Investment attractiveness of the residential housing market in selected medium-sized cities in Poland - a perspective for counteracting urban shrinkage

Anna Wojewnik-Filipkowska[1], Klaudia Biała [2]

[1] University of Gdańsk, Poland, ORCID: http://orcid.org/0000-0003-4715-6101,
email: anna.filipkowska@ug.edu.pl
[2] University of Gdańsk, Poland, Poland, ORCID: https://orcid.org/0009-0002-3411-8384,
email: bialaklaudia@op.pl

ABSTRACT

Objective: The objective of the paper is to assess the investment attractiveness of the real estate market in selected provincial cities in Poland up to 200,000 inhabitants.

Material and methods: Grounded in the theory of endogenous growth, the study uses an analysis, critique, and synthesis of the literature on the investment attractiveness of the real estate market. The analysis employs an investor perspective, using the Hellwig method, which allows multiple variables to be aggregated into a single synthetic measure. The dataset covers variables identified from the literature review and selected according to data availability and cost of acquisition. The analysis refers to the period 2019 - 2023 for seven selected cities.

Findings: Differences in investment attractiveness in the real estate market of the cities under study result from their development policies, infrastructure, demographic situation, and actions of local authorities. Rzeszów was characterised by the highest investment attractiveness in the entire period under study.

Research limitations: Disadvantages of the synthetic indicator, limited selection of cities, time-span and variables for the study.

Research implications: Despite the lack of metropolitan advantages, medium-sized voivodeship cities may offer attractive investment conditions if their potential is correctly identified; the development of medium-sized cities may be an important tool for counteracting the processes of shrinking of the cities and ensuring balanced spatial development; the procedure may be used e.g. by investors to take investment decisions and by local authorities - to build development strategies.

INTRODUCTION

Investment attractiveness is a complex concept determined by several factors which are important from the point of view of planned investments. Localisation with features that are favourable from the investor's point of view may attract investments and thus trigger a development effect, which in turn contributes to increasing the socio-economic potential and competitiveness of a given spatial unit. How should the concept of investment attractiveness be understood in relation to the real estate market? What factors determine it? How to assess the investment attractiveness of local housing markets? Recent research on urban investment policy in Poland proves that the attractiveness and long-term competitiveness of local housing markets depend on strategic public investments and integrated planning. These policies, when effectively implemented, can create more stable conditions for residential investors and support sustainable urban growth, even in the context of medium-sized cities with demographic and economic challenges (Koj et al., 2023).

The capitals of voivodeships with a population of up to 200,000 inhabitants constitute a specific group of medium-sized cities in the country (Śleszyński, 2017). According to the categories adopted in socio-demographic studies, cities with more than 100,000 inhabitants are considered large, but still differ significantly from the largest metropolises in terms of development dynamics, social structure, demographic and investment challenges (Erickcek, & McKinney, 2006). Although, as voivodeship capitals, they perform key administrative, economic, and cultural functions in their regions, they do not fully exploit their development potential, which may be due to the lack of adequate investment impulses and strategic planning. Developers, therefore, focus on large agglomerations, even though smaller cities offer attractive opportunities for capital investment. So as smaller cities have not been explored as intensively in terms of development potential and real estate market specificity, the capitals of voivodeships with a population of up to 200,000 were selected for the study fulfilling creates both a scientific research and practical investment gap (Cardoso, Meijers, 2016; Kresl, 2013; Adam, 2006; Dębkowska et. al, 2020; Rsng.pl, 2025).

On the other hand, the justification for voivodeship capitals selection is also based on data accessibility. They are well documented in public statistics, which allows for reliable comparative analysis - both in terms of demographic changes and socio-economic processes. Access to data makes it possible to analyse various demographic and economic phenomena, including the investment attractiveness

of local real estate markets. Medium-sized cities are not agglomerations on the scale of voivodeship capitals such as Warsaw, Kraków or Wrocław, but their analysis makes it possible to identify specific conditions of precisely medium-sized urban centres.

Conceptually, the article aligns with the endogenous theory of growth, emphasizing the importance of local, internal factors for development. According to this approach, the investment attractiveness results from a qualitative combination of human capital, infrastructure, institutions, and innovation. This perspective connects with Begg's (1999) emphasis on endogenous growth driven by internal urban factors, highlighting the city's capacity to foster growth from within rather than relying on external agglomeration economies.

