-05-01
2024-06-01
2024-07-01
2024-08-01
2024-09-01
2024-10-01
Odesa. Data collecting period, year.month
Standard deviation, $/sq.m
Coefficient of variation, %


Standard deviation, $/sq.m
500
450
400
350
300
250
Coefficient of variation, %
35%
30%
25%
20%
15%
10%
2024-03-01
2024-04-01
2024-05-01
2024-06-01
2024-07-01
2024-08-01
2024-09-01
2024-10-01
Kharkiv. Data collecting period, year.month
Standard deviation, $/sq.m
Coefficient of variation, %


Standard deviation, $/sq.m
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470
460
450
440
430
420
410
400
390
380
Coefficient of variation, %
29%
28%
27%
26%
25%
24%
23%
22%
21%
20%
2024-03-01
2024-04-01
2024-05-01
2024-06-01
2024-07-01
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2024-09-01
2024-10-01
Dnipro. Data collecting period, year.month
Standard deviation, $/sq.m
Coefficient of variation, %

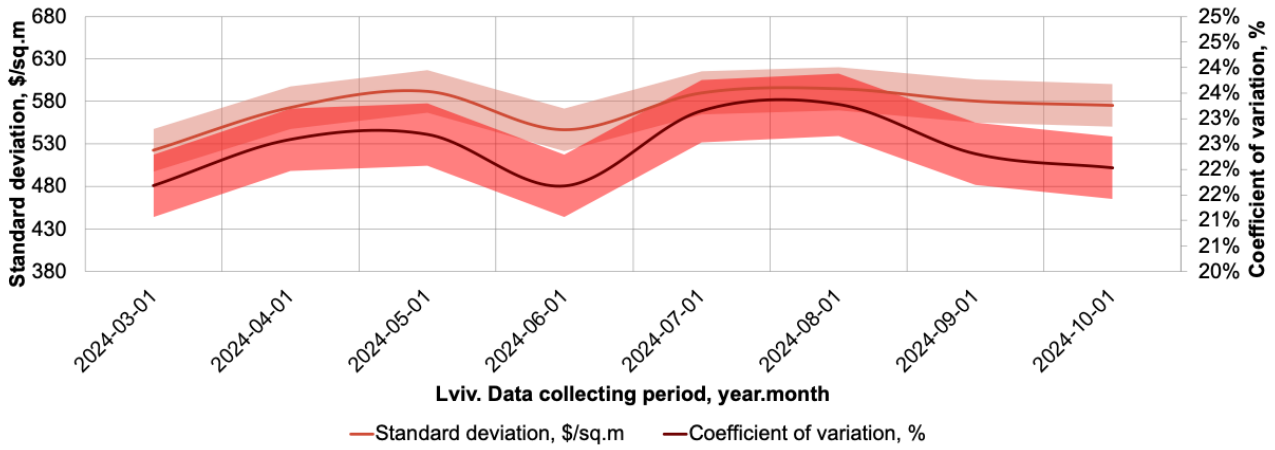


Fig. 1.13. Dynamics of dispersion and coefficient of variation of the cost of 1 sq. m. in the secondary housing market in the largest cities of Ukraine as of December 2024

The information base of the real estate market is constantly being replenished and updated, allowing for the expansion of its analytics using modern methods of mathematical and statistical processing of results. This enables obtaining the most substantiated and reliable parameters of this market and its evolution, determining the impact of a wide range of individual pricing factors.

- The unpredictability of the market situation continued in 2024 due to objective reasons related to the continuation of the full-scale war. As a result, the market remained difficult to predict. The dynamics of the number of offers continued to decrease along with the total market volumes.
- The most noticeable trend is a significant difference in price dynamics between regions. In the western regions, which have received a significant number of internally displaced persons, there is a steady increase in real estate prices. At the same time, in regions located closer to the combat zone, prices show a tendency to decrease or stabilize.
- The trend of previous years was not characteristic of all cities. For example, Kharkiv is a frontline city that continues to suffer from shelling. In this city, housing prices and demand for it continued to decrease. In western regions, such as Lviv, Ivano-Frankivsk and Volyn, the cost of square meters increased significantly, which is associated with the resettlement of temporarily displaced persons.
- In previous years, there was an increase in the cost of apartments in regions located near active fighting zones due to the increase in the number of displaced people and the relative safety of these cities. However, in 2024, the situation changed. Given the intensification of shelling in the first half of the

year, the attractiveness of housing in these regions decreased, which was reflected in a decrease in the average price. In Dnipro and neighboring cities, greater volatility in housing costs was observed.
- The impact of factors such as economic instability, inflation, and currency exchange rate changes on the dynamics of real estate prices continues.
- Despite the war, seasonal fluctuations in the real estate market continue to manifest themselves, although to a lesser extent than in peacetime.

Thus, the apartment market in Ukraine continues to adapt to new realities. The war became a key factor that changed the rules of the game in the market. A study of the general dynamics of real estate prices for 2024 shows that the increase in demand for housing in the western regions and the decrease in demand in regions bordering the war zone leads to the corresponding price dynamics. As an anomalous phenomenon in terms of the general dynamics that have developed in the real estate market over the past 12 years, the behavior of prices during periods of crises caused by extraordinary events and conditions (pandemic and the beginning of a full-scale war) that were observed in 2020, 2022-2024 and will continue to have an impact in 2025 is of particular interest.

2. INFORMATION AND ANALYTICAL UNIT OF THE LAND MARKET

The information and analytical unit of the market of land plots is divided into three subdivisions according to their purpose:

- Land plots for residential and public buildings;
- Agricultural plots of land;
- Land plots for industrial development.

As of the end of 2024, the information base of the land market covers about 33,000 unique offers, where 50% are residential plots, 42% - agricultural plots, and 8% - industrial plots. The total value of the land market currently is 5.52 billion dollars. (Fig. 2.1).

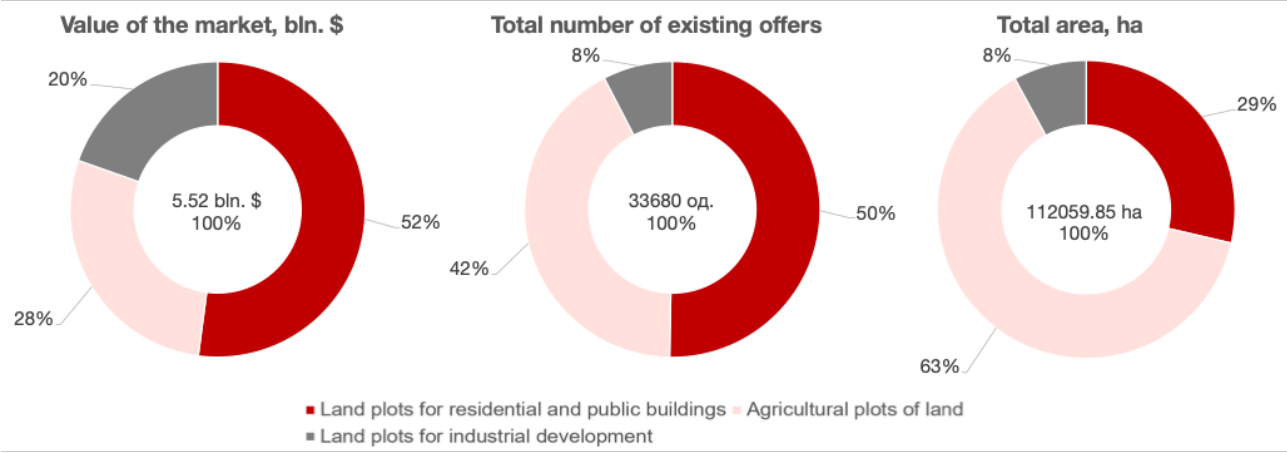


Fig. 2.1. Volume of the land market in Ukraine as of December 2024

Fig. 2.2 illustrates the dynamics of the number of offers on the land market in Ukraine for the period 2022-2024. Analysis of the graph indicates significant fluctuations, which were caused by a complex of external and internal factors.

The full-scale war in 2022 led to a sharp reduction in offers on the land market. Economic instability, uncertainty about the future and restrictions on movement limited the activity of sellers. Since 2023, a gradual recovery of the market has been observed. The dynamics of the number of offers has acquired a wave-like character, which indicates a gradual overcoming of the consequences of the crisis. However, the market continued to be influenced by factors such as inflation, exchange rate changes and the geopolitical situation. In 2024, the trend towards market recovery continues. The increase in the number of offers indicates an increase in the activity of sellers and the

restoration of investor confidence. However, the market remains sensitive to external shocks.

Each period had its own characteristics and was influenced by various factors, such as political events, economic conditions and market trends. These data reflect the general trend in the land market in Ukraine, emphasizing its sensitivity to external conditions and ability to recover after crisis periods.

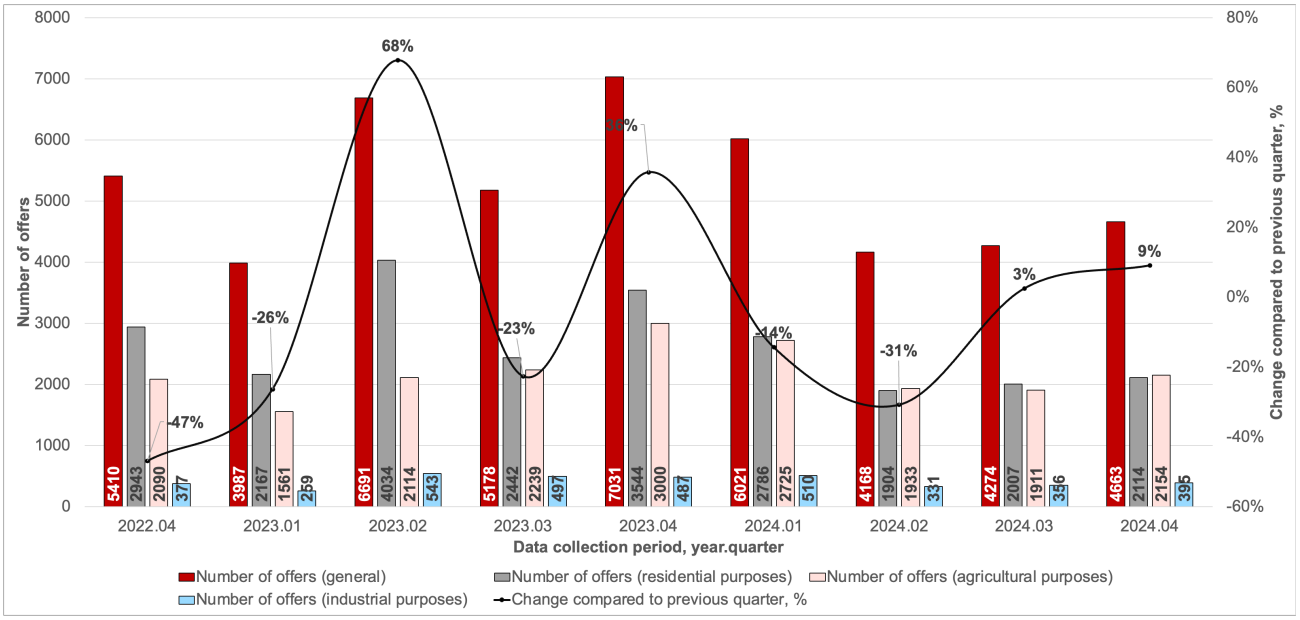


Fig. 2.2. Evolution of the number of offers on the land market in Ukraine, 2022-2024

From the analysis of the land market volume (Fig. 2.3), we also see how the market is gradually recovering from the shock caused by the full-scale invasion, with a trend towards gradual recovery. In 2022, the market suffered significant losses due to economic and political crises, which resulted in substantial declines in market volume. In 2023, a gradual recovery was observed, accompanied by both growth and declines, indicating market instability. In 2024, it showed a tendency towards gradual recovery, although it remained sensitive to external factors. This indicates a gradual stabilization of the market, but there is still significant dependence on the economic and political situation.

