Günümüzde Taşınmaz Değerleme Yöntemlerinin Hukuki ve Ekonomik Açıdan İncelenmesi

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Makale Bilgileri	ÖZ
	Türkiye'de ve Dünya'da taşınmaz (gayrimenkul) satışlarının ekonomideki yeri ve önemi artmaktadır. Türkiye'de her yıl iki milyonun üzerinde gayrimenkul satış işlemleri tapu müdürlüklerince gerçekleştirilmektedir. Bu satışlardan elde edilen vergiler bütçede önemli bir paya sahiptir. Bu aşamada taşınmazların değerinin nasıl belirlendiği sorusu akla gelmektedir. Taşınmaz değerleme, belirli bir zaman periyodunda piyasa koşullarına göre bir taşınmazın değerini etkileyen özelliklerinin dikkate alınarak, değer tahmini yapılması şeklinde tanımlanmaktadır. Taşınmaz değerleme çalışmalarına ilişkin çok farklı yöntemler ortaya konulmuştur. Taşınmaz değerleme yöntemlerinin günümüzde hukuki ve ekonomik açıdan incelenmesi, gayrimenkul sektöründe önemli bir konudur. Taşınmaz değerleme yöntemlerinin doğru bir şekilde uygulanması ile tüm taşınmaz kullanıcıları için adil bir ortam oluşturulabilir. Bu durum, gayrimenkul sektöründe güvenilirlik ve şeffaflık açısından büyük önem taşır. Ayrıca, yasal düzenlemelere uygunluk ve ekonomik koşulların göz önünde bulundurulması, piyasa koşullarına daha uygun değerleme sonuçları elde edilmesine yardımcı olur. Taşınmaz değerleme çalışmalarından elde edilen veriler yardımıyla Coğrafi Bilgi Sistemleri (CBS) yazılımları sayesinde mekânsal ve istatistiksel analizler de yapılabilmektedir. Bu çalışmada taşınmaz değerleme yöntemlerine ilişkin literatür taraması yapılarak, yöntemlerin hukuki ve ekonomik açıdan genel bir değerlendirilmesi ortaya konulmuştur. Çalışma ile mevcut hukuki düzenlemelerin değerleme süreçlerine etkisi ve ekonomik faktörlerin değerleme modellerine olan yansımalarını da ele alınmıştır. Aynı zamanda taşınmaz değerleme kullanıcılarına ilişkin bir perspektif sunulmaya çalışılmış ve bu sayede literatüre bir katkı sunulmuştur.

Examination of Today's Real Estate Valuation Methods from Legal and Economic Perspectives

Article Info	ABSTRACT
	The place and importance of real estate sales in the economy are increasing in Türkiye and in the world. More than two million real estate sales transactions are carried out by land registry offices every year in Türkiye. Taxes from these sales have a significant share in the budget. At this stage, the question of how the value of real estate is determined comes to mind. Real estate valuation is defined as estimating the value of a real estate according to market conditions over a determined period, considering the characteristics that affect its value. Many different methods have been put forward for real estate valuation studies. Today, examining real estate valuation methods from a legal and economic perspective is an important issue in the real estate sector. By correctly applying real estate valuation methods, a fair environment can be created for all real estate users. This is of great importance in terms of reliability and transparency in the real estate sector. Additionally, compliance with legal regulations and consideration of economic conditions helps to obtain valuation results that are more appropriate to market conditions. With the help of data obtained from real estate valuation studies, spatial and statistical analyzes can be made using Geographic Information Systems (GIS) software. In this study, a literature review on real estate valuation methods was conducted and a general evaluation of the methods from a legal and economic perspective was presented. The study also discusses the effects of existing legal regulations on valuation processes and the reflections of economic factors on valuation models. At the same time, a perspective on real estate valuation users has been tried to be presented and thus a contribution to the literature has been made.

INTRODUCTION

As the place of real estate sales in the economy increases in Türkiye and in the world, the concept of real estate determination has begun to be discussed more [1]. Real estate valuation is the estimation of value by considering the features that affect the value of a real estate according to market conditions in a certain period of time [2]. Today, many valuation methods such as imputed method, nominal valuation, fuzzy logic, multiple regression and artificial neural networks are used in real estate valuation processes [3, 4]. With the completion of cadastral works in Türkiye, all transactions regarding real estate have started to be recorded and recorded in the land registry [5]. The development of the cities has been revealed by determining the areas opened for new development in the cities that are growing with the increasing population, with satellite images [6]. Nowadays, with the significant development of information technologies and application areas, the use of GIS software in real estate valuation has become widespread [7]. In real estate valuation methods, databases related to real estate are created. The role of GIS in real estate valuation has increased due to the predominance of spatial information in these databases [8]. In this context, collecting, querying, analyzing and presenting data regarding real estate to certain standards can be achieved by using GIS software that is widely used today [9].