Therefore, grounded in the theory of endogenous growth, the study fills a research gap by focusing specifically on assessing the investment attractiveness of the residential market in selected voivodship cities in Poland up to 200,000 inhabitants, an area underexplored in existing literature, which mainly addresses metropolitan centres. By adopting the investor-developer perspective, the analysis integrates selected key financial and non-financial determinants shaping investment decisions, such as demographic trends, infrastructure, and market dynamics specific to housing development. Accordingly, the present study incorporates variables that operationalise these factors and reflect the core components of investment attractiveness relevant specifically to the residential development sector by employing a multidimensional approach. The Hellwig method enabled to synthesize of these diverse factors into a coherent attractiveness measure, thus providing actionable insights tailored to the needs and constraints of housing market investors. This targeted focus distinguishes the research, adding value to broader regional investment attractiveness debates and informing policy and practice in non-metropolitan urban markets. The indicator developed in the study can be used in decision-making by both investors and municipal authorities. For investors, it provides a clear, comparable assessment of different local housing markets, helping to identify the most promising cities for new residential investments. For city policymakers and local authorities, the indicator may serve as a diagnostic and strategic tool. It highlights areas of strength and weakness in the local investment environment, informing targeted interventions, resource allocation, and the design of policies or incentives supposed to make the city more attractive to future residential development and therefore counteracting the shrinking of the cities.

The research procedure included a review and critical analysis of the literature on the definition and measurement of investment attractiveness of the real estate market, which is also the next part of the study. The literature review considered the specificity of medium-sized cities. Next, the methodology of the analysis, i.e. the stages of aggregation of indicators using Hellwig's method, the cities and variables selected for the study, along with their justification, are presented. Data was obtained from the Local Data Bank of the Central Statistical Office (GUS), and the analysis covered the years 2019 - 2023 for seven selected cities. The last part of the paper is the results, discussion, and conclusions with limitations.

LITERATURE REVIEW

In a general sense, attractiveness is a phenomenon in which one object is attracted to another because of perceived potential benefits. This phenomenon can be observed in different spheres of life (Kresl, 2013), seen in entity and spatial contexts, as the attractiveness and competitiveness of companies, countries, and cities (Ručinska & Ručinsky, 2007; Porter & Ketels, 2003). In the context of investment, there is a demand among investors for business models described as "attractive," and the category of "investment attractiveness" is interpreted as "investment climate", "market attractiveness", "investment potential", and "investment competitiveness" (Kyshakevych et. al., 2019). From the point of view of planned investments, investment attractiveness is a complex concept, determined by several factors of political, socio-cultural, financial, economic, and legal conditions. Location advantages may arise from specialisation and resources that create living conditions and the pursuit of different activities. In broad terms, attractiveness can be equated with competitiveness, which consists of twelve pillars, including education (Schwab 2017). Competitiveness factors also include those related to the level of innovation, security, resilience, or connections (networking) with other cities (functional and infrastructural) (Table 1).

Table 1. Investment attractiveness factors

Factor	Characteristics
Level of overall economic development	Includes production, distribution of goods and services, mechanisms of functioning of the economy, consumption, and the state of the environment. Dynamic economic development promotes investment attractiveness through improved infrastructure and increased population income, which increases demand for real estate.
Labour costs, size and quality of labour resources,	Includes the level of labour costs, availability of workers with the right qualifications and personal qualities (conscientiousness, responsibility, initiative). Influences the profitability of an investment by the ability to

demographic characteristics	employ the right number and quality of workers while maintaining the profitability of the venture.
The level of development of economic infrastructure	Refers to facilities, equipment and institutions that make it possible to meet the needs of society in the sphere of material activities (e.g. energy networks, water supply, telecommunications, industrial parks). A higher level of development increases the investment attractiveness of the region.
Transport accessibility and access to infrastructure	One of the basic features of the assessment of the transport system in spatial terms; it results from the geographical location and the provision of transport infrastructure. Includes both supply (network of roads, railways, airports) and demand (transport needs).
Level of development of social infrastructure, urban amenities	Related to the provision of socio-economic services necessary for society to function (e.g. education, health care, culture, sport). A high level of social infrastructure improves the living conditions of residents and attracts investors and new residents.
Market size and capacity	Determined by the budget expenditure of voivodeships, communes and districts, retail sales, investment expenditure of enterprises and sold production of industry. Indicates the purchasing potential and market development opportunities for the products and services offered.
Degree of environment protection, the state, and the quality of the natural environment	An increasingly important factor for investors. A good state of the environment favours the location of service and high-tech investments, while the presence of protected areas may limit industrial investments. Also linked to investments in sustainable development and the attractiveness of the region to residents.
Level of safety, resilience	Means ensuring that investments are risk-manageable. A high level of public safety attracts investors and residents; a low level (high crime, low detection) can be a deterrent and perpetuate negative stereotypes about the region.
Proactiveness of regions towards investors, governmental efficiency, institutional flexibility	Includes activities of local authorities to attract investors: promotion of the region, investment support, concessions, subsidies, development of infrastructure, building relationships with entrepreneurs, cooperation within public-private partnerships and development of strategies tailored to the needs of investors.

Source: Based on (Kyshakevych et al., 2019; Kresl, 2013; Ručinska & Ručinsky, 2007; Hildebrandt et al., 2006; Begg 1999).

