

UDC 332.122:332.72(438-25):314.15
DOI: 10.56318/eem2026.01.020

ISSN 2312-3435
e-ISSN 2413-7634

Olena Shandrivska*

PhD in Economics, Associate Professor
Lviv Polytechnic National University
79000, 12 Stepan Bandera Str., Lviv, Ukraine
<https://orcid.org/0000-0002-4335-2423>

Sofia Bohaychyk

Student
Lviv Polytechnic National University
79000, 12 Stepan Bandera Str., Lviv, Ukraine
<https://orcid.org/0009-0006-0164-8118>

Diana Skrypchenko

Student
Lviv Polytechnic National University
79000, 12 Stepan Bandera Str., Lviv, Ukraine
<https://orcid.org/0009-0004-8887-6054>

Research on the Warsaw real estate market under conditions of post-pandemic recovery and migration processes

Abstract. The transformation of the Warsaw real estate market under the influence of global macroeconomic instability, pandemic-related restrictions, and large-scale migration waves necessitates a scientific analysis of structural changes and adaptive mechanisms within the housing sector. The aim of the study was to conduct a comprehensive analysis of the Warsaw real estate market conditions during 2021-2025, to assess the level of its market concentration, and to identify the determinants of demand transformation in the context of post-crisis recovery. The methodological framework of the study was based on a systems approach, incorporating statistical analysis of time series data, comparative methods, SWOT analysis, and mathematical tools for assessing market concentration, including the Herfindahl-Hirschman Index, the Linda Index, and the Gini coefficient. The results indicated that price dynamics in both the primary and secondary housing markets in Warsaw over the period 2021-2025 demonstrated an upward trend, with peak growth recorded in 2024, driven by inflationary pressures and supply shortages. It has been established that the spatial distribution of housing prices across the districts of the capital reflects a high level of differentiation, with central locations maintaining their status as the most stable investment assets. A significant shift in the structure of demand has been identified, marked by an increase in the share of foreign buyers, particularly Ukrainian citizens, whose contribution to market indicators has become strategically important since 2022. Based on calculations of the Herfindahl-Hirschman Index for 2021-2024, a trend towards market deconcentration has been substantiated, alongside a transition from a moderate to a low level of market power among dominant players. It is projected that further stabilisation of the sector will occur through the intensification of suburbanisation processes and the adaptation of supply to new socio-demographic needs of migrants. The practical significance of the study lies in the potential application of its findings by investment analysts to minimise risks, as well as by public authorities in the formulation of strategies for the spatial development of urban agglomerations in the post-crisis period

Keywords: housing prices; developers; market concentration; Herfindahl-Hirschman Index; Linda Index; Gini coefficient

Article's History:

Received: 23.09.2025
Revised: 21.01.2026
Accepted: 24.02.2026
Published: 21.05.2026

Suggested Citation:

Shandrivska, O., Bohaychyk, S., & Skrypchenko, D. (2026). Research on the Warsaw real estate market under conditions of post-pandemic recovery and migration processes. *Economics, Entrepreneurship, Management*, 13(1), 20-32. doi: 10.56318/eem2026.01.020.

*Corresponding author (olena.y.shandrivska@lpnu.ua)



INTRODUCTION

The Warsaw real estate market is a key segment of Poland's national economy, as it reflects not only the condition of the construction industry and housing sector but also the overall level of societal development. The construction sector plays a particularly important role in the capital, as it is here that the country's main political, economic, and cultural institutions are concentrated. Warsaw is significantly influenced by intensive migration processes, changes in the macroeconomic environment, global geopolitical trends, and specific local factors. It is one of the most dynamic European cities in terms of urbanisation and growing housing demand. The majority of Eastern European offices of large international companies are located in Warsaw.

The relevance of the study for the period 2021-2025 is determined by several factors. Firstly, the Warsaw real estate market is recovering from the coronavirus pandemic in terms of rising demand for housing and rental properties. The works of M. Tomal & M. Helbich (2022) and M. Bryx *et al.* (2023) analysed the consequences of the COVID-19 pandemic and its impact on demand. An important methodological contribution is provided by N. Pfeifer & M. Steurer (2022), who identified early indicators of real estate market behaviour during the pandemic crisis. Secondly, migration processes in 2022-2025 have had a noticeable impact on demand structure, particularly those triggered by the full-scale invasion of Ukraine by Russia in 2022. In their study, M. Głuszak & R. Trojanek (2024) substantiated mechanisms of asymmetric housing price adjustment, while in their subsequent work M. Głuszak & R. Trojanek (2025) they demonstrated that population growth due to the inflow of refugees directly leads to increased rental rates. Thirdly, rising material costs and changes in banks' credit policies affect housing affordability, as noted by J. Jaroszewicz & H. Horynek (2024) and O. Jeż & J. Żukovskis (2025). Additionally, S. Kuźmar *et al.* (2026) examined the impact of remote working on urbanisation processes, while R. Cellmer (2023) identified the role of infrastructure in price fluctuations. An important area of research is the integration of Ukrainian refugees, analysed by K. Kochaniak & A. Huterska (2023), as well as the transformation of investment behaviour described by A. Chmielewska *et al.* (2022), where real estate is considered a safe asset. The transformation of Warsaw's housing sector correlates with global trends in property ownership in major cities. As noted by N. Gallent *et al.* (2022), increasing investment demand and the spread of second-home ownership practices often reduce market accessibility for local households, becoming a critical factor during periods of economic instability.

As the Warsaw real estate market is an important indicator of the economic stability of both the city and the country, identifying the factors influencing it is a relevant task for determining future development prospects. The aim of the study was to analyse the current state of the Warsaw real estate market and to assess the supply of residential and commercial properties, taking into account pricing

policy, developer activity, and transformations in housing demand. The objectives of the study were:

- to analyse the spatial and dynamic characteristics of the Warsaw real estate market by examining the structure of residential and commercial construction across city districts and identifying pricing trends in the primary and secondary markets during 2021-2025;
- to assess the level of market concentration and the competitive environment among leading developers in the primary real estate market of the capital using index-based evaluation methods;
- to substantiate strategic directions for adapting the Warsaw real estate market to contemporary economic and migration challenges based on the conducted SWOT analysis, identifying key vectors for its further development.

