

Analytical material

Formation of indicators of commercial real estate price statistics based on data from various sources

Introduction: Currently, indicators characterizing the change in prices in the real estate market are of increasing interest. Often, declines in real estate prices precede an economic crisis, in this regard, it is important to monitor prices in the real estate market to identify potential risks to financial stability. The need to build and disseminate comparable data on real estate prices is set as one of the current tasks in the discussions of international experts on price statistics.

Building a commercial real estate price index is a more difficult task than compiling housing price indices. This is due to the greater heterogeneity of commercial real estate compared to residential and a small number of transactions in the commercial real estate market. In addition, despite the existence of a guide to real estate price indices, there is no agreed international methodology for constructing indicators.

Theoretically, it is believed that data on actual transactions are the best for constructing a commercial real estate price index [1]. In international practice (Germany, Denmark, the Netherlands, Slovenia and other countries), this data source is the most used. However, it often happens that the data may not be sufficient to calculate the indicators, besides, administrative data are not always complete and of high quality (understated transaction prices, zero prices, errors and inaccuracies in the characteristics of real estate).

An alternative source of data can be the offer prices on real estate platforms and the data of statistical observations.

Offer prices attract index compilers by their accessibility, they contain detailed information about real estate objects and can be obtained faster than transaction data, which allows the index to be calculated in a timely manner. However, the offer prices are usually higher than the actual transaction prices.

The data obtained as a result of statistical observations, despite their timeliness and coverage, entail certain disadvantages: the burden on respondents and specialists of territorial statistical divisions, heterogeneity of types of commercial real estate.

To compile the indicators, available in the country data source is selected, taking into account the specifics of the real estate market, the advantages and disadvantages of the available data.

Commercial real estate rental prices: current survey and alternative data sources:

Currently, the system of indicators of commercial real estate price statistics in Kazakhstan is represented only by indices of commercial real estate rental prices, formed according to the results of national statistical observation in the form "Report on commercial real estate rental prices" on a quarterly basis.

Information on prices is provided by landlords according to lease agreements for a wide list of types of real estate:

- Offices (class A, B, C, D);
- Retail premises (shops, boutiques, pharmacies, kiosks);
- Public catering facilities (restaurants, cafes, canteens);
- Consumer service points (dry cleaners, photo salons, hairdressers, gyms, etc.);
- Warehouses (class A, B, C, D);
- Production facilities (industrial bases, workshops, service stations, car washes);
- Parking lots (multi-level, aboveground, underground);
- Other types (currency exchange offices, premises for bank branches).

Based on the results of the observation, commercial real estate rental price indices are formed. Until 2015, in addition to price indices, average prices by region were also formed, but their formation was canceled due to the heterogeneity of the sample. The level of average prices was influenced by the presence in the sample of a significant number of respondents who rent out objects located in the districts of the regions. As a rule, prices in districts can be several times lower than in regional centers. Another factor in the heterogeneity of the sample was that respondents themselves determine which class their real estate object belongs to (office or warehouse). Thus, for example, offices with a different range of prices can get into the group of offices of the highest class A, which does not allow for a real comparison of prices both between regions and between real estate classes within the same region.

The priority directions of the development of price statistics in Kazakhstan are the expansion of indicators on prices for commercial real estate, as well as the use of alternative sources [2]. In this regard, the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan (hereinafter referred to as the Bureau) has studied an alternative method of collecting prices – parsing sites with ads for rental and sale of commercial real estate. This method allows you to obtain a large amount of data in a short time and calculate representative average prices for commercial real estate, reflecting the situation in the market of the regions of the republic. Compared to the current source of price information, the parsing data of the sites represent the prices of offers.

Based on the structure and content of the sites, the main parameters for data collection are selected: type of real estate, description, total area, year of construction, other characteristics (ceiling height, Internet availability, security, etc.), price per square meter. The observation covers cities of regional and republican significance, the capital.

According to available data from sites, commercial real estate is divided into the following types:

- 1) offices;
- 2) shops and boutiques;
- 3) catering establishments;
- 4) beauty salons;
- 5) car services and car washes;
- 6) warehouses;
- 7) premises of free appointment.

After the breakdown into strata and the procedure for removing extreme values, the average prices are calculated. At the same time, to calculate a representative average price

for the city, a condition: the number of prices in the reporting quarter should be at least three, was adopted.

According to the parsing data, experimental calculations of average prices for the 1-3 quarter of 2023 were carried out.