An area with features that are favourable from the investor's point of view can attract investments and thus trigger a development effect, which consequently contributes to increasing the socio-economic potential and the aforementioned competitiveness of a given spatial unit - which, in the context of medium-sized cities facing the problem of shrinkage, takes on particular significance (Marjanović et al., 2024; Jopek & Musiał-Malago, 2010; Wolff & Wiechmann, 2018; Śleszyński, 2017). Indeed, investments are a sign of

development. And although they entail significant financial outlays and are realised over a long period of time, they are ultimately associated with the emergence of a new substance or the improvement of the condition of, for example, an existing property. One can therefore conclude about the specific objective of increasing attractiveness, which is the competitiveness defined by the European Commission from the point of view of quality of life: "Competitiveness is understood to mean high and rising standards of living of a nation with the lowest possible level of involuntary unemployment, on a sustainable basis" (European Commission 2007, p. 13). In the context of medium-sized cities, increasing competitiveness and quality of life is a specific tool to prevent urban shrinkage. Despite that, medium-sized cities (regardless of their accepted definition (Cardoso & Meijers, 2016)) are overlooked in competitiveness analyses in favour of metropolises, even though they play a key role in the settlement systems of many countries. A significant proportion of the population lives in such settlements, so their development is crucial for the country's economic and social sustainability. Despite the absence of the "first city bonus" characteristic of national capitals or regions (voivodeships) (Cardoso & Meijers, 2016), medium-sized cities play a key role as pillars of polycentricity and balancing spatial development. For instance, investing in medium-sized cities can reduce excessive migration. By maintaining the attractiveness of these cities, young, educated people can be retained, and new residents can be attracted. Moreover, medium-sized cities can react more quickly and flexibly to economic change than large agglomerations. The advantages offered by smaller cities include less pollution and a lower level of congestion, lower living and business costs, including cheaper real estate, and easier access to local resources, making them an attractive place to live and work. Finally, it is the potential to create strong, integrated communities, which fosters trust and effective local networks (Kresl, 2013; Hildreth, 2007).

However, the survival and development of medium-sized cities require the adaptation of policies to local conditions and the active management of advantages such as functional diversity, moderate density, and the ability to act as service centres for the surrounding area. In the context of demographic challenges and regional competition, medium-sized cities remain an important, albeit diverse, component of the urban system (Adam, 2006). From an investor's perspective, making decisions about housing investment localisation, the question of how to assess the attractiveness of a particular medium-sized city in the context of the housing market rises. Housing issues - such as supply,

accessibility, and quality of residential environments - remain central topics both in economic and urban Polish studies, reflecting historical transitions and current urban challenges (Węcławowicz, 2017).

From the perspective of housing real estate developers and investors, the literature identifies a distinct set of factors shaping investment attractiveness that extends beyond factors of general regional competitiveness. Empirical studies emphasise financial determinants such as market absorption capacity, demand stability, construction activity, land and housing supply constraints, transaction liquidity and expected profitability. They are key determinants of developers' location choices according to Geltner et al. (2014) and Miles, Netherton and Schmitz (2015). Other researchers in real estate investment decision-making also highlight the importance of price dynamics, development intensity indicators, regulatory risks, the alignment between demographic trends and housing preferences, and quality of life (Wilczek, 2013; Gdakowicz and Hozer, 2012; Foryś, 2009). These studies show that developers prioritise markets where demographic potential, purchasing power, infrastructure, and institutional conditions reduce development risk and therefore improve return prospects. Therefore, investment decisions made by residential real estate developers are conditioned by both financial and non-financial factors.

Attractiveness, as an intangible and multidimensional phenomenon, is not subject to direct measurement. In research practice, synthetic indicators are used, among others, which combine economic and social variables. This method involves grouping variables into key dimensions that form a comprehensive analytical framework covering selected measurable aspects of development (Carpio, Feldman and Avolio, 2023). According to Kresl (2013), benchmarking using synthetic indicators is widely applied in assessing urban competitiveness. There are several reasons for that. First, the method is relatively straightforward. Secondly, it allows the incorporation of many variables that the analyst regards as credible. Third, identified variables and indicators can be linked to policy choices available to urban planners and city managers. Synthetic measure-based benchmarking can also be applied for specific markets within cities, such as the real estate market (Gdakowicz and Hozer, 2012; Foryś, 2008; Foryś, 2009). Attractiveness can also by analysed on contextual basis (Boschma, 2004). Trend analysis (Henzel, Śmietana and Maszczyk, 2014) or econometric models can also be used. For example, Guzik (2008) proposes a regression model, and Carpio et al. (2023) propose an econometric panel data model with fixed effects to measure regional competitiveness.