MATERIALS AND METHODS

The study applied a systems approach, which made it possible to consider the dynamics of the Warsaw real estate market development in the period 2021-2025 as a complex system, taking into account the interaction of economic, social, and demographic factors. Dialectical logic was used to identify contradictions between rising prices and the real purchasing power of the population, while the methods of induction and deduction enabled a transition from the analysis of individual districts (local markets) to the formation of city-wide development trends. Comparative statistical analysis was carried out by comparing the growth rates of housing prices in the primary and secondary markets over the period 2021-2025, which made it possible to identify moments of market shocks. The index method was applied as a mathematical tool for calculating the Herfindahl-Hirschman Index (HHI), Linda Index (LI), and Gini coefficient (GI) indicators, allowing for a quantitative assessment of the level of monopolisation and the inequality of share distribution among the 20 largest developers in the city.

To ensure an objective assessment of the level of spatial price differentiation in the Warsaw real estate market and to avoid subjectivity in the interpretation of indicators, methods of descriptive statistics were employed. The coefficient of variation (V) was selected as a key indicator of market heterogeneity, as it made it possible to assess the relative degree of price dispersion in relation to their average level. The calculation was carried out using the following formulae:

$$V = (\sigma/\bar{x}) \times 100\%, \quad (1)$$

where \bar{x} – the arithmetic mean price per 1 m² of housing across all administrative districts of the city; the following formula was used for its calculation:

$$\bar{x} = (\sum x_i)/n, \quad (2)$$

where σ – the standard deviation, which measures the average extent to which prices in each district deviate from the overall city-wide mean value:

$$\sigma = (\sum(x_i - \bar{x})^2/n)^{0.5}. \quad (3)$$

To interpret the results, the following statistical criteria were applied: $V \leq 33\%$ – the dataset is considered homogeneous, and the level of differentiation is moderate; $V > 33\%$ – the dataset is considered heterogeneous, which mathematically confirms a high level of price differentiation and deep market segmentation. The research methodology was based on classical approaches to measuring market power. The assessment of structural parameters was carried out by comparing the shares of individual real estate market participants with overall market indicators, which ensured a high level of accuracy in identifying market transformations. The market share of an individual housing developer (C_i) was determined using the following formula:

$$C_i = \frac{D_i}{M}, \quad (4)$$

where i – the developer, D_i – the number of residential units commissioned by that developer, and M is the total number of residential units commissioned by all developers in the Warsaw real estate market.

Assessing the market share of an individual developer based on the parameter “number of commissioned residential units” made it possible to identify the level of housing demand satisfaction. Among the examined top twenty leading developers, the following were selected: Dom Development, Develia, Robyg, J.W. Construction, Ronson, Atal, Marvipol, Yareakn, Skanska, Echo Investment, Lokum, Euro Styl, Mid-size group, Panattoni Development Europe, Warsaw Urban Development, Mazovia Residential Group, Capital Housing Investments, Vistula Home Development, and Nova Praga Development. As the twenty largest developers in Warsaw account for approximately 98% of the market share, this sample is considered representative for analysing overall industry trends. Given the negligible combined share of other market participants (around 2%), their impact on overall concentration indicators was deemed statistically insignificant, which allowed the study to focus on the activities of leading developers.

HHI was used to quantitatively assess the overall level of concentration in the primary real estate market in Warsaw and to determine the degree of market monopolisation. This indicator makes it possible to evaluate the level of competition among developers and to identify the risks of market power being concentrated in the hands of a limited number of companies. The HHI was calculated using the following formula:

$$HHI = \sum_{i=1}^N D_i^2, \quad (5)$$

where D_i – the market share of developer (i) expressed as a percentage, and N is the total number of developers. $HHI < 1,000$ indicates low market concentration; 1,000-1,800 indicates moderate concentration; above 1,800 indicates high concentration.

To identify the boundaries of the oligopolistic core of the market and to determine the exact number of firms holding a dominant position, the LI was calculated. Unlike the HHI, this indicator makes it possible to detect the potential formation of monopolistic structures by analysing “breaks in continuity” in the distribution of market shares among leading firms. If the index value exceeds the established threshold ($\Delta > 200\%$), this signals excessive concentration of market power in the hands of specific dominant entities, providing grounds for the application of antitrust regulation. The LI was calculated using the following formula:

$$LI = \frac{1}{k-1} \times \sum_{m=1}^{k-1} l_m; \quad (6)$$

$$l_m = \frac{\frac{1}{m} \sum_{i=1}^m q_i}{\frac{1}{k-m} \sum_{i=m+1}^k q_i}, \quad (7)$$

where k – the number of the largest enterprises in the real estate market (from 2 to N); m is the number of the largest enterprises within the group of k major firms; l_m is the ratio of the average share of the m largest firms (out of the k largest) to the average share of the remaining ($k - m$) firms.

The index is calculated up to the point where $L_{m+1} > L_m$, which is referred to as a “break in the continuity of the L indicator”, i.e. until a firm with a relatively small market share appears in the calculation. Such a break indicates the presence of a significant gap in market power between the leading group and the remaining participants in the real estate market. When L_{m+1} becomes greater than L_m , this signals that the next firm in the ranking has too small a share compared to the preceding ones, and its inclusion in the analysis “dilutes” the structure of the market core. Thus, this point serves as a mathematical criterion for determining the optimal number of firms that shape the competitive landscape and should be included in the calculation.

To assess the degree of inequality in the distribution of market shares among development entities, GI was applied. In the context of this study, this indicator makes it possible to quantitatively determine the level of market monopolisation by analysing the deviation of the actual distribution of commissioned housing volumes from the line of absolute equality. The value of the coefficient ranges from 0 (perfect equality, where each developer has an equal share) to 1 (absolute concentration of market power in the hands of a single entity). The GI was calculated using the following formula:

$$GI = 1 - 2\sum(x_i \times \text{Sum}(y_i)) + \sum(x_i \times y_i), \quad (8)$$

where the variable x_i represents the cumulative share of developers (ordered by increasing volumes of commissioned residential units), and y_i represents the cumulative share of residential units commissioned by the respective developers within the total construction volume.