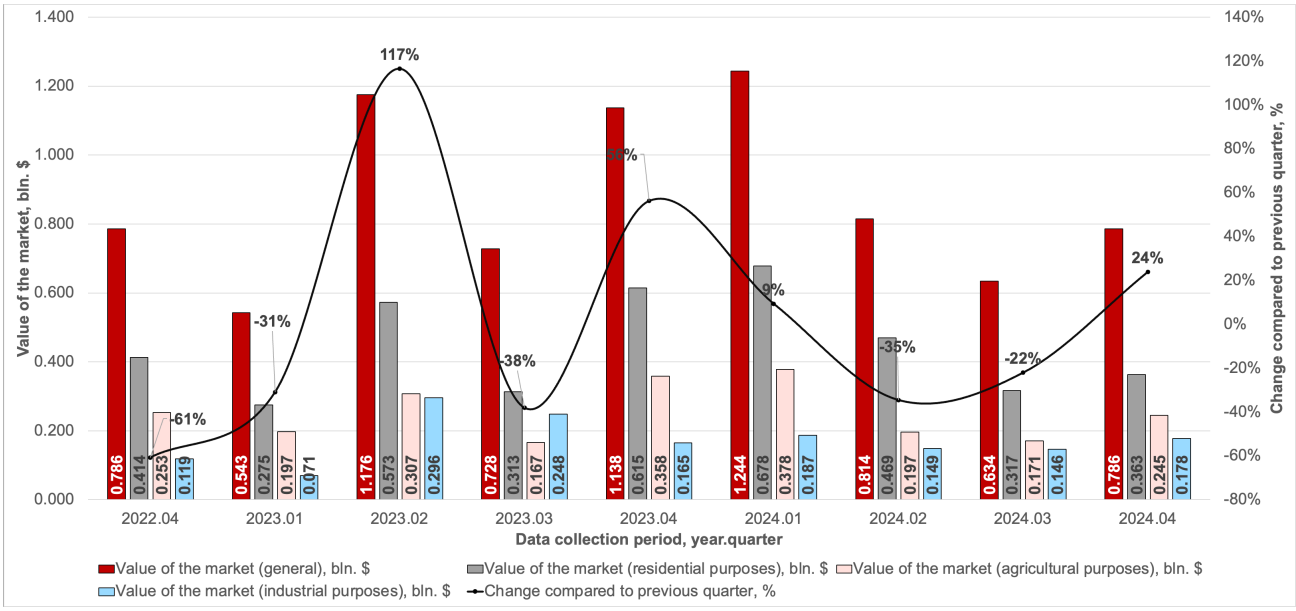


Fig. 2.3. Evolution of the value of the land market in Ukraine, 2022-2024

The conducted analysis showed that the distribution of prices on the land market is also subject to the lognormal distribution law, which was adopted as the theoretical distribution law (Fig. 2.4, 2.5). As a unit of measurement of the area of land plots, one hectare is accepted as the most widely used.

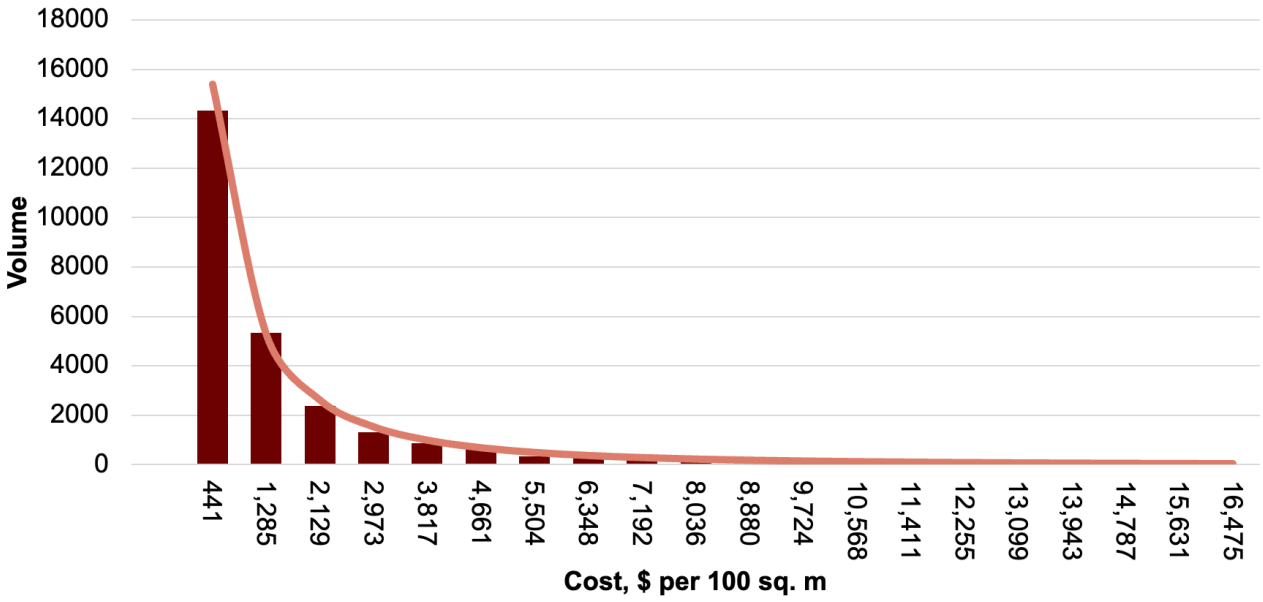


Fig. 2.4. Density distribution cost of 100 m^2 on the land market of Ukraine as of December 2024

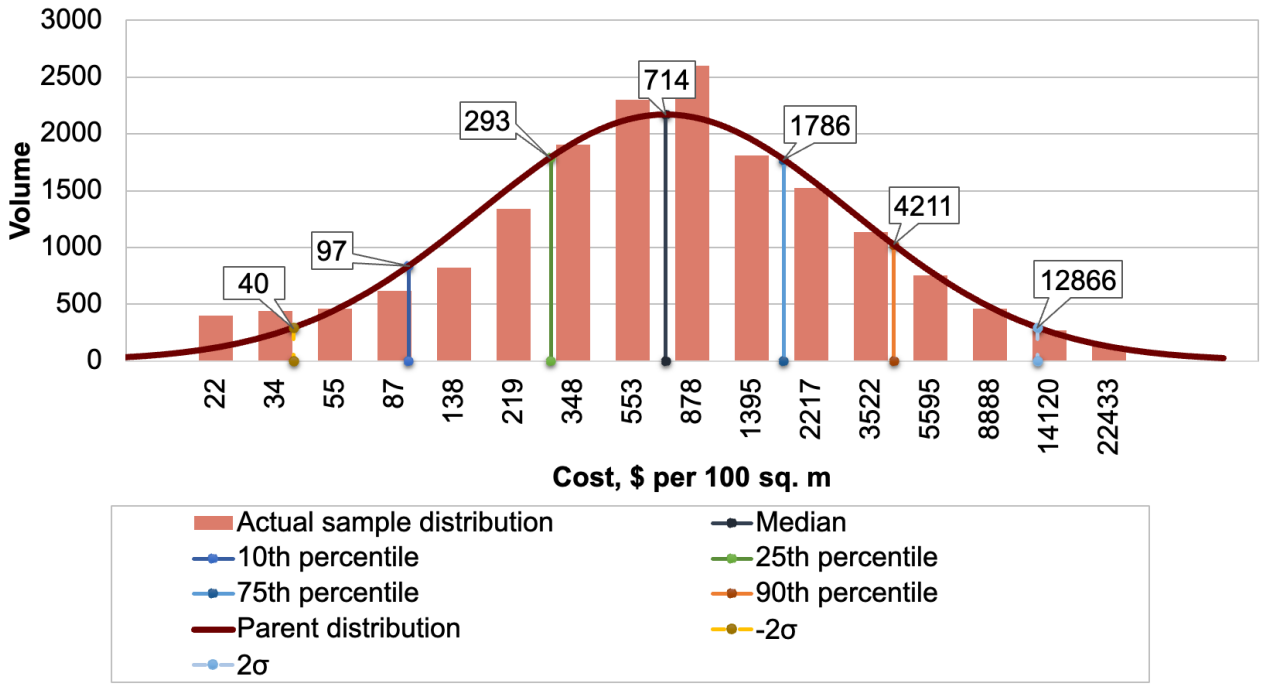


Fig. 2.5. Description of the density distribution of the cost of 100 m^2 on the land market of Ukraine as of December *2024 according to the log-normal distribution law*

Checking the validity of this conclusion for a large number of statistical samples for separate regions and different time intervals confirmed its reasonableness (Fig. 2.6).

