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Methodological Approaches to Real Estate Valuation

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Abstract: The article reflects methodological approaches to real estate valuation. In particular, the state of real estate valuation in practice by valuation organizations and the sequence of conducting an analysis of the most effective use of property are considered according to the unified national valuation standards of the Republic of Uzbekistan.

Key words: real estate, valuation, real estate valuation activities, foreign experience in real estate market valuation, corporate real estate, valuation approaches, cost approach, income approach, cadastre, cadastral value

INTRODUCTION

In Uzbekistan's valuation services market, it is essential to analyze and draw conclusions regarding key aspects related to the fair valuation of real estate market segments. These aspects include market dynamics, the ratio of supply and demand, the actual volume of transactions, market capacity, the motivation of consumers or buyers and sellers, liquidity, and price fluctuations in the real estate market. Such an analysis is crucial for ensuring an accurate assessment of real estate properties.

One of the key components of the capital market is the real estate market, which is significant due to its consistently high liquidity. In this regard, the Decree of the President of the Republic of Uzbekistan No. PF-6121, issued on December 3, 2020, titled *"On Further Improvement of Resource Taxes and Property Tax,"* introduced a mechanism for calculating property and land taxes based on cadastral values that are close to market value for the period of 2021-2024.

The importance of the planned measures lies in the fact that *"the current cadastral value of real estate objects used for calculating property tax for individuals is significantly lower than the market value."* In reality, this value was initially determined in 1991, based on the construction cost of properties at that time, multiplied by depreciation and correction coefficients. The current cadastral valuation does not take into account factors such as location, infrastructure availability, landscaping, property classification, and many other market indicators【1】. Therefore, conducting scientific research on real estate valuation and determining its actual market value is of great importance.

Literature review

The scientific and theoretical aspects of valuation activities, including the improvement of real estate valuation practices, have been extensively studied by both foreign and domestic economists and practitioners. Notably, the works of E. Evstafyeva, V. Yesipov, G. Makhovikova, V. Terekhova, G. Mikerin, N. Pavlov, S. Valdaytsev, B. Abdukarimov, B. Khodiev, B. Berkinov, A. Kravchenko, D. Istamov, Y. Granatkin, E. Khodjaev, and D. Abdukarimova have contributed significantly to this field【2-7】.

Given the level of development and dynamic changes in real estate markets across different countries, it is important to emphasize that administrative regulation, particularly government support measures, plays a crucial role in shaping the market. Thus, in every country, some degree of government intervention is expected in the development of the real estate market, including the housing sector. However, the extent of such support varies among countries, leading to significant differences in the housing system structures of developed and developing nations【2】.

The American economists J. Friedman and N. Ordway, in their book *"Analysis and Valuation of Income-Producing Real Estate,"* describe the real estate market as an interconnected system of market mechanisms that facilitate the creation, transfer, operation, and financing of real estate assets【3】.

Ensuring the reliability of a valuation report involves a comprehensive examination, detailed analysis, and thorough research. This process entails evaluating the characteristics, deficiencies, defects, advantages, and attributes of the property, as well as identifying strategies for mitigating shortcomings, enhancing property features, and increasing investor interest. The final outcome of this process is the formalization of professional valuation results【4】.

Methodology

The article employs various research methodologies, including scientific abstraction, comparative analysis, expert evaluation, correlation-regression analysis, dynamic analysis, and linear relationship modeling. These methods provide a comprehensive approach to assessing the real estate valuation process by allowing for an in-depth examination of market trends, the interdependence of key factors, and the reliability of valuation outcomes. Scientific abstraction enables the identification of fundamental principles underlying real estate valuation, while comparative analysis facilitates the evaluation of different valuation models and approaches. Expert evaluation ensures the incorporation of professional judgment, enhancing the accuracy and credibility of the findings. Correlation-regression analysis is applied to measure the statistical relationships between market variables, whereas dynamic analysis helps track changes over time. Lastly, linear relationship modeling is utilized to establish predictive frameworks for future market developments.

Result and Discussion

In order to further expand opportunities for business entities and enhance the status of professional public associations, amendments and additions were made to the Laws of the Republic of Uzbekistan *"On Valuation Activities"* and *"On Real Estate Agency Activities"* on October 13, 2021.

The updated version of the Unified National Valuation Standards (UNVS) ensures a consistent approach to valuation, taking into account the recognized International Valuation Standards (IVS, EVS, USPAP, RICS, etc.) and the current market environment. It establishes a foundation for maintaining objectivity in the valuation process and enables appraisers to consider market fluctuations, economic trends, and other relevant factors. This ultimately facilitates the determination of the true market value of an asset.

The UNVS contributes to the development of an independent and impartial valuation system, enhances the professionalism and quality of valuation services, ensures uniform interpretation of valuation legislation, and increases public confidence in the national valuation framework.