The study employed a SWOT analysis, which made it possible to identify the internal strengths and weaknesses of the Warsaw real estate market, as well as the external opportunities and threats to its development under conditions of macroeconomic instability. The empirical basis of the research consisted of official data from the Statistical Office in Warsaw (2025), analytical reports of the National Bank of Poland (2025a; 2025b), as well as statistical monitoring from APM Development (2025), Warsaw Business Journal (2025), Investropa (2026), and RynekPierwotny (2025a; 2025b). The use of these sources ensured the verification of data on price dynamics and the transformation of demand in both residential and commercial real estate markets. The limitations of the study are related to the availability of statistical information. Some of the indicators used were, at the time of analysis, published only up to 2024. Thus, the

empirical calculations presented from Table 4 onwards are based on the most recent available data.

RESULTS AND DISCUSSION

The analysis of the residential real estate market in Warsaw for 2021-2025 indicates a significant territorial differentiation in housing prices, shaped by the level of infrastructure provision, the prestige of locations, and the investment attractiveness of individual administrative districts of the city. In the central parts of the capital, characterised by a high concentration of business activity and well-developed transport infrastructure, price levels are considerably higher compared to peripheral districts. A detailed distribution of the price per square metre of housing in the primary market by administrative districts of Warsaw is presented in Table 1.

Table 1. Price levels in the primary housing market in Warsaw by district (2025)

District	Primary market prices, zł / m ²
Wola	25,691
Śródmieście	25,383
Żoliborz	23,784
Wilanów	19,641
Ochota	18,767
Bielany	18,686
Mokotów	18,672
Praga Północ	18,347
Praga Południe	18,273
Ursynów	17,901
Bemowo	17,629
Włochy	16,720
Targówek	15,177
Ursus	15,063
Białołęka	13,839
Wawer	13,823
Wesoła	13,586
Rembertów	12,746
Mean (\bar{x})	17,520
Standard deviation (σ)	6,100
Coefficient of variation (V)	34.8%

Source: compiled on the basis of Statistical Office in Warsaw (2025), Tabelaofert (2025), RynekPierwotny (2025b)

It has been established that the Warsaw real estate market is characterised by a high level of variation in housing prices depending on the district. In the central parts of the city, forming the core districts (Śródmieście, Wola), prices exceed 25,000 zł per m². At the same time, the Mokotów district demonstrates a level of 18,672 zł per m², reflecting its specificity as a prestigious location with a substantial volume of supply across different price segments. In contrast, in districts bordering the suburbs (Białołęka, Rembertów), prices start from 12.7-13 thousand zł per m². This confirms a high degree of price differentiation based on geographical factors and the sustained popularity of central locations in the capital, as reflected in recent monitoring reports by the Statistical Office in Warsaw (2025), Tabelaofert (2025), and RynekPierwotny (2025b). Such territorial disparity serves

as a key indicator for developers when planning new investment projects for 2025-2026.

The high price differentiation across Warsaw districts is driven not only by geographical location but also by the capitalisation of local advantages. Research by R. Cellmer (2023) confirmed that the development of transport infrastructure and accessibility to recreational areas are decisive factors influencing property values. To assess such complex relationships, it is appropriate to apply hedonic pricing methods, the scientific justification of which is provided by J. Jaroszewicz & H. Horynek (2024), who emphasised the quality of the residential environment as a key indicator for planning new investment projects in 2025-2026. At the same time, it should be noted that the fundamental aspects of pricing and spatial development in Warsaw,

which underpin modern models, were established in earlier works by M. Widłak *et al.* (2015) and K. Olszewski *et al.* (2017). However, the high level of price variation is only an external manifestation of spatial heterogeneity. As noted by J. Jura (2021), this heterogeneity has intensified as a

result of post-pandemic demand transformation and active suburbanisation. For a deeper understanding of the internal structure of the Warsaw real estate market, the level of concentration across its main segments was analysed. The results of the relevant calculations were presented in Table 2.

Table 2. Comparison of average rental prices in Warsaw by property type as of 2025, zł

Property type	Average monthly rent	Rent per m ²
Studio	2,500-3,000	100-120
One-bedroom	2,900-3,500	80-110
Two-bedroom	3,500-4,300	70-130
Three-bedroom	4,500-6,000	65-100

Source: compiled on the basis of Tabelaofert (2025), Investropa (2026)

Housing prices in the secondary market and rental levels demonstrated a clear dependence on the quantitative characteristics of the property, particularly the number of rooms and total floor area. As shown in Table 2, an inverse relationship is observed between the size of the dwelling and the price per square metre. In particular, the highest unit prices are recorded for small-sized apartments (studios), where the rental rate amounts to 2,500-3,000 zł and the price per 1 m² is the highest. In three-bedroom apartments, the total rent increases to 4,500-6,000 zł; however, the average price per square metre is significantly lower compared to compact housing. This trend confirms the high demand for small-sized properties, which are the most liquid among young people and migrants. Within the analysed sample, it has been confirmed that the key pricing factor in this segment is precisely the functionality and size of the property, which results in a higher market valuation per square metre in compact apartments compared to multi-room dwellings.

The identified trend of increasing unit rental costs for compact housing is directly correlated with the socio-economic challenges faced by new residents of the capital. As studios and one-bedroom apartments are the most in demand among migrants, the high rental rates for such properties (2,500-3,000 zł) create significant financial barriers to market entry. P.-P. Verhaeghe & D. De Coninck (2022) highlighted the issue of inequality in the rental market,

which intensifies during periods of large-scale migration inflows, when demand for budget housing segments exceeds supply. Similar structural challenges in Central European real estate markets under post-pandemic recovery conditions were analysed by J.K. Kazak *et al.* (2023), emphasising the need to adapt housing policy to new social realities. An additional factor is the “economies of scale” effect in pricing: as the number of rooms and total area increase, the growth rate of total rent slows relative to the increase in space. This leads to a situation where renting multi-room apartments, when shared among several occupants, may be more financially advantageous per person than renting an individual studio. However, for migrants and young professionals who prioritise autonomy, compact housing remains the preferred option, which sustains the unusually high price per square metre in this segment.

