

THEORETICAL APPROACHES AND METHODS OF REAL ESTATE VALUATION

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Abstract: *The majority of well-known methodological approaches to real estate valuation primarily focus on practical application in conditions of a stable market economy. The specificity of the domestic market, which operates in conditions of extreme instability, does not allow for the full adaptation of known international approaches to real estate valuation in the realities of the national economy. This is also due to limitations and deficiencies inherent in each of the classical approaches to real estate valuation. All classical approaches to real estate valuation differ in orientation, generally taking into account cost factors and practical aspects of financial activity shaped based on basic preliminary information. Therefore, the question arises about the standardization of results obtained within different approaches. Considering the fact that the effectiveness of real estate valuation depends absolutely on the tools used for it, the search for optimal ways to improve valuation is of paramount importance. Based on the analysis of national and international practices in the application of real estate price updating methodologies, the aim of the article is to indicate directions for improving this process in Poland. The article analyzes the practice of applying real estate valuation methods, proposes ways to improve real estate valuation methodologies, and develops the theoretical foundations of the informational approach in real estate valuation.*

Key words: *valuation metrologies, real estate valuation, real estate*

JEL codes: *R30, R32, C55*

Introduction

The theoretical basis of the real estate valuation methodology is a systematic approach to determining the main elements of real estate. The valuation process is carried out in accordance with a specific procedure and using generally accepted valuation methods. There are several such methods, and their choice depends primarily on the type of subject of assessment and the purpose for which such assessment is carried out.

Most of the known methodological approaches to real estate valuation focus mainly on practical application in the conditions of a stable market economy. The specificity of the domestic market, which has been in conditions of extreme economic instability of the last decade (the impact of the global financial crisis of 2008-2010, the COVID-19 pandemic, Russia's invasion of Ukraine in 2022) does not allow for the full adaptation of known international approaches to real estate valuation in realities of the national economy.

Classic approaches to real estate valuation, such as the comparative approach, the cost approach, the income approach or mixed, containing elements of the previous approaches (Law of August 21, 1997, Art. 152, par. 2) their own limitations and shortcomings. They may take into account various cost and financial factors, but are not necessarily fully adapted to the specificity of the Polish real estate market. In this case, real estate appraisers may strive to develop a comprehensive real estate valuation method that would take into account various cost factors already at the calculation stage and combine the advantages of each of the classic real estate valuation approaches. This approach can be more flexible and adapted to the specificity of the local real estate market, taking into account changing economic and political conditions.

In developing a real estate valuation approach, it is also important to reconcile the results obtained using different approaches. This may require analysis and evaluation of data from various sources and taking into account the context of the local real estate market. Collaboration and information exchange between appraisers and real estate experts can help develop a more comprehensive real estate valuation method (Kucharska-Stasiak, 2016).

In the case of updating transaction prices when determining the value of real estate, it is important to take into account changes in the price level on the real estate market during the examined period. This process is important because it takes into account the current market situation and provides more precise and accurate information regarding the value of the property.

In order to properly update transaction prices, a property appraiser must collect data on transaction prices of properties similar to the property being analyzed. This data should include

information about the property's market characteristics, such as location, size, technical condition, etc. The method of updating transaction prices may vary depending on the amount of price data collected. An appropriate methodology should be adopted taking into account data availability. An affordable method may be to use statistical analysis, such as the comparative method, which allows for differences in property characteristics and temporal changes in the market to be taken into account (Marshall, 1925).

It is important that a property appraiser uses recognized methods and techniques of real estate market analysis and takes into account current trends and changes in the market. A well-conducted update of transaction prices will allow you to obtain a reliable and reliable property valuation.

Methodology and Data

Due to the adopted goal and subject of research, research on improving the real estate valuation methodology is largely based on the use of the desk research tool. The essence of the desk research tool is to work with secondary data published in scientific works, government documents, statistical databases and historical records, and then formulate conclusions on the researched problem on their basis.

Taking into account the fact that the effectiveness of real estate valuation depends entirely on the tools that will be used for it, searching for optimal ways to improve the valuation is of paramount importance. Based on the analysis of national and international practice of applying the real estate price update methodology, the aim of the article is to indicate directions for improving this process in Poland.

The subject of the research is the identification and characterization of currently existing theoretical approaches to real estate valuation in Poland.

The conducted research is within a two-month period, namely May to June 2023.