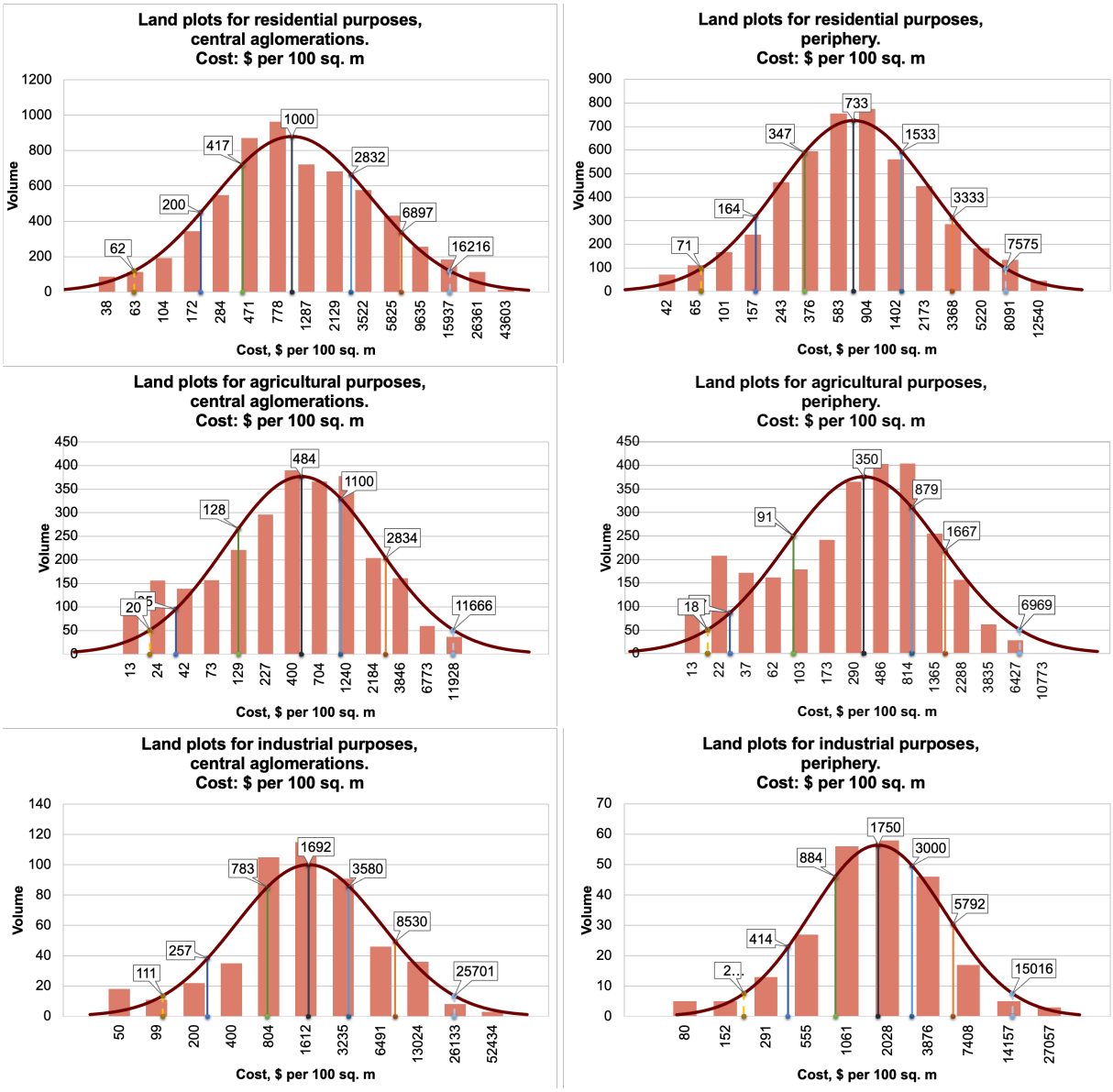


Fig. 2.6. Description of the density of the distribution of the cost of 100 m^2 land on the market of Ukraine depending on the type of land use and geographical cluster as of December 2024 according to the log-normal distribution law

The consolidated table of land value distribution parameters for all regions without exception includes not only the average and median values, but also the level of their dispersion and variation, which fully describes the probabilistic-statistical parameters of these distributions (tables 2.1 - 2.3). These tables show data for the "mean plus and minus 2 σ" values, which correspond to the limits of 95.46% of the corresponding distribution.

The data provided in Tables 2.1 – 2.3 indicate significant differences both in the average cost levels among different regions, exceeding threefold, and in

the degrees of their volatility. Therefore, obtaining only averaged value indicators for each individual region or area is insufficient, considering the geographical zoning and regionalization of cost indicators.

Table 2.1. Parameters of cost distribution 100 m^2 of land market (land plots for residential and public buildings) in regional centers of Ukraine as of December 2024

Region	Amount of offers	Median (μ)	Average	S lg (σ)	Coefficient of variations	Lower confidence limit interval	Upper confidence limit interval
Kyiv region	5403	3.02	2457.81	0.59	1.11	70.02	15912.89
Lviv region	1978	3.00	1951.94	0.51	0.91	94.66	10563.82
Odessa region	1181	3.20	6597.14	0.68	1.38	69.57	36798.86
Dnipropetrovsk region	1015	2.93	1741.63	0.54	0.97	72.03	10030.25
Ivano-Frankivsk region	993	3.02	2012.37	0.59	1.12	68.32	16247.24
Vinnytsia region	906	3.08	2649.47	0.57	1.07	84.90	16789.74
Zakarpattia region	809	3.04	2027.49	0.47	0.81	125.57	9477.15
Rivne region	720	2.79	1128.05	0.44	0.75	81.83	4687.51
Volyn region	650	2.82	1224.25	0.54	0.97	56.73	7834.97
Zhytomyr region	629	2.74	917.56	0.44	0.75	72.88	4150.92
Poltava region	515	2.70	833.89	0.48	0.83	55.98	4466.18
Khmelnytsky region	501	2.88	1293.80	0.48	0.85	80.67	6972.62
Cherkasy region	424	2.73	1177.74	0.51	0.90	51.58	5594.81
Kharkiv region	384	2.81	1467.42	0.54	0.97	54.66	7657.91
Ternopil region	368	2.95	1548.23	0.44	0.75	118.05	6842.17
Chernivtsi region	345	3.00	1824.38	0.53	0.96	85.75	11662.39
Chernihiv region	249	2.56	722.34	0.51	0.90	35.04	3730.78
Kirovohrad region	214	2.78	1239.34	0.58	1.07	42.09	8553.10
Mykolaiv region	197	2.84	1153.27	0.49	0.85	74.55	6554.03
Zaporizhzhia region	162	2.84	1264.11	0.48	0.83	77.25	6273.16
Sumy region	114	2.67	836.80	0.54	0.98	38.54	5689.41

Donetsk region	26	2.78	743.05	0.43	0.74	80.69	4406.18
Kherson region	16	3.04	1328.57	0.36	0.58	211.88	5687.36

Table 2.2. Parameters of cost distribution 100 m^2 of land market (agricultural plots of land) in regional centers of Ukraine as of December 2024

Region	Amount of offers	Median (μ)	Average	S lg (σ)	Coefficient of variations	Lower confidence limit interval	Upper confidence limit interval
Kyiv region	446	3.19	2597.06	0.57	1.05	113.67	21480.66
Odessa region	157	3.05	3970.23	0.58	1.07	79.27	16127.03
Lviv region	129	3.48	3695.28	0.47	0.81	346.54	25971.05
Zakarpattia region	62	3.29	2612.35	0.50	0.87	199.41	19321.55
Dnipropetrovsk region	49	3.08	1978.48	0.57	1.07	85.39	16863.54
Rivne region	46	3.19	1869.30	0.38	0.63	264.48	9006.25
Ivano-Frankivsk region	46	3.40	3647.59	0.53	0.95	222.62	28716.48
Zhytomyr region	43	3.06	1333.53	0.52	0.93	105.02	12653.48
Volyn region	27	3.30	2335.35	0.68	1.38	87.03	45962.44
Ternopil region	23	3.20	2634.68	0.49	0.85	170.42	15021.31
Cherkasy region	22	2.93	1156.16	0.67	1.36	37.87	18832.21
Vinnytsia region	22	3.43	6260.37	0.52	0.93	242.63	29622.00
Khmelnytsia region	20	3.07	1934.45	0.51	0.90	112.92	12176.80
Chernivtsi region	19	3.41	2561.22	0.41	0.69	380.78	17011.25
Poltava region	14	3.24	1962.26	0.32	0.52	389.67	7730.34
Kirovohrad region	13	3.08	2036.73	0.61	1.16	72.04	19831.06
Mykolaiv region	10	2.50	416.94	0.57	1.07	22.48	4448.00
Chernihiv region	9	2.78	1257.56	0.66	1.30	29.15	12348.85
Kharkiv region	8	3.07	1786.57	0.66	1.30	56.42	23925.67
Zaporizhzhia region	5	3.06	3141.57	0.49	0.87	116.84	11051.62

Table 2.3. Parameters of cost distribution 100 m^2 of land market (land plots for industrial development) in regional centers of Ukraine as of December 2024

Region	Amount of offers	Median (μ)	Average	S lg (σ)	Coefficient of variations	Lower confidence limit interval	Upper confidence limit interval
Kyiv region	1960	2.70	1164.22	0.58	1.09	33.94	7365.42
Lviv region	961	2.92	1527.67	0.55	0.99	67.65	10265.76
Ivano-Frankivsk region	563	2.90	1141.15	0.59	1.10	52.56	11857.82
Zakarpattia region	499	2.81	959.76	0.51	0.91	61.13	6872.49
Khmelnytskyi region	416	2.59	689.00	0.58	1.09	26.31	5623.42
Vinnytsia region	385	2.70	1067.24	0.57	1.06	35.99	6945.51
Dnipropetrovsk region	346	2.22	548.95	0.70	1.43	6.73	4095.65
Odessa region	319	2.73	1425.11	0.66	1.31	25.97	11297.60
Rivne region	271	2.61	643.92	0.44	0.74	54.59	3023.34
Cherkasy region	245	2.29	399.74	0.60	1.13	12.61	3068.21
Zhytomyr region	243	2.43	441.02	0.55	1.00	21.25	3349.14
Poltava region	232	2.13	388.41	0.62	1.18	7.96	2315.06
Volyn region	220	2.57	575.30	0.52	0.94	33.69	4173.53
Chernivtsi region	181	2.85	976.22	0.51	0.90	67.23	7288.50
Chernihiv region	178	2.10	299.38	0.63	1.23	6.86	2318.93
Ternopil region	167	2.78	811.67	0.43	0.72	84.51	4259.64
Kharkiv region	153	2.18	383.08	0.70	1.44	6.02	3736.01
Kirovohrad region	106	1.81	373.41	0.67	1.34	2.95	1403.00
Mykolaiv region	78	1.82	359.52	0.68	1.37	2.94	1490.56
Sumy region	71	2.18	329.37	0.69	1.42	6.18	3642.37
Zaporizhzhia region	51	2.33	490.32	0.56	1.02	16.44	2793.81
Donetsk region	14	1.30	230.62	0.72	1.53	0.72	559.11

The dependency of the cost of 1 square meter of land on the total size of the plot for residential and agricultural purposes is demonstrated in Figures 2.7 – 2.10.

The obtained quantitative equations, providing an approximation of these empirical relationships, allow for direct adjustments when correlating the cost of existing market offerings with appraisal objects.