Table 1

Average prices for rent of commercial real estate

in tenge per sq.m

| | Offices | | | Shops and boutiques | | | Premises of free appointment | | |
|-----------------|-------------------|-------------------|-------------------|---------------------|-------------------|-------------------|------------------------------|-------------------|-------------------|
| | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter |
| Astana | 5 030 | 5 372 | 5 106 | 5 320 | 5 538 | 5 440 | 3 320 | 5 104 | 4 946 |
| Almaty | 7 150 | 5 903 | 6 130 | 6 963 | 5 629 | 6 181 | 3 933 | 5 117 | 5 155 |
| Shymkent | 3 050 | 3 750 | 3 164 | 4 117 | 3 509 | 3 558 | 5 486 | 3 107 | 2 812 |
| Aktau | 3 521 | 3 095 | 3 155 | 3 279 | 3 422 | 3 431 | 5 963 | 3 231 | 3 096 |
| Aktobe | 2 918 | 3 342 | 3 636 | 3 813 | 3 660 | 3 842 | 2 614 | 3 245 | 3 139 |
| Atyrau | 3 601 | 4 144 | 4 045 | 4 609 | 3 762 | 3 989 | 3 273 | 3 454 | 3 554 |
| Zhezkazgan | 4 694 | 5 087 | 4 150 | 3 737 | 2 365 | 3 397 | 2 889 | ... | 3 344 |
| Kokshetau | 3 051 | 3 201 | 3 407 | 3 443 | 3 440 | 3 563 | 3 672 | 3 267 | 2 623 |
| Karagandy | 3 214 | 3 861 | 4 084 | 4 115 | 4 361 | 4 131 | 3 104 | 3 530 | 3 502 |
| Konaev | 3 523 | 2 745 | ... | 4 175 | 4 062 | 6 256 | 3 134 | 2 751 | ... |
| Kostanay | 1 950 | 2 890 | 3 436 | 4 889 | 3 551 | 4 095 | 3 199 | 2 726 | 3 588 |
| Kyzylorda | 2 459 | 2 635 | 2 431 | 2 252 | 3 575 | 3 031 | 3 192 | 2 790 | 2 511 |
| Uralsk | 2 612 | 2 888 | 4 077 | 4 637 | 4 802 | 4 271 | 2 853 | 3 383 | 3 103 |
| Ust-Kamenogorsk | 2 331 | 3 466 | 3 577 | 4 024 | 3 722 | 3 937 | 3 111 | 3 294 | 2 684 |
| Pavlodar | 2 739 | 3 827 | 3 859 | 4 317 | 3 083 | 3 735 | 3 272 | 2 775 | 2 626 |
| Petropavlovsk | 3 728 | 3 915 | 2 128 | ... | 3 450 | ... | 3 026 | 2 290 | 2 373 |
| Semey | 3 957 | 3 859 | 3 302 | 4 521 | 4 346 | 3 179 | 2 523 | 3 520 | 2 980 |
| Taldykorgan | 2 479 | 3 203 | 3 158 | 3 511 | 2 488 | 4 414 | 1 552 | 2 430 | 2 715 |
| Taraz | 2 915 | 3 172 | 3 263 | 2 737 | 3 040 | 3 178 | 3 110 | 2 893 | 2 169 |
| Turkistan | 2 843 | 2 596 | 3 674 | 1 703 | 2 869 | 3 005 | 2 477 | 2 468 | 2 913 |

Continuation

| | Number of prices | | | | | | | | |
|-----------------|-------------------|-------------------|-------------------|---------------------|-------------------|-------------------|------------------------------|-------------------|-------------------|
| | offices | | | shops and boutiques | | | premises of free appointment | | |
| | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter |
| Astana | 572 | 428 | 402 | 239 | 321 | 378 | 27 | 692 | 618 |
| Almaty | 1 312 | 687 | 660 | 355 | 552 | 410 | 42 | 750 | 534 |
| Shymkent | 134 | 72 | 83 | 80 | 84 | 75 | 1116 | 114 | 89 |
| Aktau | 78 | 34 | 45 | 32 | 41 | 41 | 1179 | 80 | 58 |
| Aktobe | 59 | 44 | 38 | 41 | 32 | 38 | 152 | 41 | 48 |
| Atyrau | 88 | 77 | 51 | 37 | 54 | 29 | 113 | 105 | 62 |
| Zhezkazgan | 5 | 3 | 5 | 7 | 4 | 4 | 98 | 2 | 6 |
| Kokshetau | 34 | 14 | 7 | 10 | 8 | 8 | 104 | 17 | 9 |
| Karagandy | 122 | 43 | 31 | 42 | 42 | 32 | 5 | 85 | 50 |
| Konaev | 11 | 4 | 1 | 12 | 8 | 3 | 42 | 6 | 1 |
| Kostanay | 47 | 21 | 17 | 16 | 20 | 15 | 124 | 26 | 21 |
| Kyzylorda | 12 | 8 | 18 | 10 | 10 | 15 | 11 | 22 | 22 |
| Uralsk | 21 | 10 | 11 | 9 | 13 | 15 | 35 | 33 | 18 |
| Ust-Kamenogorsk | 61 | 34 | 11 | 34 | 39 | 15 | 38 | 46 | 13 |
| Pavlodar | 56 | 27 | 16 | 30 | 25 | 11 | 49 | 36 | 10 |
| Petropavlovsk | 10 | 8 | 4 | 1 | 5 | 2 | 57 | 6 | 6 |
| Semey | 26 | 16 | 17 | 13 | 25 | 9 | 56 | 26 | 13 |
| Taldykorgan | 33 | 7 | 15 | 5 | 6 | 5 | 10 | 21 | 6 |
| Taraz | 36 | 11 | 11 | 30 | 33 | 19 | 32 | 38 | 21 |
| Turkistan | 8 | 3 | 4 | 3 | 3 | 5 | 26 | 10 | 5 |