In the current era of economic digitalization, real estate valuation in Uzbekistan is conducted using various methodological approaches aligned with national standards. The primary approaches include the comparative, cost, and income approaches, which are used to determine the market value of real estate properties.

The comparative approach is applied when there is a sufficient number of comparable transactions or valuation proposals available at the valuation date. This approach is most effective when a significant

number of analogous properties exist in the market, allowing for a reliable and meaningful estimation of the required real estate value based on comparative market data.

The cost approach is one of the three fundamental valuation methodologies and is based on labor value theory, which considers the amount and quality of labor and material resources involved in producing an asset. This approach essentially models the seller's market, where property valuation is determined by calculating the replacement or reproduction cost of a property, adjusted for depreciation.

The income approach distinguishes between the direct capitalization method and the capitalization rate method. Both methods can be applied to the total income generated by a property or separately to its land and improvements. When total income is capitalized, the valuation result represents the entire property value. In contrast, under the component-based capitalization method, the land and improvements are valued separately, and the final property value is determined by aggregating these components.

In Uzbekistan, real estate valuation and valuation activities as a whole are regulated by the Unified National Valuation Standards (UNVS), which were approved by the Director of the State Assets Management Agency of Uzbekistan under Order No. 01/11-14/29 on October 25, 2023. These national standards comprise 16 sections, covering 14 specific national valuation standards, encompassing all methodological aspects of valuation activities. The comprehensiveness of these standards ensures their significance in establishing a transparent, efficient, and internationally recognized valuation system within Uzbekistan.

Based on the research in the dissertation, it is emphasized that the 10th National Valuation Standard (NVS) – *Real Estate Valuation* – is a key regulatory framework, and the methodological approaches associated with this standard are examined below. This standard initially classifies the types of property that fall under the definition of "real estate." According to it, real estate includes the following:

- Land plots and subsurface resources;
- Buildings, structures, and perennial plantations;
- Other assets that are permanently attached to the land.

In accordance with this standard, information related to real estate valuation must include the following:

- A certificate confirming the proper state registration of all rights related to the valued real estate;
- A document reflecting the rights of the user of the land plot in relation to the evaluated land plot;
- A document establishing the allocation of the land plot to the owner in accordance with the prescribed procedure;
- Cadastral documents related to real estate;
- Documents confirming the rights of joint ownership, i.e., documents reflecting the rights of secondary or tertiary parties to use or dispose of the valued real estate, as well as documents imposing restrictions on such rights;
- Information on the volumetric-planning and structural details of improvements made to the real estate;
- Documents reflecting information on the use of the real estate object;
- Information on the origin and development of the evaluated object;
- Additional elements included in the valuation of the real estate object as an evaluation subject, such as newly constructed buildings, annexes, structures, reconstruction, and major renovations;
- The balance sheet of legal entities related to the real estate as of the last reporting date, including reports on the residual and initial value of the real estate;
- Retrospective and projected financial statements related to the real estate, including key parameters of the commercial use of the real estate, such as annual operating expenses, revenue sources from the real estate, and cash flow data based on supporting documents, balance sheets, and financial reports;
- Additional assets within the valued object, including installed equipment, perennial trees, landscaping, and greening activities, along with supporting documents confirming their presence.

To ensure transparency, reliability, and competition in the assessment of valuation organizations, a regulatory framework was introduced on November 14, 2023, with the adoption of the *Regulation on the*

Ranking and Rating of Valuation Organizations, which established a ranking and rating system for such organizations.

The unified national valuation standards of the Republic of Uzbekistan define the methodological approaches to property valuation, including fundamental terms, key principles, general provisions, and valuation types.

According to these national standards, methodological approaches in valuation activities integrate general valuation methodologies, which in turn establish valuation methods. During valuation activities, these methods enable the accurate determination of the objective value of an asset based on relevant information. Accordingly, approaches to real estate valuation and, more broadly, valuation activities include the following:

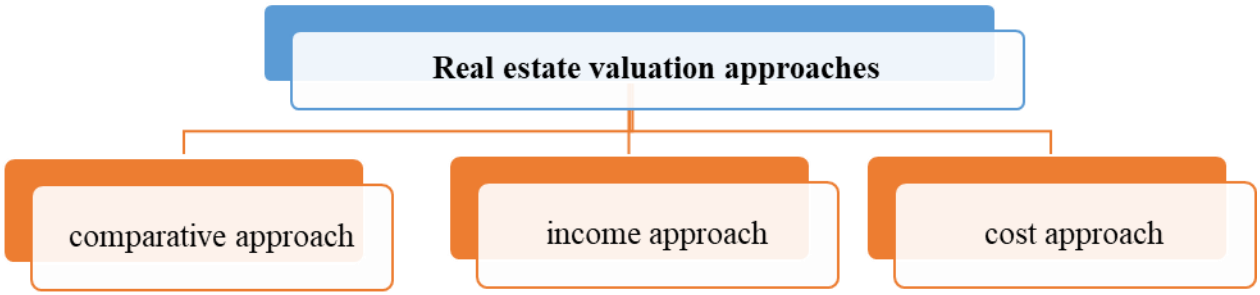

Figure 1. Real estate valuation approaches

According to the Unified National Valuation Standards of the Republic of Uzbekistan, each approach to real estate valuation involves distinct methodological applications.