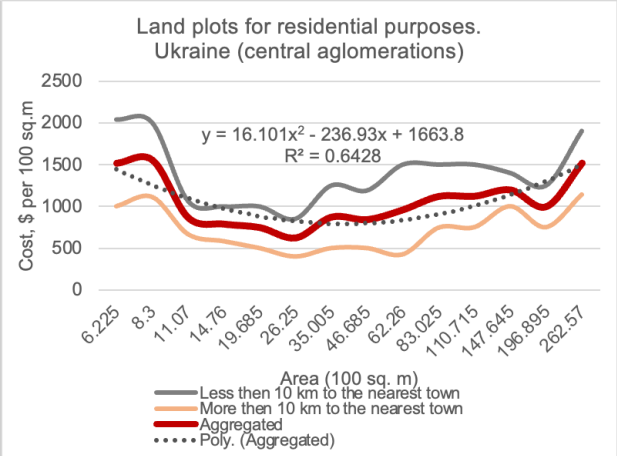


Fig. 2.7. Dependence of the value of 100 m² of residential land plots on their total area (Central agglomerations)

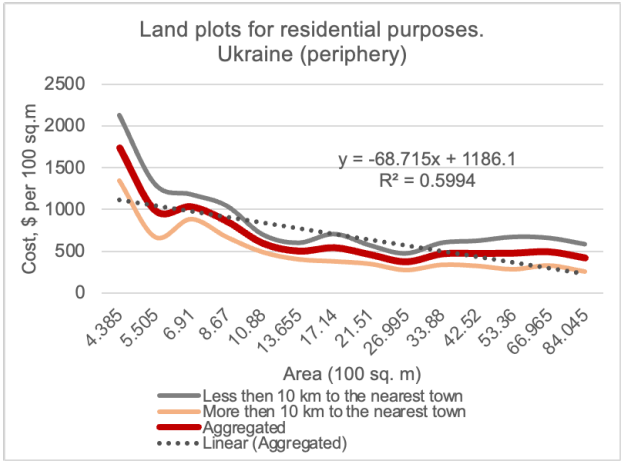


Fig. 2.8. Dependence of the value of 100 m² of residential land plots on their total area (Periphery)

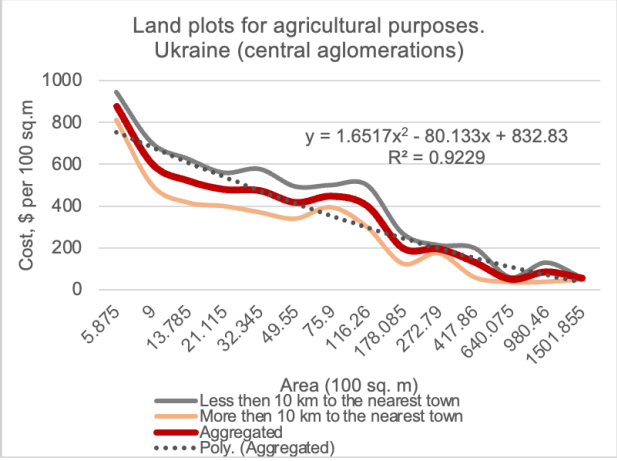


Fig. 2.9. Dependence of the value of 100 m² of agricultural land plots on their total area (Central agglomerations)

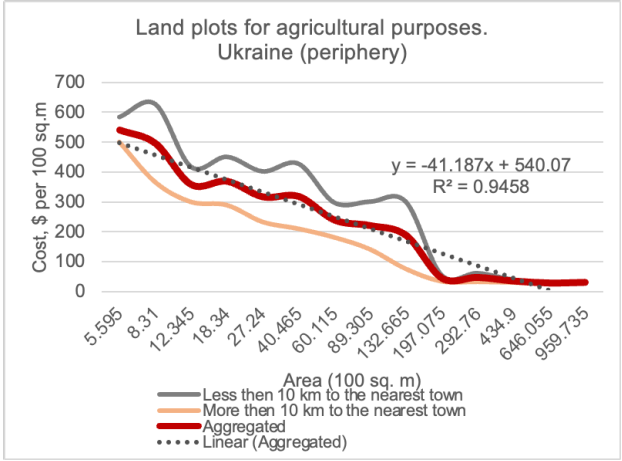


Fig. 2.10. Dependence of the value of 100 m² of agricultural land plots on their total area (Periphery)

In a generalized form, this information is presented in table 2.4, where the median cost of 100 m² is provided depending on the category of land use, distance from the nearest cities and regions of location. The sizes of land plots are conditionally divided into up to 2500 m² and more than 2500 m², since in Ukraine most often no more than 2500 m² are allocated for one household.

Table 2.4. Dependence of the cost of 100 m² of land on the category of land use, region, distance to the nearest city and the size of the plot

Category of land use	Region	Distance to the nearest city	Plot size	Median cost, $/100m^2	Absolute difference from the baseline, $/100m^2	Relative difference from baseline, %
Land plots for residential and public buildings	Ukraine	Up to 10 km	General	1104.65	-	-
			More than 2500 m^2	1129.5	24.9	2.25%
			Up to 2500 m^2	1094.31	-10.3	-0.94%
		From 10 to 50 km	General	608.46	-	-
			More than 2500 m^2	669.46	61.0	10.03%
			Up to 2500 m^2	578.27	-30.2	-4.96%
	Central aglomerations *	Up to 10 km	General	716.1	-	-
			More than 2500 m^2	401.61	-314.5	-43.92%
			Up to 2500 m^2	861.87	145.8	20.36%
		From 10 to 50 km	General	452.05	-	-
			More than 2500 m^2	200	-252.0	-55.76%
			Up to 2500 m^2	589.09	137.0	30.31%
	Periphery	Up to 10 km	General	533.23	-	-
			More than 2500 m^2	250	-283.2	-53.12%
			Up to 2500 m^2	639.37	106.1	19.90%
		From 10 to 50 km	General	276.7	-	-
			More than 2500 m^2	75	-201.7	-72.89%
			Up to 2500 m^2	361.11	84.4	30.51%
Agricultural plots of land	Ukraine	Up to 10 km	General	583.3	-	-
			More than 2500 m^2	400	-183.3	-31.43%
			Up to 2500 m^2	700	116.7	20.00%
		From 10 to 50 km	General	309.2	-	-
			More than 2500 m^2	150	-159.2	-51.48%

			Up to 2500 m^2	485.7	176.6	57.11%
	Central aglomerations *	**Up to 10 km**	General	706.7	-	-
			More than 2500 m^2	559.3	-147.4	-20.85%
			Up to 2500 m^2	826	119.3	16.88%
		From 10 to 50 km	General	416.6	-	-
			More than 2500 m^2	245	-171.6	-41.19%
			Up to 2500 m^2	618.6	201.9	48.47%
	Periphery	**Up to 10 km**	General	500	-	-
			More than 2500 m^2	275	-225.0	-45.00%
			Up to 2500 m^2	650	150.0	30.00%
		From 10 to 50 km	General	216.3	-	-
			More than 2500 m^2	79.7	-136.6	-63.15%
			Up to 2500 m^2	375	158.7	73.39%
Industrial plots of land	**Ukraine**	**Up to 10 km**	General	1636.4	-	-
			More than 2500 m^2	1329.8	-306.5	-18.73%
			Up to 2500 m^2	4000	2363.6	144.44%
		From 10 to 50 km	General	1000	-	-
			More than 2500 m^2	1000	0.0	0.00%
			Up to 2500 m^2	2383.3	1383.3	138.33%
	Central aglomerations *	**Up to 10 km**	General	1747.1	-	-
			More than 2500 m^2	1500	-247.1	-14.14%
			Up to 2500 m^2	5000	3252.9	186.19%
		From 10 to 50 km	General	1101.3	-	-
			More than 2500 m^2	1000	-101.3	-9.20%
			Up to 2500 m^2	2500	1398.7	127.01%
	Periphery	**Up to 10 km**	General	1500	-	-

			More than 2500 m^2	1039.9	-460.1	-30.67%
			Up to 2500 m^2	3116	1616.0	107.73%
		From 10 to 50 km	General	593.4	-	-
			More than 2500 m^2	450	-143.4	-24.16%
			Up to 2500 m^2	1848.2	1254.8	211.48%

* Kyiv region, Odesa region, Lviv region, Kharkiv region, Dnipropetrovsk region

An important element of the analysis of the initial information base of the real estate market is the determination of the time dynamics of its development. The information provided in Fig. 2.11 – 2.13 visually confirms that the cost of a land plot shows significant fluctuations during the analyzed period. There are both periods of rapid growth and periods of decline. Despite the fluctuations, the general trend indicates a gradual increase in the average cost of land.

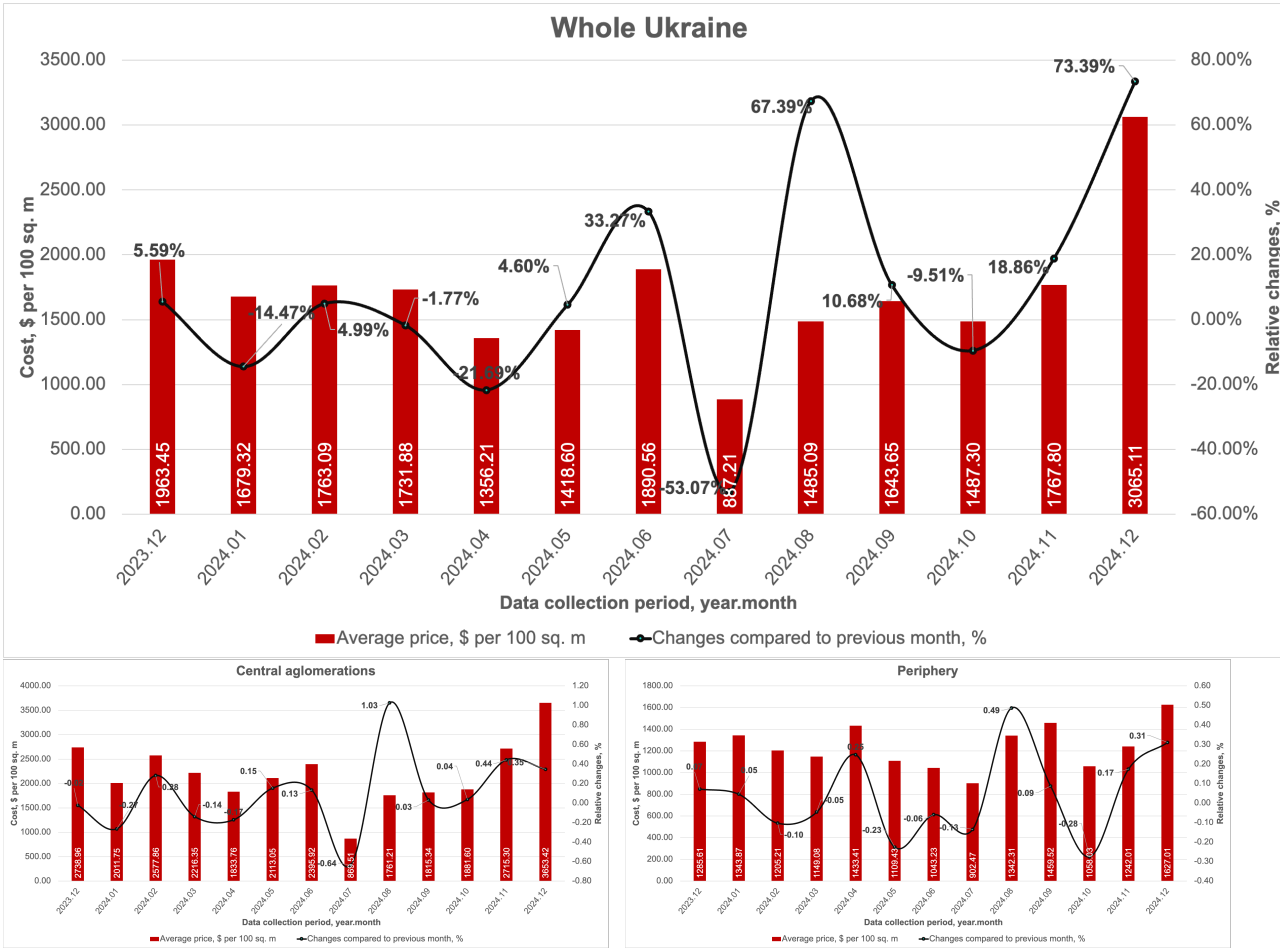


Fig. 2.11. Evolution of changes in the median value of the price per 100 m² of land plots on the residential land market in Ukraine as of December 2024