RESEARCH METHODOLOGY

The article applies the synthetic development measure (Taxonomic Measure of Attractiveness of Investments, TMAI) based on Hellwig's Measure of Economic Development Method linear ordering (Hellwig, 1972). TMAI belongs to multivariate comparative analysis methods, which refers to statistical methods that analyse simultaneously at least two variables that describe the object under study. Ultimately, it leads to the ordering of a relatively homogeneous set of objects to make decisions on object selection (Tarczyńska-Łuniewska, Tarczyński, 2006). The value of a synthetic measure used to analyse investment attractiveness is established in several stages (Foryś 2009, Gierusz-Matkowska, Wojewnik-Filipkowska and Krauze-Maślankowska 2023; Roszkowska, 2024). The calculations were performed in Microsoft 365 Excel.

The first stage of the taxonomic analysis consists of creating a matrix (table) of objects (cities) and diagnostic variables that describe these objects for each year of analysis. Then, all the variables should be brought to homogeneity. A transformation involving the calculation of its inverse was used to convert destimulants into stimulants:

$$z_{ij(s)} = \frac{1}{z_{ij(d)}} \tag{1}$$

where $z_{ij(s)}$ - the value of the stimulant obtained from the transformation of destimulant $z_{ij(d)}$. Once all variables have been transformed into stimulants, the next step is to bring them to comparability. All variables are standardised according to the formula:

$$z_{ij} = \frac{x_{ij} - \bar{x}_j}{s_j} \tag{2}$$

where z_{ij} and x_{ij} are respectively the standardized and the observed value of variable j for city i, whereas xj and sj are the mean and the standard deviation of variable j calculated over cities, for i = 1, 2,..., n and j = 1, 2 ,..., k, being here n = 7 and k = 13. Next, the pattern objects (cities) are created. A pattern is assigned considering the best possible value for each variable, that is the maximum in the dataset. The Euclidean distance d_0 between the pattern and each object is then calculated according to the formula:

$$d_i = \sqrt{\sum_{j=1}^{m} \left(z_{ij} - z_{0j}\right)^2} \tag{3}$$

where z_{0j} is the value of variable j into the pattern. Next step requires calculation of norm to ensure that the TMAI takes values in the range <0,1>:

$$d_0 = \bar{d} + 2 \times S_{di} \tag{4}$$

where $\bar{d}$ is average obtained for d_i plus twice the standard deviation of the measure. Finally, the taxonomic measure TMAI is then obtained for each city i using the formula:

$$TMAI_i = 1 - \frac{d_i}{d_0} \tag{5}$$

The higher the values of the measure TMAI, the better the object in terms of the general criterion.

DATA & MATERIALS

Voivodeship capitals with a population of up to 200,000 were selected for the study. The time range for which the study was conducted is the five-year period 2019 - 2023 (Table 1).

Table 1. Voivodeship capitals with up to 200,000 inhabitants - basic characteristics

City	Area (km²)	Population (2024)	Voivodship
Toruń	116	194 771	kujawsko - pomorskie
Gorzów Wielkopolski	86	115 247	lubuskie
Zielona Góra	277	138 932	lubuskie
Opole	149	126 077	opolskie
Rzeszów	129	197 268	podkarpackie
Kielce	110	182 295	świętokrzyskie
Olsztyn	88	167 311	warmińsko - mazurskie

Source: Local Data Bank (https://bdl.stat.gov.pl/bdl/), Public Information Bulletin (BIP) of selected cities

For the analysis, variables were selected to reflect different aspects of the selected cities corresponding to financial and non-financial determinants of investment attractiveness. These variables were selected and grouped based on the literature review. Demographic, housing economy determinants, and the labour market are linked to Gdakowicz and Hozer (2012), Foryś (2008, 2009), and Adam (2006). Infrastructure-related variables (transport, education, health, culture, and recreation) are linked to Hildebrandt et al. (2006), Ručinska and Ručinsky (2007), Drobniak (2016), and Wojewnik-Filipkowska, Gierusz-Matkowska, Krauze-Maślankowska (2024). Data completeness was maintained throughout the study using the criterion of data availability and cost of data acquisition, which means that variables with a high proportion of missing values were excluded from the analysis. As a result, no significant gaps remained in the final dataset, and further data imputation procedures were not necessary. The set of twenty variables was applied for the study (Table 2).