Thus, the data on the high cost of small housing confirms the hypothesis of increasing financial pressure on the most vulnerable categories of tenants in Warsaw. The identified patterns indicate the need for more in-depth monitoring of housing affordability under conditions of demographic change. However, to fully understand market trends, it is not sufficient to analyse only the current price structure; it is also important to trace their evolution over recent years. The dynamics of average prices in the primary and secondary housing markets in Warsaw for the period 2021-2025 were systematised and presented in Table 3.

Table 3. Dynamics of average prices in the primary and secondary housing markets in Warsaw for 2021-2025

Year	Price per m ² in the primary market, zł	Change compared to the previous year in the primary market, %	Price per m ² in the secondary market, zł	Change compared to the previous year in the secondary market, %
2021	11,362	-	12,463	-
2022	12,895	+13.5	14,076	+12.9
2023	13,713	+6.4	14,277	+1.4
2024	16,512	+20.4	18,677	+30.9
2025	17,293	+4.7	18,385	-1.6

Source: compiled on the basis of National Bank of Poland (2025b), RynekPierwotny (2025a)

The analysis of the dynamics of average prices in the primary housing market of Warsaw demonstrates a steady upward trend: prices increased from 11,362 zł/m² in 2021 to 17,293 zł/m² in 2025, representing a total growth of +52%. In contrast, the secondary housing market is

characterised by less stable dynamics, manifested in significant fluctuations in annual growth rates compared to the relatively predictable primary segment. According to O. Jež & J. Žukovskis (2025), such pressure on prices is largely driven by changes in banks' credit policies and

reduced mortgage accessibility. In particular, while growth in the primary market occurred gradually, the secondary segment experienced a sharp intensification of price pressure, with the most significant surge recorded in 2024 (+30.9%). In this context, J.V. Duca & A. Murphy (2021) analysed post-pandemic asset overvaluation, while K.A. Kholodilin *et al.* (2024) highlighted the role of monetary policy in the formation of price bubbles, explaining the nature of the Warsaw price surge. This uneven pattern of change reflects trends identified in reports by RynekPierwotny (2025a) and analytics by Tabelaofert (2025), which noted that the secondary market responded more sharply to changes in mortgage programmes and migration shocks.

The structure of housing buyers in Warsaw demonstrates a clear transformation under the influence of socio-economic changes, as evidenced by data from the Statistical Office in Warsaw (2025) and Investropa (2026). A key aspect is the integration of Ukrainian refugees, studied by K. Kochaniak & A. Huterska (2023), which has become a significant factor shaping demand. An upward trend was observed during 2022-2024, driven by post-pandemic recovery, inflationary pressures, increased

migration flows, rising construction material costs, and government mortgage support programmes. Moreover, real estate is increasingly perceived as a safe asset, as confirmed by A. Chmielewska *et al.* (2022) in their study on the transformation of investment behaviour. Thus, during 2021-2025, a gradual increase in average housing prices was observed, reaching a peak in 2024, after which the growth rate began to slow. This may indicate partial market saturation and the adaptation of demand to new economic conditions.

The sharp rise in housing prices in 2024 has intensified concerns about the risk of “price bubbles”. According to K.A. Kholodilin *et al.* (2024), expansionary monetary policy often leads to market overheating, which aligns with the analysis by J.V. Duca & A. Murphy (2021) regarding global asset overvaluation. At the same time, K.A. Kholodilin (2025) emphasised in subsequent research that effective government regulation can serve as a tool for stabilising market indicators and minimising speculative volatility. The structural changes in the composition of housing buyers in Warsaw during 2021-2024 are systematised and presented in Table 4.

Table 4. Structure of housing buyers in Warsaw for 2021-2024, %

Buyer categories	Years				
	2021	2022	2023	2024	2024/2021
Polish households (for owner-occupation)	68	60	58	55	-13
Polish investors (purchase for rental/capital)	20	18	20	22	2
Foreign investors (EU, USA)	5	6	7	8	3
Ukrainian citizens	<1	5	8	9	8
Citizens of other countries	7	11	7	6	-1

Source: compiled on the basis of K. Kochaniak & A. Huterska (2023), RynekPierwotny (2025a), Statistical Office in Warsaw (2025)

Thus, the profile of homebuyers in Warsaw reflects a clear transformation of the primary real estate market under the influence of socio-economic changes between 2021 and 2024. The decline in the share of Polish households in favour of investors and foreign buyers indicates the growing role of the primary real estate market as an investment vehicle. At the same time, the active migration of Ukrainian citizens since early 2022 has become a key factor driving up demand, particularly in the affordable housing segment in Warsaw.

As the growth in demand is accompanied by increased competition among the main market players, it is necessary to analyse the degree of supply concentration among the city's largest developers. This will allow to determine how monopolised the market is and how capacity is distributed among the leading companies under current market conditions. The market shares of the primary real estate market among Warsaw's top 20 developers and the results of the HHI assessment were presented in Table 5.

Table 5. Market share of leading developers in the primary real estate market of Warsaw for 2022-2024, and their contribution to the HHI based on the number of commissioned residential units

No.	Developer	2021			2022			2023			2024			2024/2021
		Units	Share, %	HHI	Units	Share, %	HHI	Units	Share, %	HHI	Units	Share, %	HHI	
1	Dom Development	1,500	14.15	200.2	1,600	13.92	193.8	1,700	13.46	181.4	1,791	13.20	174.2	1.19
2	Murapol	2,200	20.75	430.6	2,300	20.02	400.8	2,350	18.61	346.2	2,297	16.93	286.9	1.04
3	Develia	1,400	13.20	174.2	1,500	13.06	170.7	1,600	12.67	160.6	1,654	12.19	148.7	1.18
4	Robyg	900	8.49	72.1	1,000	8.70	75.7	1,150	9.11	83.0	1,225	9.02	81.4	1.36
5	J.W. Construction	700	6.60	43.6	750	6.52	42.5	800	6.34	40.3	868	6.40	41.0	1.24
6	Ronson	300	2.83	8.0	320	2.78	7.7	350	2.77	7.7	384	2.83	8.0	1.28
7	Atal	200	1.89	3.6	220	1.91	3.6	200	1.58	2.5	168	1.24	1.5	0.86
8	Marvipol	400	3.77	14.2	450	3.91	15.3	550	4.36	19.0	613	4.52	20.4	1.53
9	Yareakn	350	3.30	10.9	420	3.65	13.3	500	3.96	15.7	562	4.14	17.1	1.61