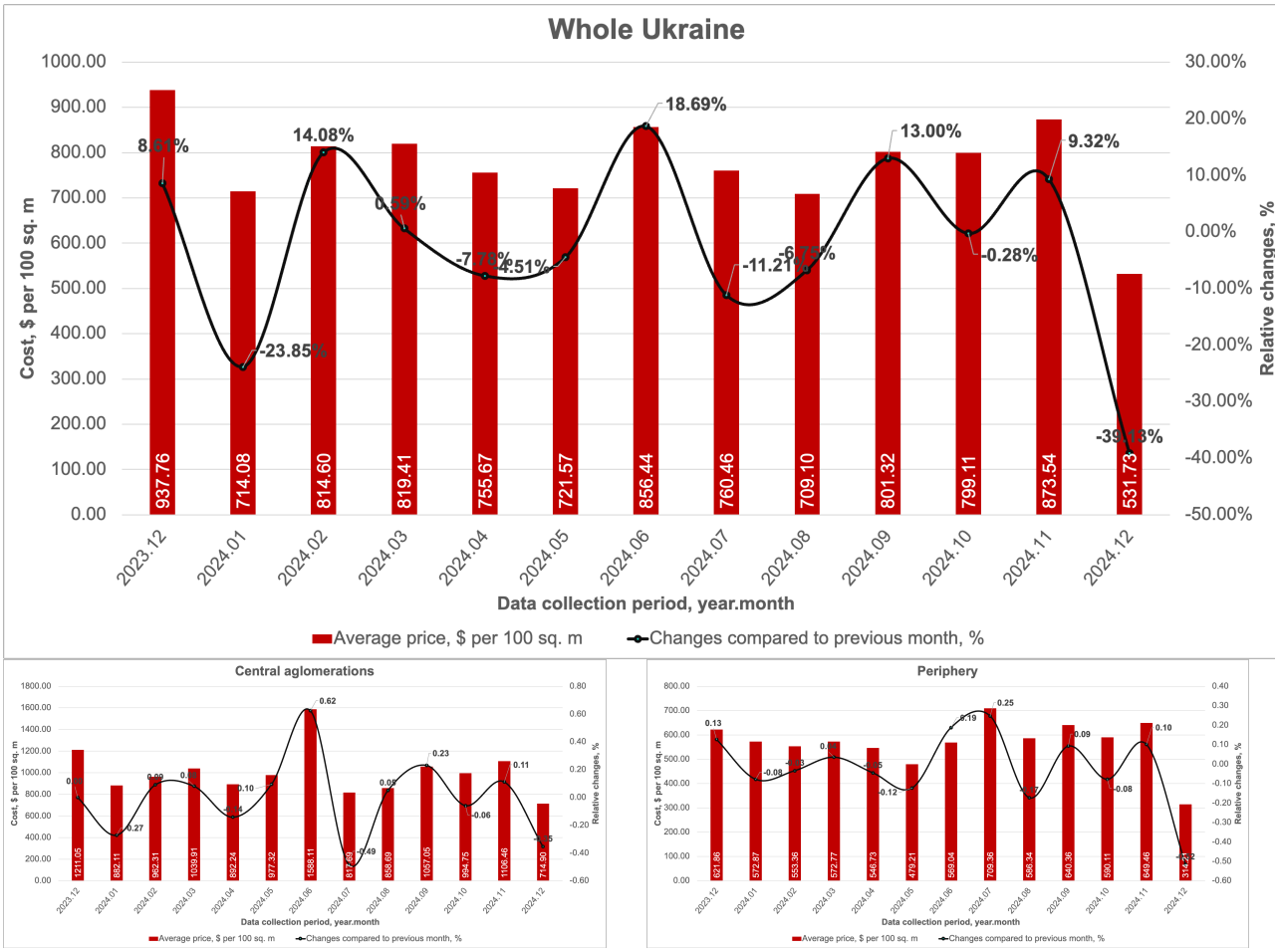


Fig. 2.12. Evolution of changes in the median value of the price per 100 m² of land holdings on the agricultural land market in Ukraine as of December 2024

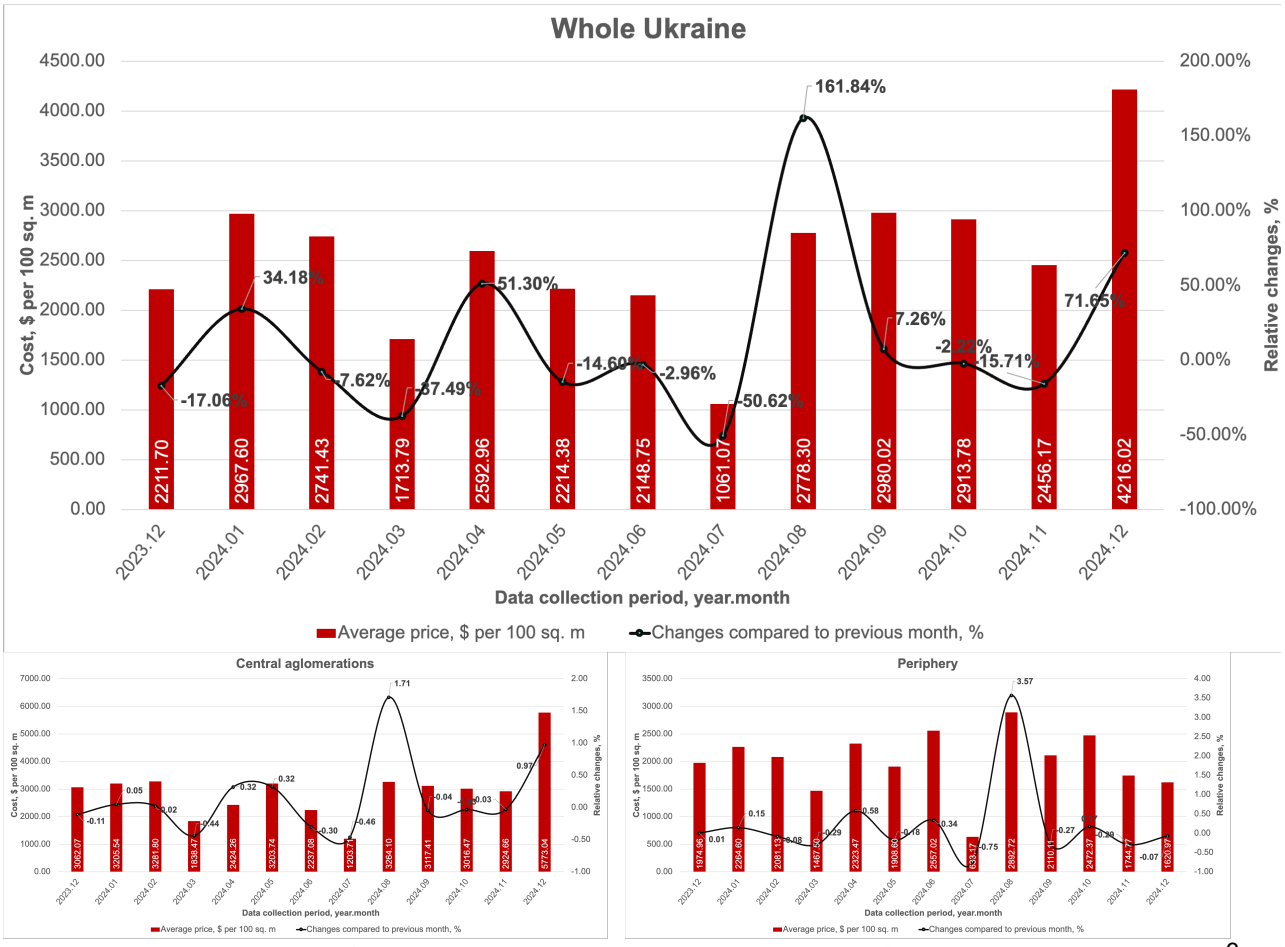


Fig. 2.13. Evolution of changes in the median value of the price per 100 m^2 of land holdings on the industrial land market in Ukraine as of December 2024

The dynamics of changes in the value of different categories of land plots, taking into account not only the median values of the costs, but also their spread, is shown in Fig. 2.14-2.15.