Table 2. Grouped variables for the study of housing market attractiveness

No.	Variable (X)	Category
1	Population density – people per 1 km²	Demographics
2	Total population	
3	Working - age population	
4	Post - working - age population	
5	Building permits and construction notifications with a building design – new residential buildings	Housing economy
6	Usable floor area of residential units sold in market transactions in m² (primary market)	
7	Average price per 1 m² of residential units sold in market transactions (primary market)	
8	Average number of people per dwelling	
9	Average usable floor area per dwelling	
10	Active stops (bus, trolleybus, tram) – total	Infrastructure and transport
11	Length of bicycle paths	
12	Registered unemployment – total registered unemployed	Labour market
13	Average gross monthly wages	
14	Primary education – total number of primary schools	Education
15	Total secondary education	
16	Preschools – total preschool education	
17	Outpatient entities (as of 31 Dec) – total clinics	Health
18	Green areas in m²	Culture and recreation
19	Cultural centres, community centres, clubs, and common rooms	
20	Crimes confirmed by the Police in completed preparatory proceedings	Safety

Source: own elaboration.

Each of the seven cities, for the five years under study, was described by variables in the eight thematic groups. A preliminary analysis of basic statistical parameters (coefficient of variation and correlation) allowed variables selection. A coefficient of variation of more than 10% allows the incorporation of variables that strongly differentiate the studied objects (variables $X8$, $X9$, $X13$ were removed). Variable $X7$ was retained because the coefficient of variation was just below the assumed threshold for one year of analysis (9.32%), and it was a variable directly related to the housing market. The next step was to eliminate highly correlated variables, i.e. those carrying the same information for the analysis (variables $X3$, $X4$, $X14$, $X16$ were removed as Pearson's correlation coefficient was above 0.9 or below −0.9). The adopted threshold values reflect conventions found in prior research, which commonly suggest a correlation coefficient threshold ranging from 0.5 to 0.9 and a variation coefficient threshold between 5% and 10% (Oleńczuk-Paszel and Sompolska-Rzechuła, 2013; Kowalczyk-Rólczyńska, 2016; Horbaczewska, 2020). As a result, a final set of thirteen variables was obtained (Table 3).

Table 3. Descriptive statistics (average and coefficient of variation) of the variables adopted to order the sites according to the taxonomic measure of investment attractiveness (TMAI) for the period 2019 - 2023

Year	2019	2020	2021	2022	2023
X1 - Population density – people per 1 km²					
Average	1 403	1 380	1 366	1 358	1 351
Vs (%)	0.3480	0.3458	0.3454	0.3448	0.3443
X2 - Total population					
Average	165 336	162 789	161 810	161 020	160 272
Vs (%)	0.1897	0.1873	0.1911	0.1927	0.1937
X5 - Building permits and construction notifications with a building design – new residential buildings					
Average	188	174	188	136	114
Vs (%)	0.6962	0.6612	0.5252	0.7257	0.8312
X6 - Usable floor area of residential units sold in market transactions in m² (primary market)					
Average a	47 648	54 242	49 851	53 076	40 858
Vs (%)	0.7651	0.5697	0.8793	0.5895	0.5314
X7 - Average price per 1 m² of residential units sold in market transactions (primary market)					
Average	4 903	5 339	5 885	6 508	7 078
Vs (%)	0.1186	0.1027	0.1137	0.1122	0.0932
X10 - Active stops (bus, trolleybus, tram) – total					
Average	506	519	514	522	541
Vs (%)	0.2424	0.2321	0.2457	0.2347	0.2464
X11 - Length of bicycle paths					
Average	93	101	107	110	117
Vs (%)	0.4012	0.3589	0.3240	0.3171	0.2817
X12 - Registered unemployment – total registered unemployed					
Average	3 286	4 123	3 405	2 902	2 765
Vs (%)	0.5333	0.4388	0.5027	0.5017	0.4852
X15 - Total secondary education					
Average	24	23	22	21	22
Vs (%)	0.3021	0.2808	0.2446	0.2608	0.2585
X17 - Outpatient entities (as of 31 Dec) – total clinics					
Average	140	145	149	157	166
Vs (%)	0.3148	0.3272	0.3242	0.3117	0.2893
X18 - Green areas in m²					
Average	528	533	534	536	546
Vs (%)	0.9110	0.9070	0.9060	0.8733	0.9007
X19 - Cultural centres, community centres, clubs, and common rooms					
Average	10	9	9	9	9
Vs (%)	0.6768	0.6870	0.7050	0.7896	0.7717
X 20 - Crimes confirmed by the Police in completed preparatory proceedings					
Average	4 309	3 848	4 888	4 460	3 785
Vs (%)	0.2168	0.2088	0.2386	0.2022	0.2369

Source: own elaboration.

The method proposed by Helwig was used to determine the taxonomic measure of investment attractiveness (TMAI). The obtained values of the index fall within the range <0, 1> thanks to the conversion of destimulants (variables: X12, X20) into stimulants.

RESULTS & DISCUSSION

The analysis made it possible to calculate the investment attractiveness index of real estate markets for selected cities (Table 4).