More than two million real estate sales transactions are carried out by land registry offices every year in Türkiye. It has been declared that 2,125,110,018.79 TL of title deed fee income was obtained from the title deed transactions carried out by the General Directorate of Land Registry and Cadastre (GDLRC) in 2022 [10]. Due to legal gaps in title deed transactions, especially in the buying and selling process, a real estate valuation report is not required and the real estate declaration value is requested from the district municipalities. Transactions are carried out according to real estate declaration values, with this value being the lower limit. In addition, real estate valuation reports are used in all kinds of projects and planning studies regarding real estate. For this reason, real estate appraisal is carried out or is carried out by many public institutions and organizations in Türkiye. Factors such as the current status of real estate, its intended use, environmental qualities, social and economic features, infrastructure qualities, zoning status and legal restrictions are important factors in determining real estate valuation methods. The real estate valuation method can also be determined according to the purpose of use of the real estate or spatial projects. More than one method can be used simultaneously. In this study, a literature review on real estate valuation methods was conducted and a general evaluation of the methods from a legal and economic perspective was presented. At the same time, a perspective on real estate valuation users has been tried to be presented and thus a contribution to the scientific literature has been made.

MATERIALS AND METHODS

In the study, a literature review was made regarding materials and methods, and as a result, the real estate valuation methods encountered in the literature are given below. The methods in question are shown in Figure 1 [3, 4, 11, 12, 13].
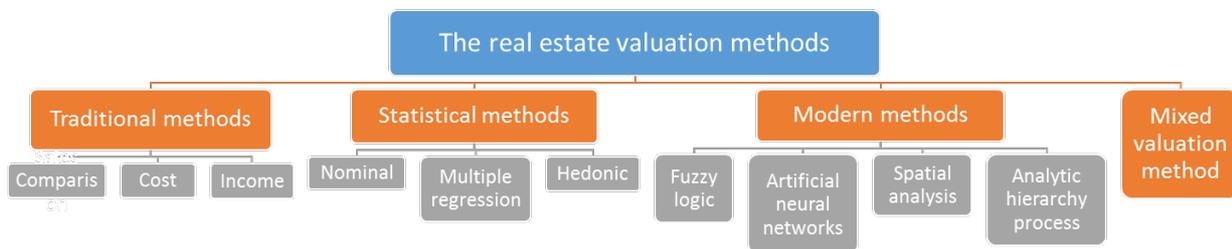
Figure 1. *The real estate valuation methods*

Traditional Methods

As traditional methods in real estate valuation; There are sales comparison method, cost method and income method [3, 12].

Sales Comparison Method

The precedent method is called the sales comparison method. It is applied to real estate that does not generate income and has no structure on it, in cases where the real market value of similar real estate is reached. In this method, it is very important to give the correct purchase and sale values of similar properties in determining the final value [12]. To use this method, there must be similar properties in the area to be compared. It is also important that it reflects real market values. To make a comparison, the properties of the immovable property taken as a precedent and the properties of the immovable property whose value will be determined must be similar. The equivalent of a real estate in a residential area must be chosen from the residential zone, and a real estate in an industrial zone must be chosen from the industrial zone. If the land is built, it is important to determine information such as parcel dimensions, zoning plan, plan values, location in the city, transportation facilities, proximity to cultural facilities, type and style of the building, design, age and current status, etc. [3].

Cost Method

The cost method is based on recalculating the cost of a real estate with a building on it, according to current conditions, during the reconstruction of the building. The method is also known as the contractor method and is a method accepted by different countries. While the land value is determined according to the sales comparison method by comparing similar real estate, the cost value of the real estate is found by subtracting the depreciation value from the cost of reconstruction of the building. The cost method is used in the valuation of immovable properties with buildings on them, such as factories, commercial buildings, industrial sites, hotels and residences. Method; it is used in the valuation of immovable properties that are not frequently bought and sold under market conditions, when there is no comparable sales information for the immovable properties, when the immovable property is not an income-generating property type, in the valuation studies of unfinished projects, when there are additions and renovations to the immovable property, and when the land and structure of the immovable property must be evaluated separately [3, 12].