Table 2

Average prices for rent of commercial real estate in 3 quarter of 2023*

in tenge per sq.m

| | Catering establishments | | Car services and car washes | | Beauty salons | | Warehouses | |
|--------|-------------------------|------------------|-----------------------------|------------------|---------------|------------------|---------------|------------------|
| | average price | number of prices | average price | number of prices | average price | number of prices | average price | number of prices |
| Astana | 5 748 | 229 | 3 121 | 31 | 5 440 | 297 | 3 460 | 195 |
| Almaty | 5 919 | 221 | 3 534 | 53 | 6 179 | 281 | 3 663 | 283 |

| | Catering establishments | | Car services and car washes | | Beauty salons | | Warehouses | |
|-----------------|-------------------------|------------------|-----------------------------|------------------|---------------|------------------|---------------|------------------|
| | average price | number of prices | average price | number of prices | average price | number of prices | average price | number of prices |
| Shymkent | 3 430 | 31 | 2 077 | 13 | 3 460 | 38 | 1 929 | 42 |
| Aktau | 4 252 | 25 | 1 858 | 8 | 3 214 | 40 | 2 002 | 18 |
| Aktobe | 3 817 | 15 | 2 664 | 7 | 3 883 | 21 | 2 097 | 16 |
| Atyrau | 3 394 | 15 | 2 165 | 8 | 3 981 | 18 | 2 845 | 26 |
| Zhezkazgan | 3 224 | 3 | | | 4 575 | 4 | ... | 2 |
| Kokshetau | 3 065 | 5 | 3 119 | 4 | 3 142 | 6 | 1 751 | 9 |
| Karagandy | 4 462 | 16 | 1 695 | 8 | 4 733 | 29 | 2 540 | 27 |
| Konaev | ... | 2 | | | 4 707 | 4 | | |
| Kostanay | 4 966 | 3 | 1 627 | 3 | 4 431 | 7 | 1 588 | 10 |
| Kyzylorda | 2 872 | 7 | 2 019 | 6 | 2 884 | 12 | 2 196 | 14 |
| Uralsk | ... | 2 | 2 491 | 5 | 4 338 | 4 | 2 248 | 13 |
| Ust-Kamenogorsk | 2 993 | 7 | 2 382 | 8 | 4 633 | 8 | 1 762 | 9 |
| Pavlodar | 4 533 | 3 | ... | 2 | 4 275 | 5 | 2 429 | 9 |
| Petropavlovsk | ... | 1 | ... | 2 | ... | 2 | 1 979 | 5 |
| Semey | ... | 2 | ... | 2 | 3 746 | 9 | 2 071 | 6 |
| Taldykorgan | 2 367 | 3 | 1 979 | 3 | 2 408 | 3 | 1 817 | 3 |
| Taraz | 3 382 | 5 | 2 557 | 4 | 3 425 | 10 | 1 885 | 5 |
| Turkistan | 3 031 | 5 | 2 339 | 3 | 2 378 | 4 | 2 520 | 3 |

*The parsing of prices for catering establishments, car services and car washes, beauty salons, warehouses has been conducted since the 3rd quarter of 2023, due to changes in the structure of real estate sites.

Compilation of indicators for the sale prices of commercial real estate: In order to compile indicators for the sale of commercial real estate, the Bureau studied information from two sources: administrative data on completed transactions of purchase and sale of commercial real estate from the State Database "Real Estate Register" (hereinafter - SD RER) and data from real estate advertisements obtained by parsing sites.

The main characteristics of data sources are coverage, data quality and timeliness. *Coverage.* Information from these sources allows you to generate quarterly average prices for the sale of commercial real estate in cities of regional and republican significance, the capital. In some cities, there are cases when the number of actually completed transactions in one quarter is less than three, which is not enough to calculate representative average prices.