Basic principles of real estate valuation

Valuation theory is deeply rooted in the field of economics and is based on various economic categories and methods. The influence of economic theory on valuation includes the definition of key concepts such as value and price and the development of basic tools for measuring value. Economists also contributed to the foundations of valuation theory, providing justification for various methods and techniques. As part of valuation theory, economists have developed valuation models, which are systematic ways of thinking about and determining value. Some

models are relatively simple, while others are more complex and based on advanced mathematical models often used when valuing large groups.

The three basic approaches to valuation, distinguished by Alfred Marshall in 1925, are (Marshall, 1925): the comparative approach, the income approach and the cost approach. In Poland, real estate valuation is performed using these three approaches, as well as using a mixed approach containing elements of the previous approaches (Tab. 1), and their selection depends on the type of the object being valued and the availability of data.

Tab. 1 Classification of approaches and methods of real estate valuation in Poland

Approaches	Methods
Comparative	- pairwise comparisons - statistical market analysis - correcting the average price
Profitable	- investment - profits
Costly	- costs of reproduction - replacement costs
Mixed	- liquidation costs - residual - land estimate indicators

Source: (Cymerman, R., & Cymerman J., 2020)

Approaches to real estate valuation, serving as methods of determining property values, depend on the types of factors considered to influence the value of the property — each approach adopts different assumptions regarding the aforementioned factors (Cymerman, R., & Cymerman J., 2020):

- in the comparative approach, these are transaction prices of properties similar to the one being valued;
- in the income approach, the factor determining the level of a property's value is its profitability, i.e. its ability to generate income on the market (determined based on the level of income generated by similar properties, i.e. market rental rates);
- in the cost approach – the value of the property is determined by its replacement costs, related to market realities through market rates of materials, taking into account consumption, labor and equipment operation;
- in a mixed approach – combinations of previous approaches are used (comparative, income and cost).

The development of real estate valuation methodologies around the world was partly shaped by methodologies developed in the United States, Great Britain and Germany (Marshall,

1925). These three countries have had a significant impact on the development and promotion of specific valuation approaches. The American school is considered the most market-oriented and is based on a comparative approach. This valuation methodology analyzes the transaction prices of similar assets in the market to determine the value of a given asset. Discount models, such as the discounted cash flow (DCF) method, are also used to estimate the future cash flows generated by assets. The British school is characterized by an income-based approach. It focuses on the expected cash flows generated by the asset in the future. This methodology also takes into account the risk associated with the investment and attempts to determine an adequate discount rate to assess the present values of future cash flows. The conservative German school, in turn, emphasizes investment security and a cautious approach to valuation. This methodology takes into account both the market value and the substantial value of assets. It includes an analysis of business fundamentals such as balance sheets and the ability to generate profits. It is worth noting that these valuation schools are not rigid and immutable. They are subject to further evolution (Kucharska-Stasiak, 2014) and adapt to changing market conditions and new challenges. Additionally, valuation methodologies also vary between different industries and asset types. As a result, valuation approaches may vary depending on local market conditions and career preferences.

The appropriate approach and valuation method are selected by the property appraiser, taking into account in particular legal regulations, the purpose of the valuation, the type and location of the property, its intended use in the local plan, the condition of the property and available data on the prices of similar properties (Law of August 21, 1997, Art. 152, par. 2). In the study, the author focused on presenting three theoretical approaches to real estate valuation, omitting obvious issues regarding a mixed approach containing other approaches.

Comparative approach in real estate valuation

The comparative approach in the real estate valuation process is based on comparing the value of the property being tested with the values of similar properties that were sold in the period immediately preceding the valuation date, but not longer than two years from the date on which the value of the property is determined (Interpretative Note No. 1, par. 3.8). There are some difficulties with this approach, such as the lack of similar properties, especially in the case of unique properties or large industrial complexes. For unique properties such as historic buildings, it can be difficult to find exactly similar properties to compare. Missing sales data make it difficult to accurately determine the value of such a property using a comparative

approach.

The basic rules for determining the value of real estate using the comparative approach include:

- Law of August 21, 1997, on Real Estate Management (i.e., Journal of Laws of 2020, item 65, as amended),
- Regulation of the Council of Ministers of September 21, 2004, on the valuation of real estate and the preparation of the appraisal report (Journal of Laws No. 207, item 2109), as amended (Journal of Laws of 2005, No. 196, item 1628; Journal of Laws of 2011, No. 165, item 985; Journal of Laws of 2019, item 2250),
- General National Valuation Principles (GNVP), Interpretative Note No. 1 – Application of the comparative approach in real estate valuation, PFSRM, Warsaw 2007.