Table 5. Continued

No.	Developer	2021			2022			2023			2024			2024/ 2021
		Units	Share, %	HHI	Units	Share, %	HHI	Units	Share, %	HHI	Units	Share, %	HHI	
10	Skanska	500	4.71	22.2	550	4.79	22.9	650	5.15	26.5	735	5.42	29.4	1.47
11	Echo Investment	300	2.83	8	320	2.78	7.7	380	3.01	9.0	439	3.23	10.4	1.46
12	Lokum	200	1.89	3.6	220	1.91	3.6	250	1.98	3.9	286	2.11	4.4	1.43
13	Euro Styl	180	1.70	2.9	200	1.74	3.0	250	1.98	3.9	306	2.25	5.1	1.70
14	Mid-size group	250	2.36	5.6	270	2.35	5.5	290	2.30	5.3	306	2.25	5.1	1.22
15	Panattoni Development Europe	800	7.55	57	900	7.83	61.3	1,100	8.71	75.9	1,358	10.01	100.2	1.70
16	Warsaw Urban Development	120	1.13	1.3	130	1.13	1.3	140	1.11	1.2	153	1.13	1.3	1.28
17	Mazovia Residential Group	100	0.94	0.9	110	0.96	0.9	120	0.95	0.9	133	0.98	1.0	1.33
18	Capital Housing Investments	90	0.85	0.7	95	0.83	0.7	100	0.79	0.6	112	0.83	0.7	1.24
19	Vistula Home Development	60	0.57	0.3	70	0.61	0.4	80	0.63	0.4	92	0.68	0.5	1.53
20	Nova Praga Development	55	0.52	0.3	65	0.57	0.3	70	0.55	0.3	82	0.60	0.4	1.49
Top 20 in total		10,605	100	1,059.6	11,490	100	1,031.3	12,630	100	983.7	13,568	100	937.4	1.28
													Change in HHI	122.2%

Source: compiled on the basis of Statistical Office in Warsaw (2025), RynekPierwotny (2025a)

The market leader remains Dom Development, which consistently increases its sales volumes and maintains a leading share in the housing market. Companies such as Murapol, Develia, and Robyg demonstrate moderate growth in their market shares, while the share of small and medium-sized companies is also gradually increasing, contributing to stronger competition. The HHI for the top 20 companies decreased from 1,059.6 in 2021 to 937.4 in 2024, reflecting a decline in the level of concentration in the primary real estate market over time and a transition from moderate to low concentration from an antitrust perspective (as $HHI < 1,000$), alongside a gradual intensification of competition among developers. This trend indicates that although large players retain leading positions, the primary real estate market is becoming more balanced due to the growing activity of medium-sized and smaller companies. The increase in sales volumes and the stable presence of market leaders, combined with a moderate strengthening of competition, create conditions for price stabilisation in the primary market and the

expansion of housing supply, particularly in the central districts of Warsaw.

The conducted analysis of the market power of leading players made it possible to identify an important structural transformation. As the market power of the top 20 developers becomes less concentrated in the hands of a few leaders and company shares are distributed more evenly, this confirms the absence of signs of oligopolisation in the primary housing segment, despite significant volumes of commissioned developments. The calculated indicators based on formulae (4) and (5) demonstrate that even leading market players are compelled to adapt their strategies to conditions of intensified competition. This creates strategically favourable conditions for investors, as deconcentration typically encourages developers to improve the quality of their projects and to offer more flexible pricing conditions in order to maintain their market positions. The results of the LI calculations for leading developers in the primary real estate market in Warsaw for 2021-2024 were presented in Table 6.

Table 6. Analysis of the LI for leading developers in Warsaw for 2021-2024

No.	Developer	L_{2021}	L_{2022}	L_{2023}	L_{2024}	L_{2024}/L_{2021} , %
For two developers, LI 2	Murapol	146.643	143.822	138.336	127.293	-19.35
	Dom Development					
For three developers, LI 3	Murapol, Dom Development, Develia	141.967	139.172	134.558	128.416	-13.55
For four developers, LI 4	Murapol, Dom Development, Develia, Robyg	174.481	168.127	156.515	140.167	-34.314
For five developers, LI 5	Murapol, Dom Development, Develia,	162.025	145.333	130.889	119.83	-42.195
	Robyg, Panattoni Development Europe					

Source: compiled on the basis of the data in Table 5, Statistical Office in Warsaw (2025), RynekPierwotny (2025a)

The calculation of the LI for the market core confirms these conclusions: the absence of significant jumps in the LI indicator suggests that the gap between the leaders (Dom Development, Murapol) and other participants is gradually narrowing. This reduces the risks of the emergence of a rigid oligopoly and indicates that market power is becoming more evenly distributed among medium-sized players. According to the results presented in Table 6, the LI values for all analysed groups of developers show a downward trend over the period 2021-2024. In particular, the most significant decrease is observed for the group of five leaders (LI 5), indicating the erosion of the monopolistic core and increasing competitive pressure from medium-sized market participants. The absence of increases exceeding 200% indicates the lack of acute antitrust risks during the analysed period. In summary, it should be noted that the further development of the urban agglomeration will be influenced by new labour standards. The implementation of remote and hybrid working models, as emphasised by S. Kuźmar *et al.* (2026), intensifies suburbanisation processes, as buyers increasingly prefer larger housing units in more remote areas, which will reshape the demand structure in the long term.

The analysis of the stability of the top three leaders within the market core (Murapol, Dom Development, Develia) over 2021-2024 shows the smallest decline in the aggregated LI 3 indicator (-13.55 percentage points). This indicates the high resilience of the market core formed by these three leading developers. Their combined position and influence, although declining, do so more slowly than in other groups. The inclusion of additional players (top 4 and top 5) into the market core – namely Robyg (top 4) and Panattoni Development Europe (top 5) – leads to a significantly greater decline in the aggregated LI indicator: LI 4 decreased by 34.314% and LI 5 by 42.195%. This may suggest that the activity volumes of the fourth and fifth de-

velopers within the market core are more volatile and more sensitive to external economic factors compared to the top three leaders. For the top five developers, the LI shows the largest decline over the period (-42.195 percentage points), indicating that smaller local players within the market core are losing their positions more rapidly over time. This reinforces the dominance of the absolute leaders (top 3), despite their own moderate decline.