Income Method

It is a method used in the valuation of income-generating real estate. In this method, the possible income stream for an investor or a user in the remaining economic life of a real estate is considered. In order to use this method, it is important to determine the gross income and expense activities of any real estate, estimate the net income and expense, and determine the direct and income capitalization rate as a result. Annual net income is calculated and value is assessed based on the use of the real estate, its regional characteristics and economic conditions. It is generally applied for commercial real estate. The income method is preferred in cases where the economic life of the building is not long and there are not enough similar buildings [12].

Statistical Methods

As statistical (stochastic) methods in real estate valuation; There are the nominal method, multiple regression method and hedonic method [4]. In real estate valuation with statistical methods, real estate values are estimated with the help of statistical or mathematical models by analyzing the numerical or proportional connections between the value of the real estate and the real estate criteria [14].

Nominal Method

The nominal method is based on scoring the qualities of real estate. The value to be taken into consideration in real estate value distribution may be fair value or a parametric value obtained by scoring. In this method, factors affecting the value of real estate are formulated. The largest and smallest points are determined and the value coefficient of each property is found. With the value coefficients obtained, the relative situation of the real estate in terms of their values can be determined and these coefficients can be converted to market values [4]. Since such a valuation has a different approach than the known classical valuation methods, it is called nominal valuation. Nominal value is an indicative value that represents an asset. However, it should not be forgotten that the nominal value is a function that requires many different parameters to be considered together and evaluated as a data set. In this respect, basic parameters that may affect the real estate value need

to be determined. Among the parameters in question, the most important criterion that can affect the unit value is known as the location value [15, 16].

Multiple Regression Method

In regression analysis, statistical relationships between variables are examined. In multiple regression analysis, more than one independent variable is used. These variables come together and can affect both another variable and each other. Probabilistic or random variables are used in statistical procedures. In the regression method for real estate, the factors affecting the real estate must be defined and their impact amounts must be determined. The regression method is a statistical method that allows the evaluation of real estate and factors affecting real estate together. In order to use multiple regression analysis in real estate valuation, a database containing data such as real estate properties and purchase-sale information must first be created. Creating a database increases the number of factors affecting real estate values and thus provides more accurate values [4].

Hedonic Method

While the word hedonic means satisfaction with service and consumption, hedonic value is the price a person is willing to pay for the benefit he/she receives. Based on the hedonic method, an evaluation is made by taking into account the benefits obtained from them rather than the goods or services purchased. It is mostly used to determine the factors affecting the value of residential real estate. In this method, it is assumed that each factor of the house influences the value of the house, and this effect is tried to be calculated. It is very important in this method to create a housing price index based on the changes in the housing area, such as financial stability being directly or indirectly affected by the changes in the housing sector, and monitoring the changes in the housing area in terms of price balance [4].

Modern Methods

As modern methods in real estate valuation; There are fuzzy logic method, artificial neural networks method, spatial analysis method and analytic hierarchy process method [4, 17].

Fuzzy Logic Method

Fuzzy logic (FL) can be defined as software that processes the data obtained by taking advantage of people's knowledge and experience with formulated diagrams and obtains result values with the help of certain mathematical algorithms depending on each formula it creates. This software needs fuzzy logic when classical logic cannot meet the needs in solving problems. FL is used to mathematically model verbal expressions defined by an expert user as a decision-making mechanism within an area with unknown boundaries. General features of the FL [4];

➢ It does not necessarily require a mathematical model in its implementation.

➢ It allows the modeling of non-linear functions.

➢ Expert users can design a model or system with their knowledge and experience.

➢ It is a method close to the human thought system.

➢ The software is simple and the system can be installed more economically.

can be listed. In recent years, with the development of computer technologies and artificial intelligence techniques, the use of FL in real estate valuation has been encountered. Evaluation can be made in line with the data sets entered the program.