Table 3

Data sources for the sale prices of commercial real estate

| | Data from SD RER | Data from parsing |
|--------------------|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nature of the data | prices of actually completed transactions | offer prices |
| Structure of data | 1) offices; 2) stores; 3) hotels and restaurants; 4) warehouses; 5) industrial buildings; 6) garage buildings | 1) offices; 2) shops and boutiques; 3) catering establishments; 4) beauty salons; 5) car services and car washes; 6) warehouses; 7) premises of free appointment |

Data quality. The offer prices obtained by parsing will always represent an overestimate, since there is a bargaining between the seller and the buyer. The use of actual transaction prices is preferable, since it reflects the real situation on the commercial real estate market, but the quality of administrative data of the SD RER still requires improvement. As a result of the calculations (shown below), it is noticeable that the database contains a significant number of transactions at low prices. For example, the average price of eight transactions for the purchase and sale of stores in Taraz in the 2nd quarter of 2023 amounted to only 29,451 tenge per 1 sq.m. If you go deeper into the details of the calculation, the price range between transactions ranged from 2,896 tenge to

97,087 tenge per sq.m. At the same time, it should be taken into account that in order to exclude shifts in the values of the indicator, it was provided for cutting off duplicates, zero data, extreme price values (10% of the highest and lowest prices for each type of real estate in each region were cut off).

Timeliness. According to the two data sources it is planned to compile indicators on a quarterly basis. The timeliness of receiving data is ensured, but there are always risks that cannot be provided in advance.

The main risk for the timely receipt of parsing data is a change in the structure of the site or the blocking of the site by its owner. In this case, there is a risk of extending the period for the compilation of indicators until the problem is solved by the developer of the parsing tool.

Administrative data are submitted to the Bureau in a timely manner, but possible risks are the work of both the owner of the SD RER and the Bureau. For example, in the 2nd quarter of this year, work by transfer the data of the SD RER to the Unified State Cadastre of Real Estate, in the 3rd quarter – the technical work on residential real estate by Bureau. This led to the fact that in the total volume received for processing, there is an incomplete amount of data for 2-3 quarters of 2023.

Based on the administrative data of the SD RER, the calculation of average prices on sales of commercial real estate according to the previously mentioned classification for 2022 and 1-3 quarter of 2023 was carried out.

Table 4

Average prices for sales of stores according to data from SD RER

| | Average price, in tenge per sq.m | | | | | | | Number of prices | |
|-----------------|----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|----------------------|
| | 2022 1 quarter | 2022 2 quarter | 2022 3 quarter | 2022 4 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2022 | 2023 1-3 quarters |
| Astana | 92 292 | 107 698 | 220 962 | | 163 603 | 238 741 | 179 557 | 20 | 19 |
| Almaty | 86 047 | 170 392 | 105 892 | 106 992 | 118 557 | 119 836 | 123 462 | 32 | 21 |
| Shymkent | 109 136 | 103 571 | 143 821 | 133 002 | 154 727 | 219 923 | 191 105 | 71 | 45 |
| Aktau | | 185 540 | 62 156 | | | | 147 705 | 11 | 5 |
| Aktobe | 56 887 | 71 761 | 39 257 | 115 779 | 129 833 | 164 115 | 71 691 | 38 | 17 |
| Atyrau | 88 051 | 157 830 | 130 700 | 142 854 | 222 552 | | 129 318 | 30 | 12 |
| Zhezkazgan | | 70 895 | | | | | 148 565 | 10 | 5 |
| Kokshetau | | | 150 330 | | | | ... | 10 | 2 |
| Karagandy | | | 164 770 | | | | ... | 9 | 1 |
| Kyzylorda | | | | | | | 175 269 | | 4 |
| Uralsk | 180 768 | | 170 758 | | 282 276 | | 149 954 | 17 | 9 |
| Ust-Kamenogorsk | 172 152 | 71 992 | | 69 097 | 176 999 | | 101 511 | 17 | 14 |
| Pavlodar | | 114 500 | 112 098 | | 216 378 | | ... | 15 | 6 |
| Petropavlovsk | 155 405 | 288 500 | 153 829 | 218 691 | 178 520 | 199 426 | 220 447 | 24 | 15 |
| Semey | | 100 144 | 186 376 | 85 033 | 79 044 | 158 624 | 67 263 | 20 | 13 |
| Taldykorgan | | 153 685 | 103 258 | | 28 962 | 72 349 | 50 801 | 11 | 18 |
| Taraz | 72 663 | 61 783 | 89 177 | 211 979 | 116 718 | 29 451 | 94 634 | 34 | 20 |
| Turkistan | | 288 615 | | | | | ... | 7 | 3 |