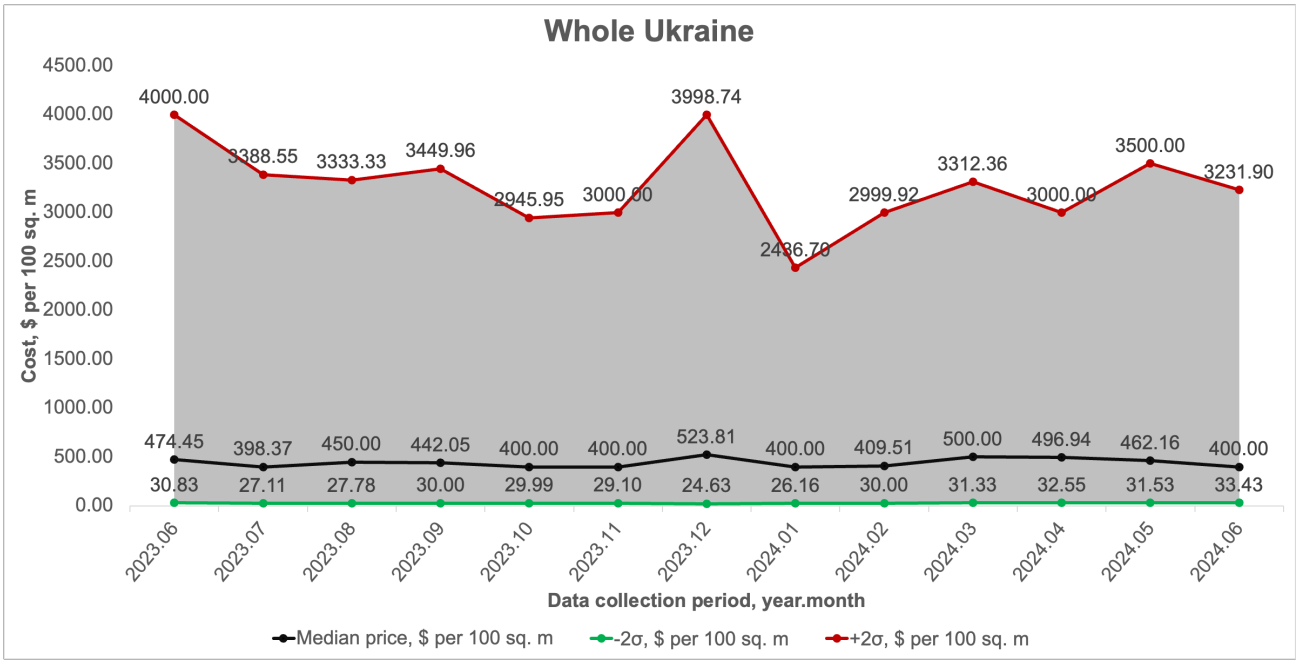
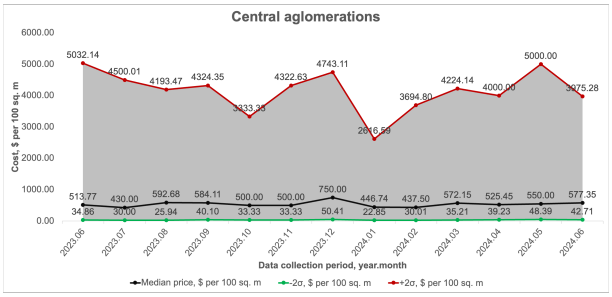


Fig. 2.14. Evolution of the median and marginal (95.46%) levels of the costs of 100 m2 of land plots in Ukraine as of December 2024 (Generalized sample)



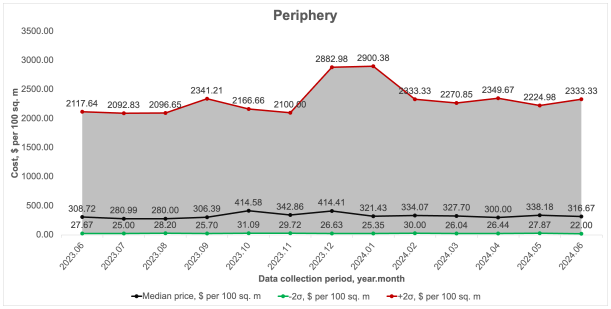


Fig. 2.15. Evolution of the median and marginal (95.46%) levels of the costs of 100 m2 of land plots in Ukraine as of December 2024

The information base of the land market allows for the analysis of the impact of significant price-forming factors. To conduct a comprehensive analysis of the market for land plots in Ukraine, it is essential to determine the median price per square meter depending on the type of soil, location, natural surroundings, and land use method (Table 2.5 – 2.8).

Table 2.5. Parameters of the cost of 100 sq. m of land as of December 2024, depending on the location

Location	Average	Amount of offers	Coef. of variation, %	Median (μ)	Lower confidence limit interval	Upper confidence limit interval
Outside the settlement	1718.37	363	1.17	800.00	47.95	13347.27
In the village	1413.42	263	0.81	833.33	96.07	7228.52
In the hamlet	1281.17	9	0.93	900.00	82.69	9796.11
In the dacha cooperative	1814.91	54	0.88	1047.92	104.97	10459.14
In the gardening community	2354.54	62	0.87	1291.67	132.19	12607.65
In the populated area	3498.75	2471	0.98	1585.37	130.70	19230.41
In the cottage town	5454.98	180	0.96	3000.00	256.59	35074.94

Table 2.6. Parameters of the cost of 100 sq. m of land as of December 2024, depending on the soil

Soil	Average	Amount of offers	Coef. of variation, %	Median (μ)	Lower confidence limit interval	Upper confidence limit interval
Black soil	3095.99	31	0.89	1916.67	187.04	19640.49
Argillaceous	2699.31	2070	1.02	1099.18	85.27	14168.81
Sandy	2424.79	145	0.75	1400.00	185.08	10590.25
Stony	3677.95	163	1.09	2000.00	135.52	29515.35

Table 2.7. Parameters of the cost of 100 sq. m of land as of December 2024, depending on the natural environment

Natural environment	Average	Amount of offers	Coef. of variation, %	Median (μ)	Lower confidence limit interval	Upper confidence limit interval
River	1516.68	9001	1.13	625.00	39.80	9815.55
Forest	1537.10	12431	1.12	666.67	43.22	10283.08
Reservoir	1618.46	1297	1.15	686.67	42.23	11166.00
Hills	1523.60	3498	1.15	700.00	43.16	11354.07
Lake	1717.26	7114	1.11	714.29	47.29	10788.59
Mountains	1446.62	2149	1.17	801.65	47.65	13485.34
Park	3372.38	2931	1.33	1229.95	57.80	26173.66
Islands	2914.43	302	1.26	1408.34	72.87	27215.64
Sea	5834.05	597	1.33	2142.86	100.88	45517.96

Table 2.8. Parameters of the cost of 100 sq. m of land as of December 2024, depending on the purpose of use

Purpose	Average	Amount of offers	Coef. of variation, %	Median (μ)	Lower confidence limit interval	Upper confidence limit interval
Cellar	1502.43	1765	1.14	555.56	34.92	8838.75
Barn	1790.69	2371	1.16	666.67	40.30	11028.63
Outbuildings	2479.15	2438	1.26	833.33	42.90	16188.23
House	2671.90	4198	1.32	857.14	40.68	18061.70
Foundation	2266.29	2415	1.08	940.00	65.43	13505.53
Vegetable garden	2552.84	504	1.01	1000.00	78.66	12712.84
Orchard	3299.72	525	1.12	1240.74	80.07	19227.02
Building materials	4446.61	125	1.20	1873.75	106.79	32877.93

3. INFORMATION AND ANALYTICAL UNIT OF THE HOUSEHOLD MARKET

As of the end of 2024, the total information base of the home ownership market is more than 139,000 unique offers. Analyzing the volume of the market, which falls on different categories of rooms, you can see a high financial capacity, which is more than 26 billion dollars. USA (Fig. 3.1).

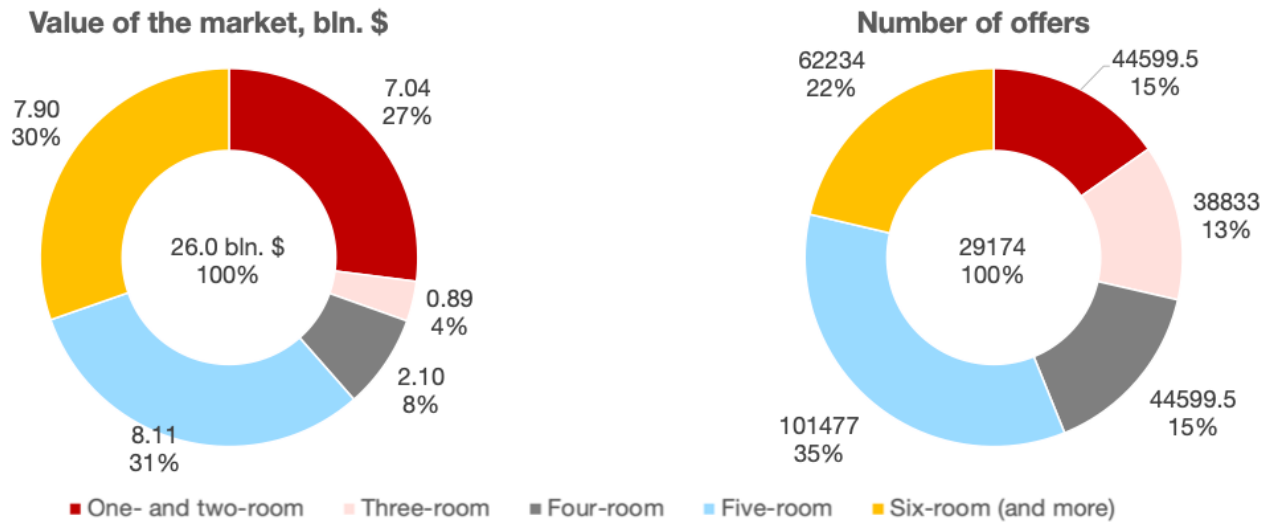


Fig. 3.1. Volume of the household market in Ukraine as of December 2024

The total number of existing offers for sale in the first half of 2024 amounted to 29,174 houses (Fig. 3.1). The largest share of offers for sale is for five- and six-room houses, which account for 35% and 22% of the total number of houses offered for sale, respectively. The shares of one- and two-room, three-room and four-room offers are distributed almost evenly, reaching 13-15%.

In monetary terms, the volume of the secondary housing market in Ukraine as of December 2024 amounted to over 26 billion USD (Fig. 3.1). The largest shares are for five-, six-, one-, and two-room offers—31%, 30%, and 27%, respectively. The share of four-room houses in monetary terms is 8%, and three-room houses account for 4%.

Market volume indicators in Ukraine for the period 2022-2023 in dynamics allow us to analyze how certain factors influenced market activity (Fig. 3.2, 3.3).

Since the beginning of 2022, there has been a rapid decline in the volume of the household market, which was due to political instability, the economic crisis and general uncertainty about the future. This period was characterized by a high level of uncertainty among market participants, which led to a decrease in demand and supply. During the first half of 2023, the market situation stabilized, which is obviously due to the adaptation of market participants to new conditions and a partial recovery of economic activity. Currently, the indicators are still far from the pre-war level, but there is positive dynamics.