Table 4. Taxonomic measure of attractiveness according to a fixed pattern in 2019 - 2023 for selected cities

City	2 019	2 020	2 021	2 022	2 023	Average	Rank
Rzeszów	0.6764	0.6208	0.6638	0.5918	0.6549	0.6415	1
Olsztyn	0.3909	0.3495	0.4113	0.3652	0.412	0.3858	2
Kielce	0.3228	0.3348	0.3451	0.3115	0.3571	0.3343	3
Toruń	0.3479	0.3126	0.36	0.2841	0.3076	0.3224	4
Opole	0.3115	0.3053	0.2938	0.2785	0.28	0.2938	5
Zielona Góra	0.1946	0.1671	0.189	0.1683	0.2071	0.1852	6
Gorzów Wielkopolski	0.1474	0.1307	0.1373	0.1249	0.1337	0.1348	7

Source: own calculations.

Rzeszów stands out with the highest level of the TMAI indicator in the analysed period. The city combines a large scale of residential investment (high number of permits, large areas sold), has a favourable environment as evidenced by low unemployment, good social infrastructure (schools, clinics). It is a typical example of a city "breaking out" from the trend of shrinking medium-sized cities. Systematically satisfactory results, growing attractiveness - reinforced by improved "recreational" infrastructure (green areas) are presented by Olsztyn and Kielce. These are cities with the potential to attract investors looking for attractive but smaller markets than e.g. Tricity or Kraków. Toruń records a decline after 2021 - possibly due to stagnating investments or demographic problems. Opole has low attractiveness - perhaps it is saturated or losing its regional function. The weakest residential markets for developers in this set are presented by Zielona Góra and Gorzów Wielkopolski. Zielona Góra shows a slight increase but is still not an attractive market based on the survey. Gorzów is an "alert" case - low TMAI values, low rate of change, possible demand barrier.

The results of the study indicate a diversified level of investment attractiveness of residential markets in the selected cities. The analysis confirms the complex nature of the concept of investment attractiveness, which, according to the literature (Kyshakevych et al., 2019), should be understood as a

combination of social, economic, infrastructural, and institutional factors influencing investment decisions. According to the literature (Hildebrandt et al., 2007; Schwab, 2017), investment attractiveness is linked to the level of development of local human capital, technical infrastructure, access to services and the overall investment climate. The research conducted revealed that not all medium-sized cities are equally attractive - and, on the other hand, problematic, for developers. Developers may consider Rzeszów, Olsztyn or Kielce as more attractive markets. Gorzów or Zielona Góra may need policies to support the local housing market. The methodology used has demonstrated its usefulness in the assessment of medium-sized cities, which, according to the literature, are currently experiencing population outflow and are often overlooked in analyses even though they perform important regional functions (Adam, 2006; Śleszyński, 2017). Depopulation undoubtedly poses a threat to investors. After all, demographic variables are a decisive element of the housing market environment (Foryś, 2009).

Conclusions

Investment attractiveness in the real estate market refers to a given area's ability to attract investors by offering a combination of local characteristics that can be turned into competitive advantages. From the perspective of the housing market, it is the capacity of a local market to attract development investment through a mix of favourable socio-economic and spatial conditions. These include both economic factors (e.g., stable prices, growing demand for housing) and social factors (e.g., human capital, quality of life, infrastructure), which jointly determine the profitability of residential investments.

The results of the study, based on Hellwig's method, confirm the complex nature of investment attractiveness. It may be captured by a synthetic approach that integrates multiple dimensions - demographic, economic, infrastructural, and social - consistent with the frameworks proposed by Schwab (2017) and Carpio et al. (2023). As indicated in the literature (Kresl, 2013; Foryś, 2009), the investment potential of local housing markets can be assessed through the analysis of selected indicators using multivariate analysis methods. The application of Hellwig's synthetic indicator method in this study enabled the evaluation of each city's position, the identification of leaders and followers, and the detection of differences among medium-sized cities. The findings also support the conclusions of the literature review (Cardoso & Meijers, 2016), which suggest that medium-sized regional cities - despite lacking metropolitan advantages - can

still offer attractive investment conditions, provided their potential is properly identified. Rzeszów serves as a case. As highlighted by Kresl (2013) and Marjanović et al. (2024), the development of medium-sized cities may serve as an effective tool to counteract urban shrinkage and promote spatially balanced development.

One of the key limitations of the present study lies in the relatively small number of cities analysed and the constraints imposed by the analytical method used. A critical issue is the arbitrariness in the construction of the synthetic indicator, which involves subjective decisions regarding variable selection, normalization methods, and data aggregation techniques. These choices can unintentionally distort the results. Additionally, the synthetic nature of the indicator carries the risk of oversimplifying complex phenomena and concealing important details.

Nevertheless, synthetic indicators remain a valuable tool for analysing multifaceted issues. They offer simplification and standardization of large data sets by reducing them to a single composite measure (Carpio et al., 2023). Such indicators allow for intuitive and transparent interpretation, facilitating the identification of trends, enabling comparisons, and supporting decision-making processes - particularly in the context of resource allocation and public policy. Their illustrative and communicative potential makes them appealing not only to experts but also to the public and policymakers. Moreover, these indicators enable classification and ranking, making them a practical instrument for monitoring the development of regions, cities, or sectors.