Table 5

Average prices for sales of offices according to data from SD RER

| | Average price, in tenge per sq.m | | | | | | | Number of prices | |
|-----------|----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|----------------------|
| | 2022 1 quarter | 2022 2 quarter | 2022 3 quarter | 2022 4 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2022 | 2023 1-3 quarters |
| Astana | 63 617 | 91 273 | 220 968 | 270 642 | 275 987 | 63 558 | 197 933 | 33 | 29 |
| Almaty | 171 828 | 145 380 | 178 182 | 183 209 | 238 407 | 184 387 | 133 247 | 51 | 24 |
| Shymkent | 85 695 | 79 684 | 121 677 | 134 926 | 81 750 | 106 517 | 157 538 | 49 | 25 |
| Aktau | | 44 679 | | | 30 304 | | 35 751 | 9 | 9 |
| Aktobe | | 87 145 | | | 142 736 | 91 046 | 157 021 | 10 | 12 |
| Atyrau | | 53 877 | 32 316 | 93 316 | 47 007 | 161 667 | 25 008 | 27 | 15 |
| Kokshetau | 52 090 | | | | | | 229 834 | 9 | 5 |

| | Average price, in tenge per sq.m | | | | | | | Number of prices | |
|---------------------|----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|----------------------|
| | 2022 1 quarter | 2022 2 quarter | 2022 3 quarter | 2022 4 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2022 | 2023 1-3 quarters |
| Kostanay | | | 79 204 | | 150 530 | | 45 090 | 15 | 8 |
| Kyzylorda | | | | | | | 97 315 | | 3 |
| Ust- Kamenogorsk | 54 824 | 46 106 | | | | | 179 229 | 11 | 10 |
| Petropavlovsk | 121 156 | | | | | | 324 301 | 6 | 9 |
| Semey | | | 115 959 | | 153 755 | 78 972 | 41 437 | 9 | 14 |
| Taraz | | | 332 803 | 79 792 | | | ... | 10 | 4 |
| Turkistan | | | | | | | 197 933 | | 29 |

Table 6

Average prices for sales of hotels and restaurants according to data from SD RER

| | Average price, in tenge per sq.m | | | | | | | Number of prices | |
|-----------|----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|----------------------|
| | 2022 1 quarter | 2022 2 quarter | 2022 3 quarter | 2022 4 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2022 | 2023 1-3 quarters |
| Astana | | | | | 272 532 | 326 549 | ... | 9 | 14 |
| Almaty | | 133 426 | 84 008 | 73 967 | 93 795 | 145 574 | 128 163 | 37 | 23 |
| Shymkent | 102 307 | 129 591 | 161 533 | 71 433 | 68 579 | 102 305 | ... | 39 | 11 |
| Aktobe | 59 463 | | | | | | ... | 6 | 4 |
| Kokshetau | | | | | 104 559 | | ... | 5 | 6 |
| Kyzylorda | | 103 427 | | | | | ... | 8 | 4 |
| Uralsk | | 84 949 | | | | | 134 310 | 10 | 11 |
| Semey | | | 51 573 | | | | ... | 5 | 5 |
| Taraz | | 71 205 | | | | | ... | 8 | 2 |

Table 7

Average prices for sales of warehouses according to data from SD RER

| | Average price, in tenge per sq.m | | | | | | | Number of prices | |
|---------------------|----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|----------------------|
| | 2022 1 quarter | 2022 2 quarter | 2022 3 quarter | 2022 4 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2022 | 2023 1-3 quarters |
| Astana | 208 355 | 66 696 | 94 112 | | 70 020 | 53 584 | 147 175 | 19 | 18 |
| Almaty | 265 050 | 50 037 | 160 039 | | 129 810 | 66 059 | 95 950 | 29 | 29 |
| Shymkent | 66 178 | 77 679 | | 47 449 | | | 122 621 | 19 | 5 |
| Aktau | | 56 422 | | | | | | 8 | 3 |
| Aktobe | | | 54 245 | | 37 714 | | 160 590 | 15 | 17 |
| Atyrau | | 51 181 | | 123 576 | | | 61 848 | 10 | 3 |
| Kokshetau | | | | | | | 154 491 | | 4 |
| Karagandy | 38 341 | | | | 62 452 | 13 931 | 18 432 | 10 | 13 |
| Kostanay | | 24 522 | 60 502 | 143 878 | 74 704 | 32 611 | 32 313 | 25 | 13 |
| Kyzylorda | | 28 385 | | 259 289 | 36 618 | | 69 242 | 10 | 31 |
| Ust- Kamenogorsk | | | 13 717 | | | | ... | 10 | 5 |
| Pavlodar | | 32 409 | 152 989 | | 111 944 | | | 9 | 5 |
| Petropavlovsk | | | | | | | 26 920 | 7 | 5 |
| Semey | | 88 743 | 122 210 | 82 265 | 129 707 | 46 854 | 31 723 | 17 | 10 |
| Taraz | | | | | 53 576 | | ... | 7 | 7 |