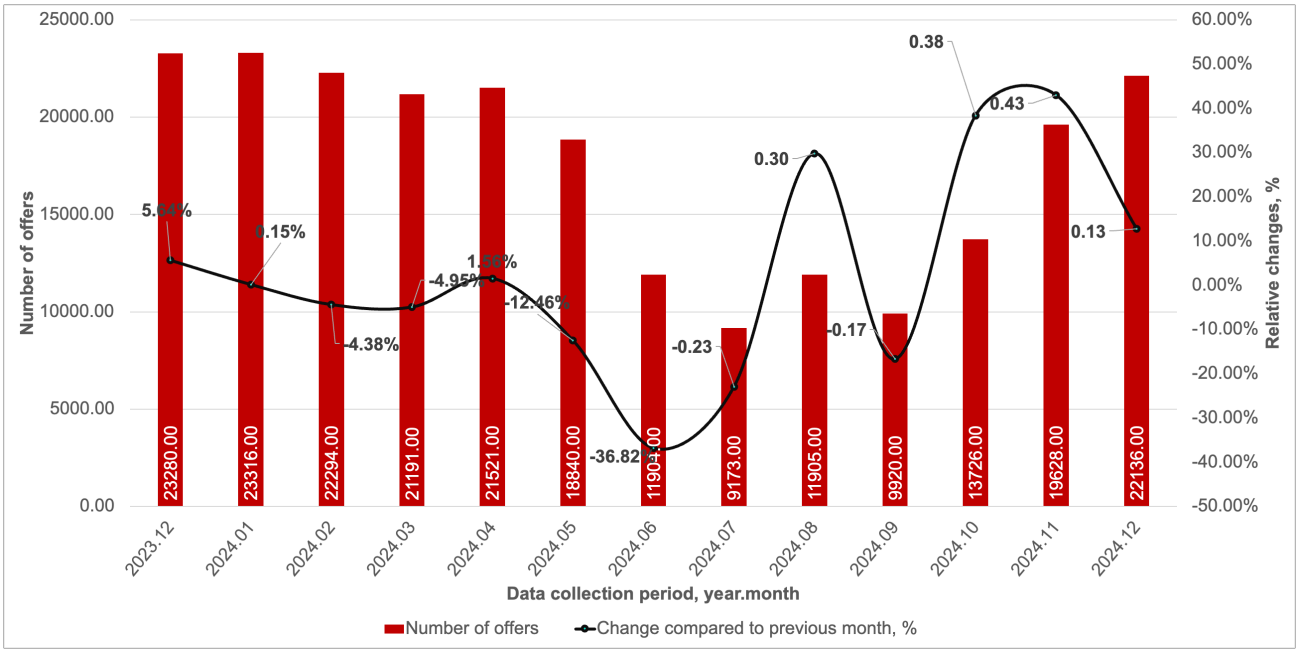


Fig. 3.2. Evolution of the number of offers on the secondary household market in Ukraine, 2023-2024

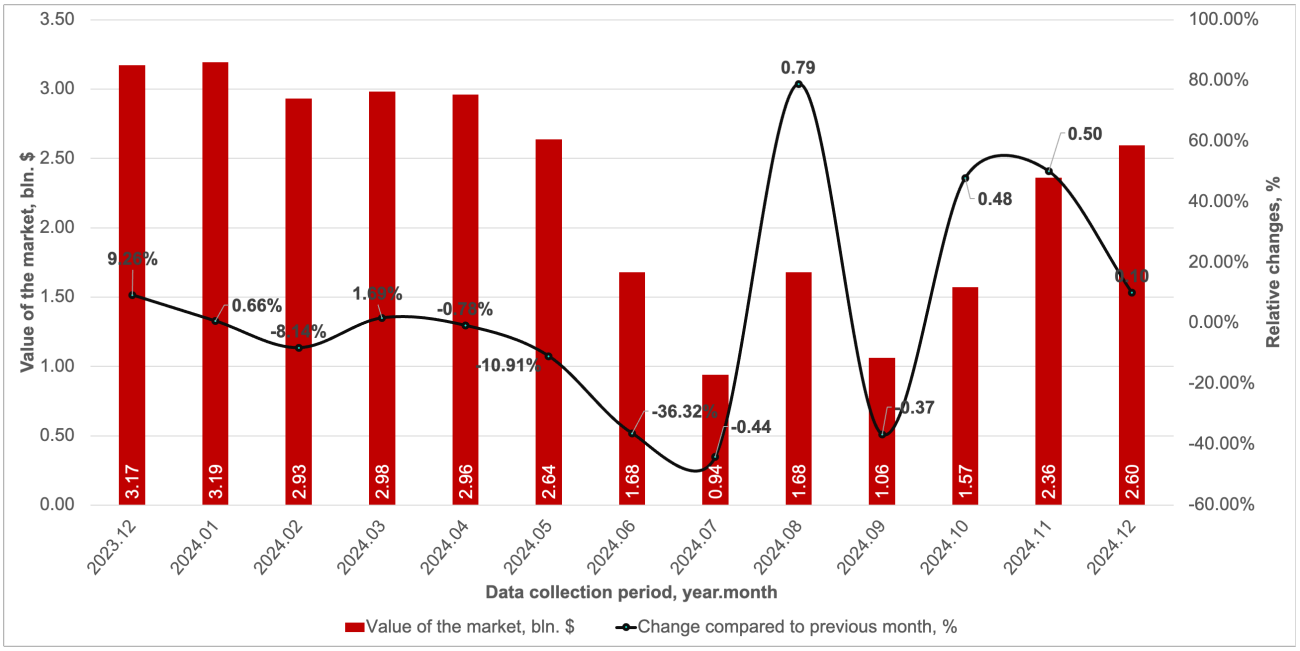


Fig. 3.3. Evolution of the value of the secondary household market in Ukraine, 2023-2024

The conducted statistical analysis, performed using the most powerful significance criteria, demonstrated that the distribution of prices on the housing market is also subject to the log-normal distribution law (Fig. 3.4, 3.5).

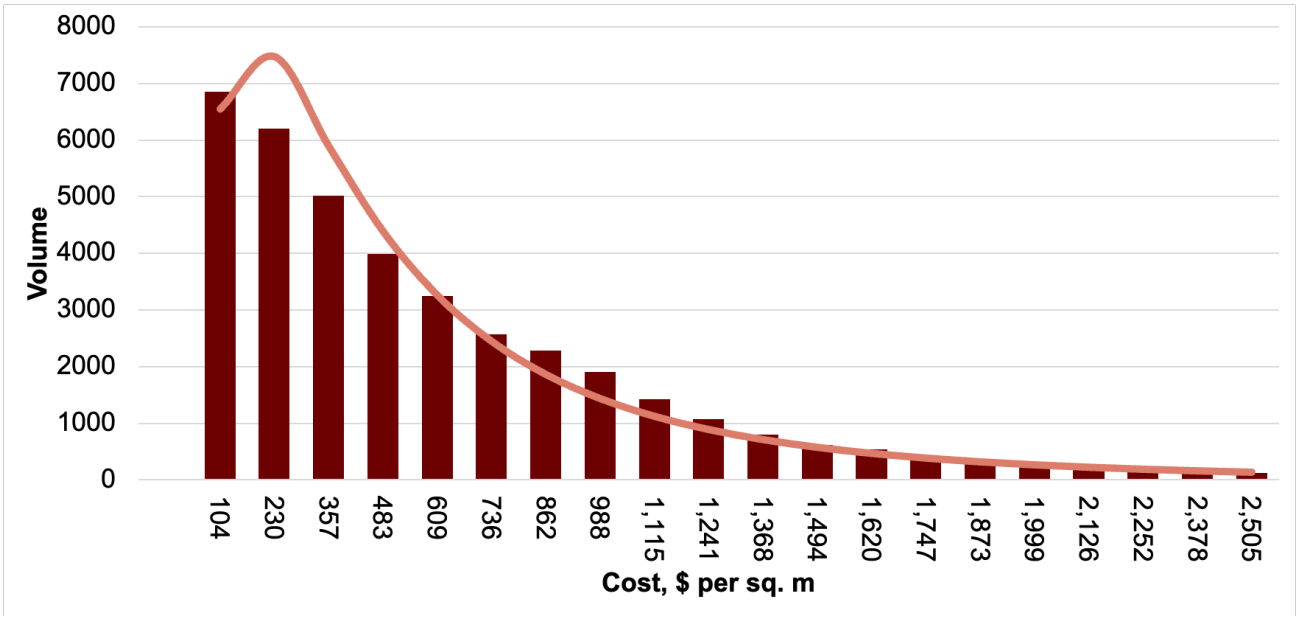


Fig. 3.4. Density distribution cost of 1 m^2 on the secondary household market of Ukraine as of December 2024

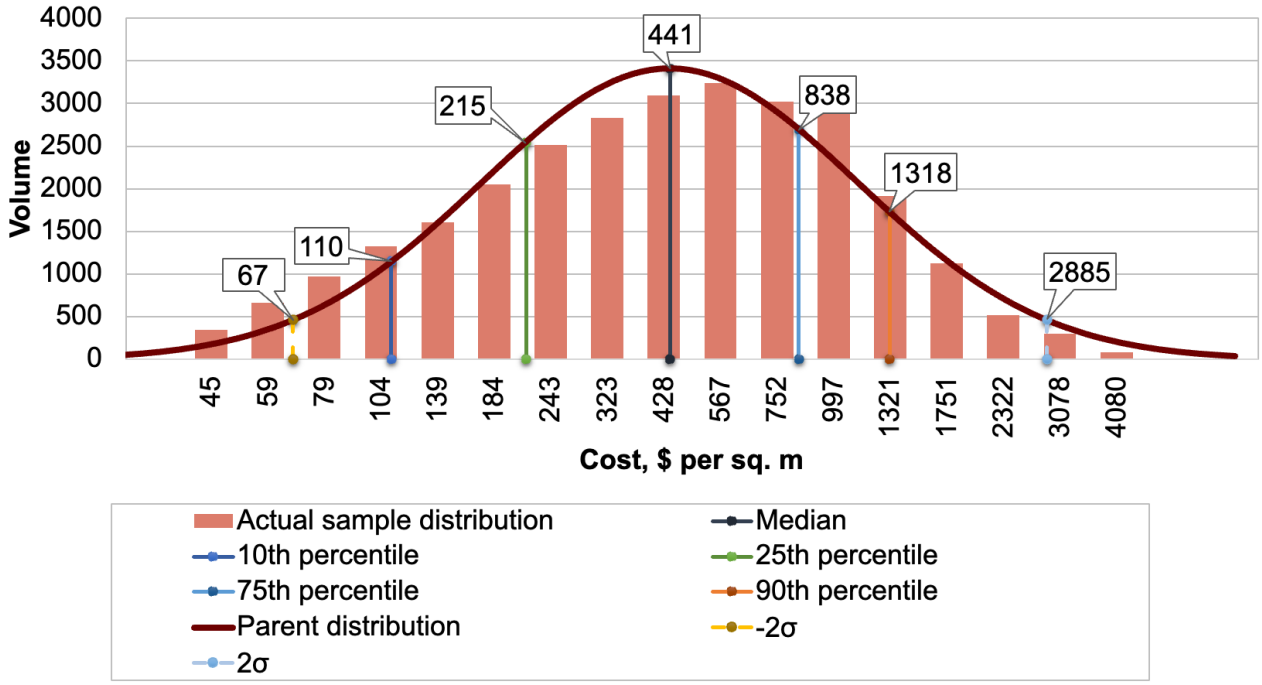


Fig. 3.5. Description of the density distribution of the cost of 1 m^2 on the secondary household market of Ukraine as of December 2024 according to the log-normal distribution law

Thus, compliance with the log-normal distribution law is confirmed for all considered categories of real estate, including apartments, land plots of any purpose, and home ownership. This opens up the possibility of applying a single methodology for processing the primary information database for these real estate groups.