The overall downward trend of the aggregated LI indicator across all groups in 2021-2024 indicates a reduction in the collective weight or dominance of leading groups in the real estate market, which is consistent with the decline in HHI from 1,059.6 to 937.4 during the same period. However, this decrease is less pronounced for the top three firms within the market core, confirming moderate concentration and increasing competition, particularly from medium-sized and smaller companies that are not part of the top five (as their market shares, as shown in Table 1, are growing – for example, Panattoni Development Europe from 7.55% to 10.01%).

The top three leaders within the market core remain the most stable in maintaining their combined position (showing the smallest decline in the LI indicator). This confirms their continued dominance despite the overall deconcentration of the market, as reflected in the decline of the HHI. Thus, an analysis of LI trends for aggregated groups confirms that the real estate market is becoming less concentrated (HHI is decreasing), but the dominance of the top three players remains stable, as their combined LI 3 position is declining the least. The next indicator of the level of concentration in the real estate market is the GI. This index made it possible to assess the level of uneven distribution of enterprises, expressed in terms of their share in the total number of residential units completed in Warsaw (Table 7).

Table 7. Results of GI calculations for the Warsaw real estate market valuation framework for 2021-2024

Year	2021	2022	2023	2024	2024/2021, %
GI	0.2778	0.2770	0.2763	0.2739	-0.0039

Source: the results are based on the financial statements of companies operating in the primary real estate market

The results of the GI calculations in assessing the Warsaw real estate market indicate a slight decrease in inequality (from 0.2778 in 2021 to 0.2739 in 2024). This suggests that the distribution of contributions to commissioned residential units has become more even over time. This trend is consistent with the findings of the HHI and LI, which point to a gradual deconcentration of the real estate market. Despite the fact that leading developers – Murapol, Dom Development, and Develia – retain key positions, a gradual increase in the share of medium-sized and small enterprises can be observed. This

situation reflects the stability of the primary real estate market, characterised by a relative balance between large corporations and smaller developers, which is a positive indicator for the long-term development of the sector. The generalisation of the obtained results regarding the economic conditions and the level of market concentration in the Warsaw real estate market provided the basis for conducting a SWOT analysis of the strategic directions of its development. Based on these findings, a SWOT matrix for the development of the Warsaw real estate market was constructed, as presented in Table 8.

Table 8. SWOT matrix of the Warsaw real estate market

		Opportunities (O)	Threats (T)
		a. Increased demand due to the integration of Ukrainian migrants into Polish society. b. The development of suburbs and suburbanisation driven by remote working. c. Investment in energy-efficient housing and “green construction”. d. The arrival of new international developers and an expansion of the housing supply. e. The use of European grants and funds for housing infrastructure.	a. Macroeconomic influences such as persistent instability, inflationary risks, and exchange rate volatility. b. Rising unemployment or stagnation of household incomes. c. Oversupply of rental housing in the event of a decline in migration flows. d. Potential tightening of government regulation of the real estate market and increased tax burden. e. Geopolitical tensions in the region that may affect investment sentiment.
Strengths (S)	SO-strategies	ST-strategies	
a. A resilient Polish economy and growth in real household incomes. b. Stable demand for housing from both domestic and international migrants. c. Well-developed infrastructure and high attractiveness of the city for investors. d. Active participation of large developers shaping a competitive environment. e. Government programmes supporting mortgages and young homebuyers.	1-A. Leveraging Poland’s stable economic conditions and government mortgage programmes to stimulate housing purchases among young families and migrants. 2-B. Intensifying investment in residential projects in the suburban areas of Warsaw (Wilanów, Ursynów, Wesoła) based on the suburbanisation trend. 3-C. Development of energy-efficient construction and “green” residential complexes with the participation of leading developers (Dom Development, Skanska). 4-D. Supporting cooperation between the state and major developers to expand supply in the primary housing market.	1-D. Maintaining a high level of competition among the top 20 developers in the housing market to prevent monopolisation of the sector. 2-C. Utilising the financial stability of the banking sector to mitigate the impact of inflationary fluctuations on lending. 3-B. Orienting developers towards long-term rental models (build-to-rent) to reduce the risk of market volatility. 4-A. Attracting foreign investors as a compensatory mechanism in the event of a slowdown in domestic demand.	
Weaknesses (W)	WO- strategies	WT- strategies	
a. High housing costs in central districts of Warsaw, limiting affordability. b. Lengthy bureaucratic procedures for obtaining construction permits. c. Shortage of affordable housing for tenants with middle incomes. d. Dependence on the cost of construction materials and energy resources. e. Rising interest rates in 2022-2023, which temporarily reduced demand.	1-A. Reducing bureaucratic barriers through the digitalisation of construction permitting procedures. 2-C. Stimulating the development of affordable rental housing through public-private partnerships. 3-B. Utilising European recovery funds to modernise the existing housing stock and reduce energy consumption. 4-D. Introducing tax incentives for developers investing in social housing.	1-D. Diversifying the developer structure through support for small and medium-sized development companies. 2-C. Implementing market monitoring based on the National Bank of Poland and the Statistical Office in Warsaw to forecast crisis trends. 3-B. Developing a long-term government programme to support rental housing in cooperation with the Warsaw municipality. 4-A. Strengthening control over construction quality and environmental standards to prevent social risks.	

Source: compiled by the authors

The results of the SWOT analysis indicate that the Warsaw real estate market remains one of the most stable and, at the same time, dynamic in Central Europe. Its strengths include sustained economic growth of the city, a high level of urbanisation, well-developed infrastructure, and the presence of strong development companies that account for a significant share of new housing construction. Warsaw attracts investors both from Poland and abroad, creating conditions for a stable inflow of capital into the sector. An additional advantage is the active support of government lending programmes aimed at young families and first-time homebuyers. At the same time, the market has a number of vulnerabilities, including high construction costs, lengthy administrative procedures, and a limited availability of land plots in central districts. This leads to an increase in the price per square metre and reduces housing affordability for younger generations. Significant threats also include price volatility, inflationary pressure, and the risk of saturation in the

investment segment, which may slow further growth. Despite these risks, the Warsaw real estate market offers broad opportunities for further development. Increasing demand from Ukrainian citizens, foreign investors, and representatives of the IT sector creates potential for the expansion of the rental housing segment and more efficient utilisation of the existing housing stock. In the medium term, a high pace of construction activity is expected to persist, particularly in districts such as Wola, Mokotów, and Wilanów, alongside growing developer activity in suburban areas. Thus, the Warsaw real estate market is currently undergoing a phase of structural stabilisation and modernisation, which ensures its attractiveness for both domestic and international investors. The successful combination of regulatory reforms, technological innovations, and socially oriented housing policies may become the foundation for its sustainable development in the post-pandemic period and under conditions of prolonged migration mobility.