Table 8

Average prices for sales of industrial buildings according to data from SD RER

| | Average price, in tenge per sq.m | | | | | | | Number of prices | |
|---------------------|----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|----------------------|
| | 2022 1 quarter | 2022 2 quarter | 2022 3 quarter | 2022 4 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2022 | 2023 1-3 quarters |
| Astana | 76 942 | 62 584 | 85 068 | 81 715 | | 150 909 | 96 092 | 21 | 9 |
| Almaty | 109 239 | 37 552 | 75 710 | | 148 774 | 27 698 | 82 949 | 29 | 24 |
| Shymkent | 90 744 | 32 295 | 17 757 | | 46 165 | | 114 468 | 17 | 8 |
| Aktobe | | | | | | | 131 588 | | 5 |
| Atyrau | | | 8 070 | 42 826 | | 146 815 | ... | 11 | 6 |
| Karagandy | 68 632 | | | | | 81 007 | 189 156 | 8 | 8 |
| Ust- Kamenogorsk | | | | | 46 092 | | 134 832 | 7 | 12 |
| Pavlodar | 162 411 | | | | 112 635 | | 57 611 | 11 | 10 |
| Petropavlovsk | | 13 549 | | | | | 62 070 | 8 | 5 |
| Taraz | 79 171 | 62 831 | | | | | ... | 12 | 4 |

Table 9

Average prices for sales of garage buildings according to data from SD RER

| | Average price, in tenge per sq.m | | | | | | Number of prices | | |
|-------------|----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|----------------------|
| | 2022 1 quarter | 2022 2 quarter | 2022 3 quarter | 2022 4 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2022 | 2023 1-3 quarters |
| Astana | | | | 120 779 | 121 712 | 91 466 | 105 610 | 12 | 16 |
| Almaty | 99 158 | 109 288 | 92 022 | 162 113 | 76 667 | | 54 906 | 32 | 15 |
| Shymkent | 61 772 | 67 396 | 58 109 | 191 270 | 96 272 | 219 260 | 42 739 | 39 | 38 |
| Karagandy | | | | | | | 57 238 | | 6 |
| Taldykorgan | | | | | | | 45 278 | | 3 |

Given the heterogeneity of the types of real estate in each quarter, average prices may differ significantly from quarter to quarter. For example, the average price on sale of stores in Almaty in the 1st quarter of 2022 amounted to 86,047 tenge per 1 sq.m, and in the 2nd quarter it became almost 2 times higher (170,392 tenge). The value of the average price depends on the transactions for which real estate objects were made in the reporting period, as well as on factors such as location in the city, availability of equipment, year of construction, condition, repair, urgency of sale, etc. Accordingly, price spikes are inevitable.

Since commercial real estate is more often rented than bought, the number of transactions per year is not so large, in large cities their number is 20-40 per year, in some cases reaches 50 or 70. In some cities, their number is less than three, which is not enough to calculate average prices.

Based on data from parsing, an experimental calculation of data for the 1-3 quarter of 2023 was also carried out.

Table 10

Average prices for sales of commercial real estate according to data from parsing