Below are summarized data on the cost distribution parameters of 1 square meter. of households for all regions without exception, which includes not only the average and median values, but also the level of their dispersion and variation, which fully describes the probabilistic and statistical parameters of these distributions (Table 3.1).

Table 3.1. Parameters of cost distribution 1 m^2 of secondary household market in regional centers of Ukraine as of December 2024

Region	Amount of offers	Median (μ)	Average	S_{lg} (σ)	Coefficient of variations	Lower confidence limit interval	Upper confidence limit interval
Vinnytsia region	533	177.30	248.16	0.35	0.57	35.70	880.64
	927	634.41	668.33	0.37	0.61	114.40	3518.28
Volyn region	223	166.67	258.40	0.32	0.51	38.61	719.40

	421	590.28	645.71	0.29	0.46	157.99	2205.43
Dnipropetrovsk region	996	267.64	431.62	0.40	0.66	42.77	1674.92
	2334	446.94	550.48	0.31	0.50	105.58	1892.03
Donetsk region	22	137.02	197.84	0.33	0.54	29.71	631.82
	294	180.06	224.88	0.28	0.45	48.91	662.89
Zhytomyr region	554	164.12	242.79	0.36	0.59	31.59	852.67
	624	438.14	509.49	0.35	0.57	87.26	2200.06
Transcarpathian region	433	366.67	446.15	0.26	0.41	111.25	1208.54
	1103	722.77	816.21	0.27	0.43	208.63	2504.00
Zaporizhzhia region	119	239.58	294.52	0.29	0.46	63.14	909.11
	449	464.29	530.02	0.24	0.38	152.70	1411.66
Ivano-Frankivsk region	391	258.62	355.48	0.30	0.49	63.52	1052.99
	658	499.72	592.77	0.32	0.52	112.95	2210.83
Kyiv region	4196	714.29	945.91	0.37	0.61	129.59	3937.16
	3881	876.47	993.48	0.29	0.45	235.52	3261.78
Kirovohrad region	249	133.33	171.12	0.31	0.50	31.93	556.70
	528	350.00	430.84	0.35	0.57	70.05	1748.83
Lviv region	721	288.82	411.14	0.34	0.56	59.41	1404.17
	1285	579.71	704.71	0.34	0.55	121.52	2765.51
Mykolaiv region	325	150.00	206.38	0.32	0.52	33.74	666.77
	423	348.26	431.56	0.31	0.50	83.78	1447.58
Odesa region	886	304.20	387.69	0.33	0.54	65.15	1420.29
	2350	812.83	1043.65	0.34	0.56	166.34	3971.93
Poltava	637	161.29	225.24	0.34	0.55	34.05	764.07
	900	393.94	475.03	0.32	0.52	88.82	1747.13
Rivne region	368	191.46	269.38	0.33	0.54	40.97	894.65
	618	589.12	709.42	0.32	0.52	133.87	2592.48
Sumy region	190	116.51	147.40	0.33	0.54	25.25	537.64
	485	290.70	372.07	0.35	0.58	57.29	1474.98
Ternopil region	279	175.68	229.36	0.30	0.48	44.45	694.41
	500	422.81	518.73	0.33	0.53	93.18	1918.52
Kharkiv region	819	245.28	316.30	0.33	0.53	54.79	1098.00
	1168	475.30	573.96	0.32	0.51	110.80	2038.96
Kherson region	17	145.78	200.39	0.38	0.62	25.91	820.29
	25	500.00	487.66	0.26	0.41	150.56	1660.46
Khmelnytskyi region	398	154.03	217.49	0.34	0.55	32.60	727.82
	773	491.67	552.83	0.32	0.51	113.59	2128.16
Cherkasy region	801	133.31	204.34	0.35	0.57	26.44	672.13
	668	339.01	456.20	0.36	0.59	65.18	1763.31
Chernivtsi region	291	280.00	330.92	0.31	0.49	68.04	1152.30
	513	600.00	687.90	0.30	0.48	151.19	2381.13
Chernihiv region	512	100.00	145.75	0.33	0.54	21.74	459.93
	474	251.95	340.05	0.35	0.57	50.85	1248.31

Up to 10 km

From 10 to 50 km

In addition to this general picture, the information base of the land market allows for the analysis of the impact on the value of the most important price-forming factors. To carry out a comprehensive analysis of the home ownership market in Ukraine, it is necessary to determine the median price per square meter depending on the type of home ownership and location (Table 3.2).

Table 3.2. Dependence of the median cost on the category of home ownership

Sample	Type of home ownership	Distance to the nearest city	Median cost, $/m^2	Absolute difference from the baseline, $/m^2	Relative difference from baseline, %
Whole Ukraine	**House**	All	309.52	-	-
		From 10 to 50 km	154.71	-154.81	-0.50
		Up to 10 km	747.34	437.82	1.41
	Cottage	All	382.35	-	-
		From 10 to 50 km	498.39	116.04	0.30
		Up to 10 km	382.35	0.00	0.00
Central aglome-rations	**House**	All	487.68	-	-
		From 10 to 50 km	333.33	-154.35	-0.32
		Up to 10 km	592.59	104.91	0.22
	Cottage	All	230.77	-	-
		From 10 to 50 km	212.48	-18.29	-0.08
		Up to 10 km	250.00	19.23	0.08
Periphery	**House**	All	214.29	-	-
		From 10 to 50 km	133.33	-80.96	-0.38
		Up to 10 km	287.04	72.75	0.34
	Cottage	All	144.45	-	-
		From 10 to 50 km	123.33	-21.12	-0.15
		Up to 10 km	171.23	26.78	0.19

The dependence of the cost of 1 square meter of home ownership on the total area and agricultural plots is shown in fig. 3.6 - 3.7.

The resulting quantitative equations, which provide an approximation of these empirical dependencies, make it possible to use them to make a direct adjustment when comparing the value of analogues and evaluation objects existing on the market.

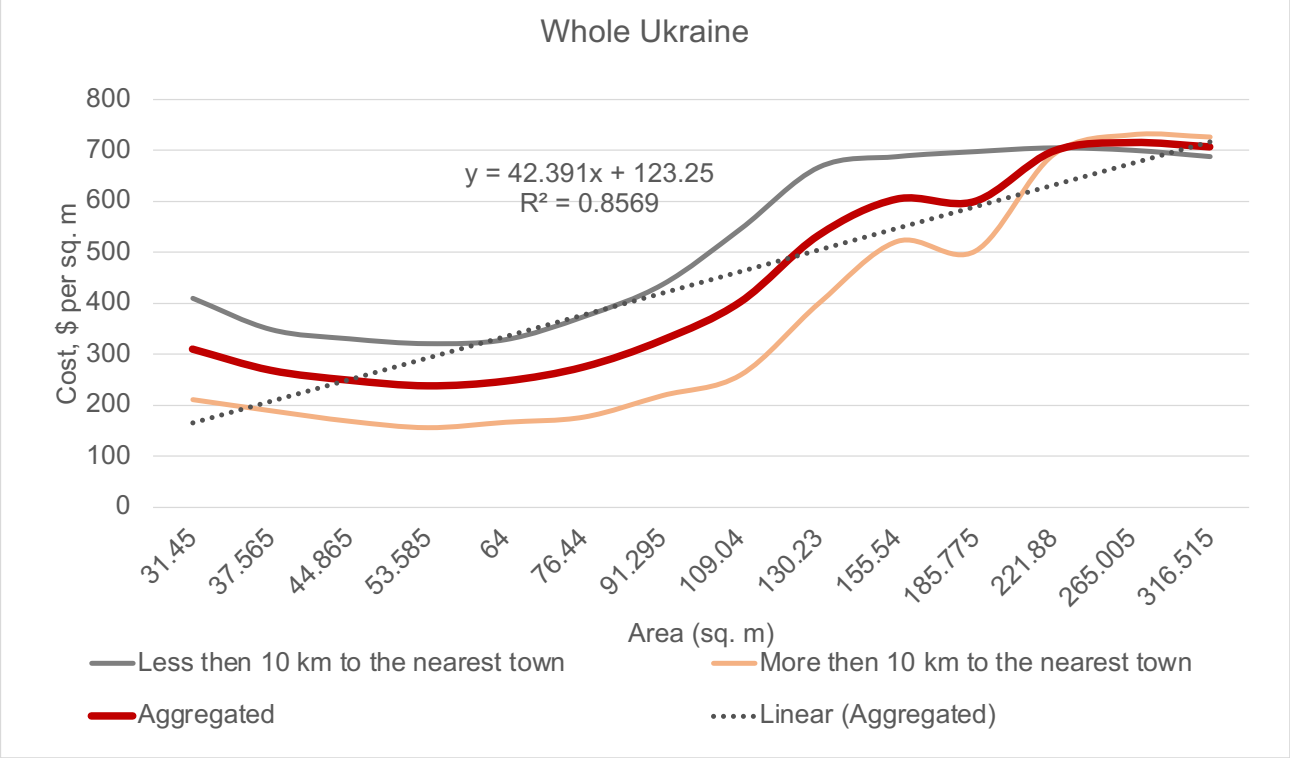
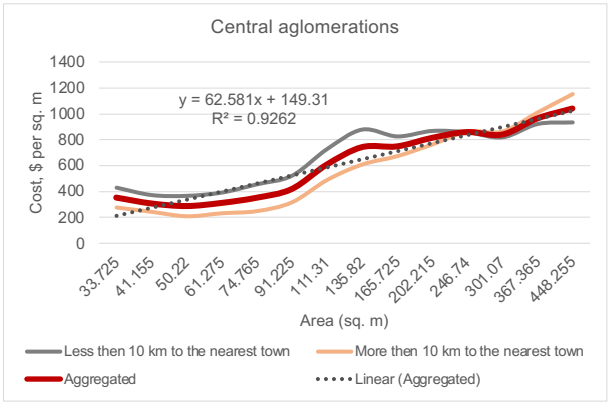


Fig. 3.6. Dependence of the cost of 1 sq. m of households from their total area (all of Ukraine)



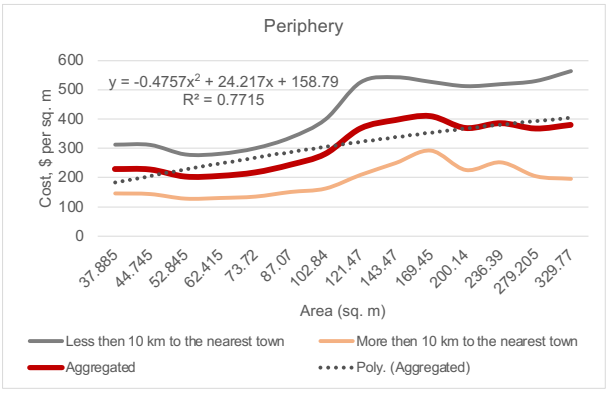


Fig. 3.7. Dependence of the cost of 1 sq. m of households from their total area (depending on the location)