Further research focusing on medium-sized cities beyond regional capitals, incorporating more variables, a longer time-span and TMAI forecast could help develop strategies to promote the medium-sized cities among investors-developers as attractive locations for investment and among people as an attractive place for living. Such strategies of promoting and improving cities' attractiveness could also play a role in mitigating urban shrinkage and fostering sustainable spatial and social development.

REFERENCES

Adam, B. (2006). Medium-sized cities in urban regions. *European Planning Studies*, 14(4), 547–555. https://doi.org/10.1080/09654310500421220

Begg, I. (1999). Cities and competitiveness. Urban Studies, 36(5–6), 795–809. https://doi.org/10.1080/0042098993222

Boschma, R. (2004). Competitiveness of regions from an evolutionary perspective. *Regional Studies*, 38(9), 1001-1014. https://doi.org/10.1080/0034340042000292601

Cardoso, R. V., & Meijers, E. J. (2016). Contrasts between first - tier and second - tier cities in Europe: A functional perspective. *European Planning Studies*, 24(5), 996–1015. https://doi.org/10.1080/09654313.2015.1120708

Carpio, L. D., Feldman, P. M., & Avolio, B. (2023). Measuring regional competitiveness. *Global Business Review*, 24(1), 1–20. https://doi.org/10.1177/09721509221145445

Dębkowska, K., Kłosiewicz-Górecka, U., Szymańska, A., & Ważniewski, P. (2020). *Weryfikacja scenariuszy rozwoju średnich miast w perspektywie 2035 roku*. Polski Instytut Ekonomiczny.

Drobniak, A. (2016). Dynamika rozwoju miast w kontekście ich wielkości i rangi. *Studia Ekonomiczne Regionu Łódzkiego*, (21), 217-226.

Erickcek, G. A., & McKinney, H. (2006). "Small cities blues:" Looking for growth factors in small and medium-sized cities. *Economic Development Quarterly*, 20(3), 232–258. https://doi.org/10.1177/0891242406290377

European Commission. (2007). *European Competitiveness Report 2007*. Luxembourg.

Foryś, I. (2008). Wykorzystanie metod porządkowania liniowego do oceny polskiego rynku nieruchomości. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu. Taksonomia, klasyfikacja i analiza danych -teoria i zastosowania*, 7 (1207), 381-389.

Foryś, I. (2009). Wykorzystanie analizy wielowymiarowej do oceny potencjału rozwoju lokalnego rynku nieruchomości mieszkaniowych. *Studia i Materiały Towarzystwa Naukowego Nieruchomości*, 17(2), 7-19.

Gdakowicz, A., & Hozer, J. (2012). Analiza rozwoju rynków nieruchomości mieszkaniowych w wybranych miastach Polski z zastosowaniem metod taksonomicznych. *Studia i Materiały Towarzystwa Naukowego Nieruchomości*, 20(1), 123-133.

Geltner, D., Miller, N. G., Clayton, J., & Eichholtz, P. (2014). Commercial Real Estate, Analysis and Investments (3rd ed.). Mbition LLC.

Gierusz-Matkowska, A., Wojewnik-Filipkowska, A., & Krauze-Maślankowska, P. (2023). Ranking cities according to their fundamental power: A comparison among results of different methods of linear ordering. *Social Indicators Research*, 170(2), 731–763. https://doi.org/10.1007/s11205-023-03216-4

Guzik, B. (2008). Atrakcyjność inwestycyjna województw. *Gospodarka Narodowa. The Polish Journal of Economics*, 222(3), 39-64. https://doi.org/10.33119/GN/101306

Hellwig, Z. (1972). Procedure of Evaluating High - Level Manpower Data and Typology of Countries by Means of the Taxonomic Method. In Z. Gostowski (Ed.), *Towards a System of Human Resources Indicators for Less Developed Countries. Papers Prepared for a UNESCO Research Project* (pp. 115–134). Wrocław: Ossolineum - The Polish Academy of Sciences.

Henzel, H., Śmietana, K., & Maszczyk, A. (2014). Rynek nieruchomości jako rynek inwestycyjny - parametry oceny, tendencje zmian w latach 2007-2011. *Studia Ekonomiczne*, (177), 133-151.

Hildebrandt, A., Kalinowski, T., Nowicki, M., Susmarski, P., & Tarkowski, M. (2006). *Atrakcyjność inwestycyjna województw i podregionów Polski*. Gdańsk: Instytut Badań nad Gospodarką Rynkową.

Hildreth, P. A. (2007). Understanding medium-sized cities. Town and country planning, May, 163-167.