in tenge per sq.m

| | Offices | | | Shops and boutiques | | | Premises of free appointment | | |
|-----------------|-------------------|-------------------|-------------------|---------------------|-------------------|-------------------|------------------------------|-------------------|-------------------|
| | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter |
| Astana | 515 210 | 410 605 | 356 234 | 414 942 | 342 880 | 371 143 | 892 359 | 330 317 | |
| Almaty | 757 076 | 361 810 | 397 709 | 513 386 | 295 372 | 339 536 | 700 144 | 284 051 | 337 236 |
| Shymkent | 514 982 | 343 742 | 367 516 | 313 773 | 317 304 | 303 102 | 416 427 | 298 940 | 324 971 |
| Aktau | 268 307 | 259 865 | 227 824 | 228 641 | 240 931 | 224 355 | 211 440 | 181 373 | 276 996 |
| Aktobe | 349 228 | 308 887 | 317 538 | 300 138 | 319 420 | 279 641 | 249 943 | 266 780 | 209 150 |
| Atyrau | 445 629 | 329 693 | 282 578 | 245 342 | 305 787 | 279 884 | 308 554 | 312 169 | 216 878 |
| Zhezkazgan | ... | 312 630 | 417 458 | 308 809 | 346 026 | 308 818 | 388 569 | 304 865 | 301 650 |
| Kokshetau | 190 984 | 331 501 | 286 810 | 211 130 | 275 831 | 261 389 | 258 406 | 254 542 | 325 416 |
| Karagandy | 461 534 | 303 509 | 297 222 | 210 703 | 278 238 | 275 699 | 251 470 | 278 451 | 287 032 |
| Konaev | ... | 290 467 | 403 472 | 302 745 | 324 672 | 336 751 | 197 934 | 220 003 | 268 072 |
| Kostanay | 561 244 | 282 902 | 280 323 | 290 918 | 283 569 | 355 762 | 294 697 | 212 782 | ... |
| Kyzylorda | 310 794 | 266 562 | 291 339 | 350 921 | 300 261 | 265 835 | 271 963 | 230 003 | 239 295 |
| Uralsk | 307 371 | 319 682 | 294 434 | 267 380 | 315 705 | 297 992 | 295 379 | 258 427 | 262 530 |
| Ust-Kamenogorsk | 423 599 | 358 928 | 339 517 | 282 017 | 335 039 | 288 741 | 399 182 | 219 369 | 253 622 |
| Pavlodar | 333 741 | 393 225 | 249 709 | 166 258 | 291 570 | 267 613 | 329 739 | 244 483 | 229 566 |
| Petropavlovsk | 521 485 | 283 129 | 377 214 | 369 524 | 363 364 | 361 767 | 390 516 | 269 904 | 304 829 |
| Semey | 347 133 | 290 191 | 287 594 | 316 098 | 301 131 | 287 244 | 327 447 | 270 128 | 316 603 |
| Taldykorgan | 495 359 | 418 208 | 394 257 | 321 152 | 301 637 | 349 348 | 373 715 | 271 507 | 244 376 |
| Taraz | 366 585 | 365 228 | 321 226 | 234 749 | 303 958 | 289 301 | 243 264 | 244 802 | 378 895 |
| Turkistan | 202 062 | 271 067 | 200 074 | 241 439 | 259 727 | 245 137 | 291 256 | 250 789 | 305 739 |

Continuation

| | Number of prices | | | | | | | | |
|-----------------|-------------------|-------------------|-------------------|---------------------|-------------------|-------------------|------------------------------|-------------------|-------------------|
| | offices | | | shops and boutiques | | | premises of free appointment | | |
| | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter |
| Astana | 229 | 359 | 431 | 336 | 416 | 362 | 1 272 | 652 | |
| Almaty | 351 | 437 | 494 | 575 | 597 | 392 | 802 | 486 | 378 |
| Shymkent | 27 | 40 | 62 | 132 | 170 | 76 | 63 | 88 | 280 |
| Aktau | 30 | 60 | 59 | 99 | 135 | 70 | 159 | 125 | 49 |
| Aktobe | 44 | 57 | 60 | 124 | 114 | 65 | 90 | 67 | 56 |
| Atyrau | 27 | 50 | 41 | 53 | 79 | 42 | 68 | 66 | 45 |
| Zhezkazgan | ... | 3 | 7 | 21 | 24 | 13 | 7 | 17 | 28 |
| Kokshetau | 15 | 27 | 17 | 42 | 45 | 14 | 32 | 29 | 4 |
| Karagandy | 12 | 31 | 33 | 65 | 98 | 34 | 71 | 64 | 18 |
| Konaev | 1 | 6 | 7 | 13 | 16 | 6 | 7 | 9 | 27 |
| Kostanay | 4 | 28 | 36 | 59 | 85 | 51 | 22 | 35 | 1 |
| Kyzylorda | 5 | 18 | 16 | 41 | 59 | 20 | 32 | 33 | 26 |
| Uralsk | 9 | 24 | 19 | 38 | 67 | 28 | 31 | 37 | 23 |
| Ust-Kamenogorsk | 7 | 21 | 23 | 116 | 139 | 52 | 30 | 37 | 24 |
| Pavlodar | 14 | 20 | 19 | 76 | 91 | 31 | 19 | 23 | 23 |

| | Number of prices | | | | | | | | |
|---------------|-------------------|-------------------|-------------------|---------------------|-------------------|-------------------|------------------------------|-------------------|-------------------|
| | offices | | | shops and boutiques | | | premises of free appointment | | |
| | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter | 2023 1 quarter | 2023 2 quarter | 2023 3 quarter |
| Petropavlovsk | 7 | 7 | 21 | 22 | 37 | 11 | 11 | 18 | 14 |
| Semey | 13 | 17 | 8 | 85 | 82 | 21 | 27 | 28 | 8 |
| Taldykorgan | 15 | 19 | 18 | 55 | 53 | 32 | 15 | 26 | 15 |
| Taraz | 7 | 24 | 19 | 100 | 130 | 55 | 17 | 34 | 7 |
| Turkistan | 3 | 5 | 7 | 3 | 7 | 12 | 9 | 12 | 18 |