The comparative approach is implemented based on the following methods:

1. Paired comparison method – the most frequently used method of valuing the market value of real estate in Poland, because it is based on the analysis of actual transactions and the comparison of real estate with similar characteristics (Hozer et al., 2002). To apply the paired comparison method in real estate valuation, data on the sales of similar properties in the same geographic area with comparable features are necessary. It is important that the properties with which the assessed property is compared have similar features, such as location, square footage, room layout, finishing standard, building condition, etc.

After identifying the features of the property being valued in the examined market, the appraiser determines the weight of these features, i.e. the strength of their influence on the market value. One way to measure features is the so-called *ceteris paribus* method (all else being equal). It involves selecting pairs of properties that differ only in a given feature and have the same other features. They then use the formula to perform calculations for all market characteristics of a given property:

$$W = \frac{C_w - C_m}{\Delta C} \times 100\%, \quad (1)$$

where:

W – feature weight,

C_w – price of the property with the most favorable condition,

C_m – price of real estate with the least favorable condition,

ΔC – price range $\Delta C = C_{max} - C_{min}$.

For each property feature considered, at least two pairs of properties are used for calculations and the arithmetic mean was calculated according to the formula:

$$W_i = \frac{c_{av}}{\sum w_{av}} \times 100, \quad (2)$$

where:

W_i – weight of the i-th feature,

W_{av} – average weight of the i-th feature calculated from individual pairs of properties,

The calculations end when the specified (after making corrections) value of the comparative unit is multiplied by the number of these units on the property being valued.

2. Average price correction method – is based on the assumption that the average transaction price can be used as a reference point and then adjusted based on the differences between the analyzed property and comparative properties (Cellmer, 2004). The effectiveness of using this method depends on many factors, in particular on having sufficient data on the sales of comparable properties, and is largely influenced by the variety of characteristics of the properties being examined. The average price adjustment method may have difficulty taking into account unique features of the property being analyzed that are not present in other comparable properties. For example, if a property has unique amenities or a unique location, it is difficult to find comparable transactions that can adequately reflect its value.

3. Statistical market analysis method – allows to obtain a comprehensive picture of the value of real estate by examining trends, statistics of relationships between various factors affecting the price of real estate through analysis, diagnosis, forecast of regularities observed in the real estate market (correctness of distribution, correctness of dynamics and fluctuations, correctness of connections over time and correctness of connections in space) (Hozer et al., 2002).

Income approach in real estate valuation

The income approach, according to Polish scientists, emphasizes profitability. Based on the income approach, a property appraiser determines the ratio of future income from the property being valued to its current value. The advantages of this approach include, first of all, its systematicity. After all, when using this approach, the entire operational complex of the property is assessed.

The basic rules for determining the value of real estate using the income approach are:

- Law of August 21, 1997, on Real Estate Management (i.e., Journal of Laws

of 2020, item 65, as amended),

- Regulation of the Council of Ministers of September 21, 2004, on the valuation of real estate and the preparation of the appraisal report (Journal of Laws No. 207, item 2109, as amended; amendments: Journal of Laws of 2005, No. 196, item 1628; Journal of Laws of 2011, No. 165, item 985; Journal of Laws of 2019, item 2250),
- General National Valuation Principles (GNVP), Interpretative Note No. 2 – Application of the income approach in real estate valuation, PFSRM, Warsaw 2007.

The income approach is implemented based on the following methods:

1. Investment method - based on estimating the value of a property based on its ability to generate future income or return on investment. This method is particularly useful for commercial properties intended for rent or sale. Typical properties for which the investment method is used are: office buildings, warehouses, commercial premises, commercial premises, multi-car garages, etc. The proceeds in this type of facilities concern the land and its components (Interpretative Note No. 2, par. 3.2.1). This method was also called the net income capitalization method. On its basis, the flow of income is determined and its transformation into current value, based on capitalization standards:

$$V = \frac{I}{R}, \quad (3)$$

where:

V – enterprise value,

I – net income,

R – income rate.

However, this method can give an objective assessment only in conditions of a stable economy in which the subject of the assessment, for example, an enterprise, has received stable income for a long time. Therefore, this method is rarely used in practice.

2. Earnings Method – a method used to estimate the value of a property based on its ability to generate future income. The method is particularly useful in the case of commercial properties such as hotels, cinemas, theaters, restaurants, commercial premises, warehouses, etc. (Interpretative Note No. 2, par. 3.2.1).