Horbaczewska, O. (2020). Przestrzenne zróżnicowanie konkurencyjności i atrakcyjności turystycznej powiatów w Polsce. Studia Ekonomiczne. *Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach*, 391, 57–76.

Jopek, D., & Musiał-Malago, M. (2021). Kurczące się miasta jako proces przemiany miast w świetle wybranych aspektów. Teka Komisji Urbanistyki i Architektury Oddział PAN w Krakowie, 49, 115-135. https://doi.org/10.24425/tkuia.2021.138706

Koj, J., Dawid, M., Dawid, W., Kudłacz, K., Mróz, M., Stelmaszewska, N., Sykała, Ł. (2023). *Polityka inwestycyjna polskich miast*. Badania Obserwatorium Polityki Miejskiej, Instytut Rozwoju Miast i Regionów, Warszawa–Kraków. Doi.org/10.51733/opm.2023.17. Online, retrieved on 15/11/2025: https://obserwatorium.miasta.pl/wp-content/uploads/2023/05/Polityka-inwestycyjna-polskich-miast.pdf

Kowalczyk-Rólczyńska, P. (2016). Zastosowanie metody sum standaryzowanych do oceny lokalnych rynków nieruchomości mieszkaniowych. *Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach*, 297, 90-101.

Kresl, P. (2013). *The Competitiveness of Cities*. UN - Habitat.

Kyshakevych, B., Nahayeva, M., & Kryński, A. (2019). The economic essence of the investment attractiveness of the regions. *Scientific Journal of Polonia University*, 37(6), 46-53.

Miles, M. E., Netherton, L. M., & Schmitz, A. (2015). Real Estate Development: Principles and Process (5th ed.). Washington, DC: Urban Land Institute.

Marjanović, M., Sagot Better, M., Lero, N., & Nedović - Budić, Z. (2024). Can acceptance of urban shrinkage shift planning strategies of shrinking cities from growth to de - growth? *Urban Planning*, 9(1), 1-20. https://doi.org/10.17645/up.6904

Oleńczuk-Paszel, A., & Sompolska-Rzechuła, A. (2013). Przestrzenne zróżnicowanie obrotu nieruchomościami gruntowymi przeznaczonymi pod zabudowę mieszkaniową w ujęciu województw. *Ekonometria*, 4(42), 13-24.

Porter, M. E., & Ketels, C. H. (2003). *UK Competitiveness: Moving to the Next Stage*.

Roszkowska, E. (2024). A comprehensive exploration of Hellwig's taxonomic measure of development and its modifications - A systematic review of algorithms and applications. *Applied Sciences*, 14(21), 10029. https://doi.org/10.3390/app142110029

Rsng.pl. (2025). Nieruchomości w małych miastach: Niszowy rynek inwestycyjny. Online, Retrieved on 25/04/2025. https://www.rsgn.pl/nieruchomosci - w - malych - miastach - niszowy - rynek – inwestycyjny

Ručinska, S. & Ručinsky, R. (2007). Factors of regional competitiveness. In *2nd Central European Conference in Regional Science – CERS* (pp. 902–911).

Schwab, K. (2017). *The Global Competitiveness Report 2017–2018*. World Economic Forum. Online, Retrieved on 25/04/2025. https://www3.weforum.org/docs/GCR2017-2018/05FullReport/TheGlobalCompetitivenessReport2017%E2%80%932018.pdf

Śleszyński, P. (2017). Wyznaczenie i typologia miast średnich tracących funkcje społeczno-gospodarcze. Przegląd Geograficzny, 89(4), 565-593. https://doi.org/10.7163/PrzG.2017.4.3

Tarczyńska-Łuniewska, M., & Tarczyński, W. (2006). *Metody wielowymiarowej analizy porównawczej na rynku kapitałowym*. Warsaw: Wydawnictwo Naukowe PWN.

Węcławowicz, G. (2017). Geografia społeczna miast w Polsce. *Przegląd Geograficzny*, 89(4), 535-563. https://doi.org/10.7163/PrzG.2017.4.2

Wolff, M., & Wiechmann, T. (2018). Urban growth and decline: Europe's shrinking cities in a comparative perspective 1990–2010. *European urban and regional studies*, 25(2), 122-139. https://doi.org/10.1177/0969776417694680

Wojewnik-Filipkowska, A., Gierusz-Matkowska, A., & Krauze-Maślankowska, P. (2024). Fundamental power of the city - A proposition of a new paradigm and index for city development. *Cities*, 144, 104630. https://doi.org/10.1016/j.cities.2023.104630

Wilczek, M. T. (2013). Wybrane czynniki popytowe kształtujące decyzje inwestora na rynku nieruchomości mieszkaniowych i źródła informacji o nich. *Studia Ekonomiczne*, 155, 175-188.