The **methodology for real estate taxation** encompasses rules and methods aimed at valuing real estate objects and determining the applicable tax amounts. This methodology is designed to assess the market value of real estate, establish tax rates, and ensure a fair and transparent taxation system for taxpayers.

Individual and mass appraisal are distinct approaches used to determine market value, each serving different economic analysis functions. These approaches differ based on the objects being evaluated, analysis methods, comparable objects utilized, and the number and composition of factors considered. Each approach has its specific area of application, and they can complement each other when necessary.

- **Individual appraisal** is a valuation method used to assess the market value characteristics of a real estate object. It considers the highest and best use analysis and compares the subject property with a limited number of analogous properties with similar characteristics and location to determine its value.
- **Mass appraisal** is a systematic method for assessing the market value indicators of a large group of similar real estate properties. This method utilizes statistical data processing techniques to analyze multiple comparable objects, incorporating objectively measurable value-determining factors that are common to all analogous properties.

The application of valuation approaches and methods in real estate appraisal is structured according to the **10th National Valuation Standard (NVS) – "Real Estate Valuation."** This standard classifies valuation approaches and methods as outlined in **Table 1**, which categorizes the methodologies applied in real estate valuation.

Comparative Approach	
Description	The **comparative approach** refers to a set of methods used to assess the value of an asset by comparing it with analogous assets when information on transactions or offer prices for such assets is available. This approach is based on the **principle of substitution**, which assumes that a rational buyer would not pay more for an asset than the cost of acquiring a comparable alternative under similar conditions.

Methods Applied Within the Approachиган усулдар	*Comparable Sales Method*	When the **comparable transactions method** is applied to determine the value indicator, information on transactions involving assets that are similar or identical to the appraised asset is utilized. If the appraised asset itself has been involved in a previous transaction, this method is referred to as the **prior transactions method**.
	Capital Market (Comparable Company) Method	The **capital market (analog company) method** relies on information about publicly traded comparable assets that are similar or identical to the appraised asset as the basis for comparison. While the **capital market method** is similar to the **comparable transactions method**, it differs in that it specifically considers comparable assets that are actively traded in the open market.
Income Approach		
Description	The **income approach** estimates the value of an appraised asset by discounting its expected future income to its present value. When applying this approach, the asset's value is determined based on the income or cash flows it is expected to generate, as well as the cost savings associated with its use.	
Methods Applied Within the Approach	*Discounted Cash Flow (DCF) Method*	The value of the appraisal object is determined as of the appraisal date based on the sum of the present values of cash flows during the forecast and post-forecast periods (at the end of the period).
	The income capitalization method	determines the value of the appraisal object by dividing the income amount for a single period by the capitalization rate corresponding to that income.
Cost Approach		
Description	The **Cost Approach** is a set of valuation methods that determine the value of an appraisal object by estimating the costs required to restore or replace it, taking into account its depreciation. This approach assumes that the property can be replaced either by an exact replica of the original asset or by another property that provides the same utility.	
Methods Applied Within the	*Replacement Cost Method*	This method determines the value by calculating the cost of acquiring a similar asset that offers equivalent utility.
	Reproduction Cost Method	This method determines the value by calculating the cost required to create an exact replica of the asset.

	Component Method	This method determines the asset's value by summing up the individual values of its constituent components.

The highest and best use of an appraisal object may correspond to its actual use or involve an alternative use, such as the renovation (or reconstruction) of existing capital structures on a land plot.

The analysis of the highest and best use of a real estate object can be conducted by an appraiser in two stages:

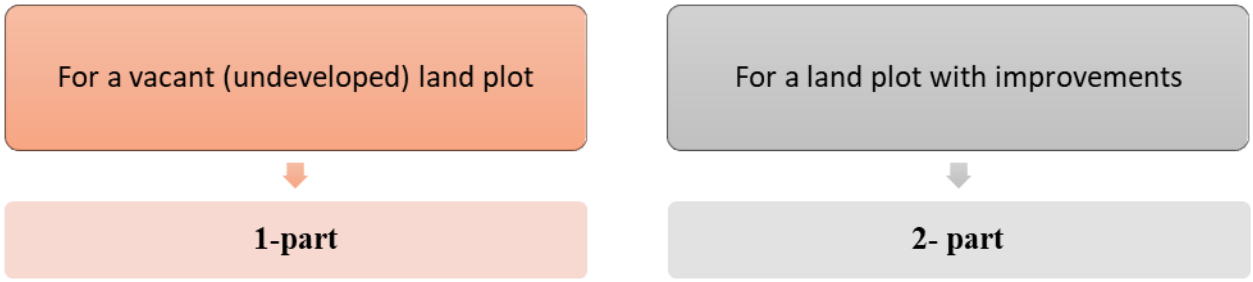

Figure 2. Sequence of Conducting Highest and Best Use Analysis for Real Estate

The use of a land plot with improvements is considered the highest and best use if its market value exceeds the value of the vacant land plot (without improvements) [4].

In real estate market valuation, the need arises to analyze the financial reporting data of appraisal organizations.

Table 3

Main Types of Financial Reporting Data Analysis in Real Estate Market Valuation

№	Name of the research	Main description
1	**Common-Size Analysis (Vertical Analysis)**	For this purpose, balance sheet items are expressed as a percentage of total assets, while income statement items are represented as a percentage of total revenue.;
2	**Horizontal Analysis**	Involves analyzing changes in financial statement indicators over time. Key indicators requiring analysis include the growth rates of revenue from sales, income growth rates, and asset growth rates.
3	**Financial Ratio Analysis**	Allows for the comparison of calculated ratios with standard benchmarks, ratios of other companies, or industry averages.

According to the current regulations, during the process of gathering information—one of the key methodological aspects of real estate valuation—appraisers are required to analyze macroeconomic indicators related to real estate. The following key indicators must be considered:

- Gross Domestic Product (GDP) Growth Rate as an indicator of national economic growth;
- Trends in Industrial Production Volume at both the national level and in the region where the real estate object is located;
- Inflation Rate observed in the country;

- Exchange Rate of the National Currency and its fluctuation trends;
- Fluctuations in Interest Rates;
- Key Performance Indicators of the Stock Market;
- Tax System Data, including tax rates and their changes.

Additionally, in real estate market valuation, the following represent the main types of financial statement analysis.

In cost-based real estate valuation, the following formula is applied:

$$M = \frac{H}{K}$$, бу ерда:

In this formula:

- **M** – Multiplier;
- **N** – Sale price of a comparable object;
- **K** – Financial, production-related, or material indicators that characterize the performance of the appraisal object.

The price of the appraisal object is determined by multiplying the relevant financial indicator by the corresponding multiplier:

N=M×KN = M \times K

In real estate valuation using the **income approach**, the **discounted cash flow (DCF) method** is applied to determine market value. This is done by summing the present values of future cash flows of the real estate object and the present value of the real estate beyond the forecast period.

$$V_c = \sum_{i=1}^{n} \frac{I_i}{(1+D)^i} + \frac{V_n}{(1+D)^n}$$

In this context:

Vc — Value of the appraisal object;

Ii — Cash flow for the i-th year of the forecast period;

D — Discount rate;

Vn — Value of the appraisal object after the end of the forecast period;

i — Year number within the forecast period;

n — Final year of the forecast period.

According to the cost approach, the value of the appraisal object is generally determined using the following formula:

Enterprise Value= Value of Assets— Value of Liabilities

Furthermore, based on the results of valuation using the three approaches to real estate appraisal, the final value of the appraisal object is determined as follows:

$$K_{final} = K_{cost} * C_1 + K_{income} * C_2 + K_{comparative} * C_3$$

ушбу формулада:

K_{final} — кўчмас мулкнинг якуний қиймати;

K_{cost}, K_{income}, $K_{comparative}$ — Corresponding weighting coefficients assigned to each valuation approach.

C_1, C_2, C_3 — It is required that the following condition be met:

$$C_1 + C_2 + C_3 = 1$$

Based on the analysis and considerations presented above, international best practices in real estate valuation and their applicability for improving the valuation process have been examined. Additionally,

the existing challenges in real estate valuation within the country have been identified, and opportunities for integrating advanced foreign methodologies into practice have been outlined. Specifically:

First of all, income Approach in Real Estate Valuation – Scientific research findings highlight the necessity of forecasting cash flow measurements such as potential gross income, actual gross income, net operating income, and earnings before taxes and interest when applying the income approach.

Secondly, cadastre Valuation in International Practices – The study has identified and systematized the distinctive features of determining cadastral value in real estate market valuation across different countries.

Thirdly, Capitalization Rate and Net Operating Income Estimation – A formula for calculating the capitalization rate using the market extraction method has been proposed, along with recommendations for determining net operating income (NOI) based on collected market data. Additionally, step-by-step guidelines for calculating NOI in income-based real estate valuation have been suggested.

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