S. Biesiada and M. Majewski (Biesiada & Majewski, 2010) believe that the profit method is the most universal and reliable method of estimating the value of an enterprise. At the same time, scientists note that this method allows the best assessment of the market value of the

enterprise, because the value of the enterprise can be reliably estimated only when the value of the income that the enterprise will generate in future periods is calculated today. The use of the profit method is appropriate for real estate with high liquidity, for example, an expensive house in a prestigious area, an industrial property of strategic importance for the state, a subregion, etc. When it comes to most real estate, this method cannot take into account a number of objective factors: inflation, exchange rate fluctuations currencies, other force majeure circumstances. Moreover, the source base for the profit method is financial and accounting reporting, marketing research data, development strategy, future plans, etc., which also cannot guarantee objectivity in assessments, because in today's conditions it is difficult to predict the future value of finished products, equipment, raw materials, etc. In this context, it can be argued that discounted cash flow per share reveals less information about the sources of value and is less useful for identifying new value creation opportunities.

It is worth adding that compared to the previous investment method, the profit method has more advantages due to the ability to take into account non-systematic changes in the income stream. However, like the previous investment method, the profit method will be effective when applied to enterprises and real estate complexes that are developing efficiently, are characterized by stable income and have a long history of operation. This method also requires a significant number of adjustments in order to bring the designed financing structure to the actual value of the enterprise (Tymoshchuk, 2014).

Ukrainian scientist O. Chub, examining the methods of determining the value of a bank, rightly notes that the use of the income approach allows the most complete consideration of the target settings of banks' activities, coordinated with the parameters of the economic and social development of the country as a whole and the banking system in particular (Chub, 2008). This statement can be adapted to other areas of business activity. However, the scientist does not solve the main problem – the accurate calculation of future income.

Cost approach in real estate valuation

The vast majority of fixed assets whose trading market is limited (educational and cultural facilities, architectural monuments, etc.) are valued based on the cost (asset) approach. The cost approach is used to value real estate, provided that it is necessary to replace it or determine its economic profitability.

In particular, a properly used cost approach is at:

- assessment of state facilities;

- determining the value of special-purpose property (schools, hospitals, architectural and cultural facilities, railway stations, communications offices, etc.);
- determining the subject of taxation;
- putting the property up for auction or other open bidding.

The specificity of the cost approach is the assessment of assets based solely on the analysis of existing assets. On the one hand, this is an advantage of this method, because its results are largely based on objective foundations, on the other hand, this approach does not take into account business development prospects based on the analysis of the main economic indicators, which makes this method more static.

The basic principles of determining the value of real estate using the cost approach are defined:

- Law of August 21, 1997, on Real Estate Management (i.e., Journal of Laws of 2020, item 65, as amended),
- Regulation of the Council of Ministers of September 21, 2004, on the valuation of real estate and the preparation of the appraisal report (Journal of Laws No. 207, item 2109, as amended; amendments: Journal of Laws of 2005, No. 196, item 1628; Journal of Laws of 2011, No. 165, item 985; Journal of Laws of 2019, item 2250).

The cost approach is based on two main methods:

1. Costs of reproduction – is based on the assumption that the value of the property is equal to the sum of the costs of replacing it in its original state, taking into account the value of the land. The method has its limitations, especially when the property has unique features or when construction costs are significantly higher than the market value. Therefore, it is important to consider other valuation methods and collect as much market data as possible in the valuation process.

2. Replacement cost method – the basis for property valuation with this method is to determine the costs of replacing a property with the same function, taking into account the use of modern materials and construction solutions as well as equipment corresponding to current conditions. When using the technique, the costs of documentation and supervision are taken into account (Cymerman, R., & Cymerman J., 2020).

Conclusions

The analysis of theoretical approaches to real estate valuation methodology shows that there is a need to supplement national methodological approaches to real estate valuation with a fifth approach – the information approach to real estate valuation. The proposal is based on the author's own observations about the lack of objective, reliable, up-to-date, valuable and complete information about the subject of valuation at all stages of assessment of both real estate and integral property complexes, results of the assessment of intellectual property and other assessment objects.

The practical implementation of the information approach requires significant efforts, primarily related to the creation of publicly available information databases about the subject of assessment. The proposed approach provides for a set of data, organized in a specific way, on the results of business activities and various aspects characterizing the functioning of a production plant. The source base of the information approach is to be created from planning, regulatory, accounting, reporting and analytical data. The structure of the information base should include information about the actual results of business activity and indicators that are the basis for comparison. Based on the information approach, a SWOT analysis can be developed – an analysis that will simplify the assessment building procedure and ensure visibility of the operations performed.

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