The analysis of price dynamics and the impact of market shocks on the Warsaw real estate market confirms the conclusions of O. Jeż & J. Žukovskis (2025) regarding the faster growth rates of prices in the primary market compared to the secondary market. A more in-depth analysis conducted in this study identified a peak increase of +20.4% in 2024 in the primary real estate market in Warsaw. While M. Głuszak & R. Trojanek (2024; 2025) suggested the presence of “price bubbles”, the results obtained for 2025 (a slowdown in growth to +4.7%) indicate not a bursting “bubble” but rather a stabilising adjustment. This suggests that in 2025 the Warsaw real estate market is moving out of a phase of heightened demand and entering a stage of market equilibrium at a higher price level.

The results of the study also support the thesis of M. Bryx *et al.* (2023) regarding the impact of the pandemic, while highlighting a critically important point: the post-pandemic recovery of the Warsaw real estate market, reinforced by the effects of war, has created a cumulative convergence of factors (including migration), generating a cost escalation effect for developers. The aftermath of the pandemic led to pent-up demand for real estate in Warsaw and disrupted established supply chains for construction materials and energy-intensive resources. The war caused a sharp demographic pressure and an energy crisis, increasing the cost of building materials production. The combination of these processes created a synergistic effect that the real estate market would not have generated under the influence of only one of these factors. These conclusions are consistent with the findings of O. Shandrivska & I. Balinska (2024) regarding the impact of migration processes and the socio-economic conditions of temporarily displaced Ukrainians on the Polish economy.

The provided assessment of migration dynamics and the transformation of housing demand in Warsaw quantitatively confirms the hypothesis of M. Głuszak & R. Trojanek (2024) regarding the impact of Ukrainian refugees on the rental market in Poland. The results demonstrate that Ukrainians have become full-fledged participants in the property purchase and sale market, increasing their share from more than 1% to 9% over the period 2021-2024. This finding correlates with the work of K. Kochaniak & A. Huterska (2023) on refugee integration. From the perspective of economic theory, this signifies a transition of capital from the category of “temporary residence” to “long-term investment in human capital and assets”, thereby creating a foundation for further strengthening the stability of housing demand in Warsaw.

The results of market concentration assessment, as discussed by A. Yelowitz *et al.* (2012) and T. Kvålseth (2018), generally align with the notion of market monopolisation by large developers in the capital. However, the findings of this study indicate a decline in the HHI from 1,059.6 to 937.4, signalling the deconcentration of the Warsaw real estate market. This represents a positive development for the economy and reduces barriers to entry into the capital's real estate market. The identification of the stability of the

market core – represented by the three leading developers (Murapol, Dom Development, Develia) – alongside the volatility of the fourth and fifth market positions further complements theoretical foundations of market cyclicality. This demonstrates that the largest real estate market players possess greater financial resilience to macroeconomic shocks.

The results of the spatial differentiation assessment, which clearly indicate the dependence of housing prices on proximity to the business centre, reveal a price gap between the Wola district (25.7 thousand zł) and the Białołęka district (13.8 thousand zł), consistent with the findings of R. Cellmer (2023) regarding the importance of points of interest (POI). It has been established that price differentiation in districts such as Śródmieście and Wola has reached its maximum (with prices exceeding 25,000 zł/m²), indicating a clear formation of zones of capital concentration and offices of international companies. In contrast, districts such as Białołęka, Rembertów, and Wawer remain peripheral, with price levels in the range of 12-13 thousand zł/m². This confirms the theory of differential rent, according to which location is the primary determinant of added value.

The spatial differentiation presented in this study makes it possible to identify the specific characteristics of housing across administrative districts: investment housing, concentrated in areas with a high POI index as discussed by R. Cellmer (2023). This type of housing is represented by small flats in central locations intended for short-term rental needs; and socio-migration housing, which has acquired distinct features due to rising prices and intensified migration flows during the Russian-Ukrainian war. These factors have influenced the transformation of housing demand towards “second-tier” districts (for example, Targówek and Ursus), where housing is more affordable. This has led to the emergence of new local centres of activity in Warsaw.

The assessment of the spatial concentration of developer activity made it possible to differentiate territorial developers as follows: leading developers (Dom Development, Murapol, Develia) maintain diversified portfolios; however, their presence in prestigious districts positions these areas as “low-risk zones”. Conversely, smaller companies are compelled to develop in more remote districts or the suburbs of Warsaw, confirming the arguments of J. Jura (2021) regarding suburbanisation. This supports the conclusion that spatial price differentiation in Warsaw has intensified: the effects of the pandemic and the active phase of the war have not equalised price levels but, on the contrary, have reinforced differentiation. As a result, prices in prestigious districts have increased further, particularly due to their perceived security as assets, while housing in peripheral districts has become more accessible to mass consumers and migrants.

The study by A. Chmielewska *et al.* (2022), which highlighted that investor motivation has shifted towards assets with high liquidity and adaptability, aligns with the findings of this research regarding the rapid increase in prices in central business districts of Warsaw (particularly Wola), where investment attractiveness remains consistently high

regardless of external factors. It is important to note the need for further academic discussion. J. Jura (2021) and S. Kuźmar *et al.* (2026) emphasised processes of deurbanisation and growing demand for suburban housing driven by the effects of the pandemic and the expansion of remote working. However, the results of this study on housing demand under the influence of the Russian-Ukrainian war in 2025 – reflected, among other indicators, in property prices in districts such as Śródmieście and Wola – demonstrate that centripetal forces remain dominant. High property prices in central districts indicate that physical accessibility to office and social infrastructure is valued more highly than the “green zones” of suburban areas.