Table 11

Average prices for sale of commercial real estate

in tenge per sq.m

| | Catering establishments | | Car services and car washes | | Beauty salons | | Warehouses | |
|-----------------|-------------------------|------------------|-----------------------------|------------------|---------------|------------------|---------------|------------------|
| | average price | number of prices | average price | number of prices | average price | number of prices | average price | number of prices |
| Astana | 442 623 | 284 | 292 037 | 57 | 375 739 | 324 | 247 081 | 175 |
| Almaty | 416 505 | 312 | 308 764 | 82 | 369 423 | 334 | 281 108 | 181 |
| Shymkent | 368 964 | 45 | 225 975 | 21 | 391 241 | 43 | 217 705 | 31 |
| Aktau | 229 203 | 31 | 174 170 | 4 | 221 274 | 53 | 169 044 | 39 |
| Aktobe | 255 365 | 39 | 244 481 | 14 | 350 969 | 42 | 175 936 | 24 |
| Atyrau | 300 181 | 17 | 208 053 | 11 | 337 356 | 25 | 207 218 | 24 |
| Zhezkazgan | 330 117 | 4 | ... | 1 | 247 422 | 4 | ... | 2 |
| Kokshetau | 278 640 | 11 | 185 518 | 5 | 312 877 | 12 | 212 852 | 9 |
| Karagandy | 296 812 | 34 | 132 418 | 13 | 320 804 | 24 | 165 645 | 16 |
| Konaev | ... | 2 | ... | 1 | 305 976 | 3 | 293 010 | 3 |
| Kostanay | 379 848 | 21 | 201 659 | 13 | 338 115 | 25 | 259 178 | 18 |
| Kyzylorda | 291 965 | 9 | 249 889 | 6 | 363 063 | 10 | 181 137 | 10 |
| Uralsk | 299 885 | 19 | 340 873 | 6 | 392 431 | 16 | 246 554 | 9 |
| Ust-Kamenogorsk | 317 502 | 20 | 149 172 | 5 | 459 978 | 19 | 140 350 | 6 |
| Pavlodar | 315 337 | 15 | 349 024 | 4 | 329 746 | 14 | 192 392 | 9 |
| Petropavlovsk | 471 883 | 9 | 306 150 | 5 | 378 385 | 15 | 192 241 | 4 |
| Semey | 303 734 | 5 | ... | 2 | 428 663 | 9 | 198 553 | 5 |
| Taldykorgan | 288 880 | 14 | 203 091 | 4 | 411 472 | 9 | 255 006 | 6 |
| Taraz | 326 828 | 25 | 245 909 | 8 | 389 039 | 21 | 254 024 | 11 |
| Turkistan | 259 314 | 5 | 149 714 | 3 | 164 686 | 4 | 141 048 | 5 |

*The parsing of prices for catering establishments, car services and car washes, beauty salons, warehouses has been conducted since the 3rd quarter of 2023, due to changes in the structure of real estate sites.

Conclusions and directions for future work: For the rent of commercial real estate, the parsing of prices from websites implies the collection of offer prices and does not cover those objects that are rented at the current time and may also be subject to price changes. Given the sufficient amount of parsing data for cities of regional and republican significance, the capital of the Bureau will consider the possibility of combining prices obtained as a result of parsing and statistical observation. The analysis and experimental calculations will be continued in the 4th quarter of 2023 and 2024. Also, the task for the development of indicators on real estate statistics is the compilation of hedonic price indices. This is due to the fact that real estate objects may differ significantly in their characteristics, such as area, year of construction, location, and others. In addition, the composition of objects for a certain type of real estate, for which the average price is calculated, may vary from one period to another. To build reliable price indices, it is necessary to use a hedonic regression model that takes into account the influence of each feature of the object on the price.

The construction of indicators for the sale of commercial real estate, based only on the data of the SD RER, may not be reliable enough, since there are problems with the quality of data. In addition, as the calculation shows, the number of offer prices is many times greater than the number of actually completed transactions. Similar to rent of

commercial real estate, work is required to study the possibility of using a combination of data.

During 2023-2024, experimental calculations of average prices for rent and sale of commercial real estate based on data from various sources will be continued and a time series analysis will be carried out to make decisions on the compilation of indicators.

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