Thus, the identified divergence between theoretical assumptions of deurbanisation and the actual price dynamics in Warsaw in 2025 reflects a complex transformation of consumer priorities. While the pandemic period stimulated interest in suburban real estate as a means of adapting to isolation, new geopolitical and economic challenges have redirected demand towards central districts, which serve as guarantors of security, stability, and immediate access to critical infrastructure. This leads to the conclusion that, despite the spread of remote working practices, centralisation processes in Warsaw remain a fundamental driver of the real estate market. Accordingly, the observed price resilience of central locations confirms their role as “safe assets” during periods of market shocks, necessitating a reassessment of existing suburbanisation models in favour of a concept of reinforced urban concentration under crisis conditions.

CONCLUSIONS

The study conducted suggests that the the Warsaw real estate market in the period 2021-2025 underwent a phase of fundamental transformation driven by the synergistic effects of pandemic-related changes, geopolitical shocks, and unprecedented migration waves. The research demonstrated that, despite an intensive academic debate on de-urbanisation and the potential outflow of population to suburban areas, the actual dynamics of prices and construction volumes in Warsaw indicate the persistent dominance of centripetal forces. It has been established that the strategic advantage of central districts such as Śródmieście and Wola lies not only in the concentration of office infrastructure but also in a high level of social security and rapid access to essential services. This reflects a shift in consumer priorities: whereas in 2021 the key demand was for space and isolation (“green zones”), by 2025 liquidity and infrastructural stability had come to the forefront. Within the

analysis of the competitive environment, it was found that the primary real estate market of the capital exhibits a gradual trend towards decreasing concentration and the erosion of a monopolistic core. The application of the HHI to the activities of the top 20 developers confirmed a transition from a moderately concentrated market ($HHI > 1,000$) in 2021 to a low-concentration market ($HHI < 1,000$) in 2024. Although leading developers still control around 98% of market supply, the calculation of the LI indicated the absence of acute antitrust risks and an increase in competitive pressure from medium-sized market players.

Such a level of market power enables large developers to effectively offset price risks associated with rising costs of construction materials and energy resources; however, it simultaneously creates significant barriers to entry for new participants. This explains the relative rigidity of prices in terms of downward adjustment, even during periods of declining purchasing power among the population. The importance of the obtained results lies in confirming the status of housing in Warsaw’s urban core as a “safe asset” under conditions of regional instability. The findings have practical implications for investors and urban planners, as they highlight the need to revise housing development strategies towards increasing building density in areas with established social infrastructure, rather than further expanding urban boundaries. It should be noted that the results of this study may have been influenced by specific exogenous factors, particularly the intensity of government demand-stimulation programmes (for example, subsidised mortgage loans), which contributed to increased price volatility in the primary market. In addition, this study primarily focused on price and quantitative indicators, while qualitative characteristics of housing, particularly compliance with environmental standards (EU ESG directives), were beyond the scope of the analysis and may serve as a subject for further research. Accordingly, future research perspectives lie in focusing on the analysis of “green certification” of buildings as a factor in asset capitalisation in the post-crisis period.

ACKNOWLEDGEMENTS

None.

FUNDING

None.

CONFLICT OF INTEREST

None.

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Олена Шандрівська

Кандидат економічних наук, доцент
Національний університет «Львівська політехніка»
79000, вул. Степана Бандери, 12, м. Львів, Україна
<https://orcid.org/0000-0002-4335-2423>

Софія Богайчик

Студент
Національний університет «Львівська політехніка»
79000, вул. Степана Бандери, 12, м. Львів, Україна
<https://orcid.org/0009-0006-0164-8118>

Діана Скрипченко

Студент
Національний університет «Львівська політехніка»
79000, вул. Степана Бандери, 12, м. Львів, Україна
<https://orcid.org/0009-0004-8887-6054>

Дослідження ринку нерухомості Варшави в умовах пост-пандемічного відновлення та міграційних процесів

Анотація. Трансформація ринку нерухомості Варшави під впливом глобальної макроекономічної нестабільності, пандемічних обмежень і масштабних міграційних хвиль зумовлює потребу в науковому аналізі структурних змін та адаптаційних механізмів житлового сектору. Метою дослідження було проведення комплексного аналізу кон'юнктури ринку нерухомості Варшави впродовж 2021-2025 років, оцінювання рівня його ринкової концентрації та ідентифікація детермінант трансформації попиту в умовах посткризового відновлення. Методологічну основу роботи становив системний підхід із застосуванням статистичного аналізу динамічних рядів, методів порівняння, SWOT-аналізу, а також математичного інструментарію оцінки ринкової концентрації в частині застосувань індексів Херфіндаля-Хіршмана, Лінда та Джині. У результаті дослідження встановлено, що динаміка цін на первинному та вторинному ринках Варшави у період 2021-2025 років демонструвала висхідний тренд із піковими показниками зростання у 2024 році, що було спричинено інфляційним тиском та дефіцитом пропозиції. Доведено, що просторовий розподіл вартості житла у розрізі районів столиці відображає високу диференціацію, де центральні локації зберігають статус найбільш стійких інвестиційних активів. Виявлено суттєву зміну структури суб'єктів попиту: зафіксовано зростання частки іноземних покупців, зокрема громадян України, чий внесок у формування ринкових показників став стратегічно значущим після 2022 року. На основі розрахунку індексу Херфіндаля-Хіршмана за 2021-2024 роки обґрунтовано тенденцію до деконцентрації ринку нерухомості та перехід від середнього до низького рівня ринкової влади домінуючих гравців. Прогнозується, що подальша стабілізація галузі відбуватиметься шляхом інтенсифікації субурбанізаційних процесів та адаптації пропозиції до нових соціально-демографічних потреб мігрантів. Практичне значення дослідження полягає у можливості імплементації отриманих висновків інвестиційними аналітиками для мінімізації ризиків, а також суб'єктами державного управління при формуванні стратегій просторового розвитку міських агломерацій у посткризовий період.

Ключові слова: ціни на житло; девелопери; концентрація ринку; індекс Херфіндаля-Хіршмана; індекс Лінда; індекс Джині