Artificial Neural Networks Method

Artificial neural networks (ANN) are computer software adapted to the biological neural structure of the human brain. It can generate new information using previously loaded and classified information. ANN is a set of data-based systems created by constructing artificial nerve cells in layers. ANN aims to solve complex problems by taking advantage of the human brain's abilities such as learning and making quick decisions under

different conditions. In recent years, the ANN method has begun to be used in real estate valuation. In order for the ANN method to be used in real estate valuation, the parameters must be analyzed correctly and large data sets must be selected. General features of ANN; it can be counted as being a method developed by taking into account the neural networks of the brain, not having a linear character, and being able to adapt, learn and generalize. The most important factor here is that healthy and accurate data sets are entered into the program [4, 18].

Spatial Analysis Method

The spatial analysis method is a set of software that enables data to be presented geographically and presents users with meaningful and informative spatial and verbal data on maps. General features of the method [4];

➢ The software integrates spatial and verbal information.

➢ It must have an up-to-date and integrated database.

➢ It provides savings in terms of time and cost by obtaining some data from maps.

can be listed. The development of GIS software has popularized the use of spatial analysis method in real estate valuation.

Analytic Hierarchy Process Method

The analytic hierarchy process (AHP) is a method first used by Myers and Alpert in 1968 and developed by Thomas L. Saaty in 1977. It is a method used to solve multi-criteria decision-making application problems. The AHP method, which evaluates qualitative and quantitative variables together, is a mathematical method that also takes into account the priorities of the users in the decision-making phase. It was developed to be used in cases where the number of criteria is high [19, 20, 21]. A hierarchical structure is created to solve problems. Binary comparison matrices are at the core of this method. Binary comparison matrices are used to determine the importance of the criteria relative to each other. The features of this method can be listed as follows [4];

➢ The method is easy to apply.

➢ Thoughts and verbal data are converted into numerical data using scales.

➢ Using binary comparison matrices, the importance levels of the criteria relative to each other are found with mathematical algorithms.

Mixed Valuation Method

If the immovable to be valued has different characteristics, more than one method is used together. For example, if there are any structures or additional facilities such as trees, wells, etc. which have economic meaning on an immovable property which is land, their valuation should be made. In the valuation process of such an immovable, the parts carrying economic value should be evaluated separately and the sum of the amounts to be obtained should be taken as basis. Especially in the valuation of land with buildings, the land should be evaluated separately and the building on it should be evaluated separately. In this case, the comparison method can be used for the valuation of the land, the cost method for the valuation of the building or the income method if it is a commercial building [22].

RESULTS

In order to analyze the valuation of immovable property, two concepts should be reviewed first. These concepts are immovable property and valuation. In legal terms, immovable property is a subject specific to property law. When it is analyzed together with movable property; if something can be moved from one location to another location without damaging the original of the thing, that thing is movable; if it cannot be moved, that thing is immovable [23]. 4721 numbered Turkish Civil Code (TCC) (Official Gazette (OG) Date: 08.12.2001, RG No: 24607) According to Article 704; the subject of immovable property includes lands, independent sections (registered in the condominium registry), independent and permanent rights (registered in separate

pages in the land registry) (Article 704 of the TCC).

Another important issue in the evaluation of immovable property is the concept of ownership. The right to property is included in Article 35 of the 1982 Constitution (OG Date: 09.11.1982, OG No: 17863). According to the text of the article, it is stated that everyone has the right to property, this right can only be restricted by law for the purpose of public interest and this right cannot be used contrary to the public interest (Article 35 of the 1982 Constitution). Article 683 of the TCC states that the person who has the right of ownership has the right to use, dispose and benefit from the thing in question within the legal order (Article 683 of the TCC). When we evaluate this point in the context of immovable property; property includes all legal dispositions such as the actual use of the immovable property, making changes to it, transferring it, and establishing rights on it, if it remains within the legal order [24].

Another important issue in immovable property valuation is the concept of valuation. Valuation is defined as appraising, determining the value of a property in the dictionary meaning. [25]. When analyzed from both legal and economic aspects, valuation can be expressed as a valuation activity. In this context, valuation can be defined as determining the value of a good, an immovable or a service by using scientific methods [26]. In other words, valuation is the free and objective determination of the possible values of the rights and benefits of a real estate or asset at a certain date [14].

After reviewing the concepts of real estate and valuation, it would be appropriate to examine the combination of these two concepts, real estate valuation. Real estate valuation is the process of determining the real values of real estates with the help of typical characteristics of real estates and statistical information [27]. Real estate valuation is a relative concept; the subject is evaluated in terms of many factors such as the intended use of the real estate, conditions in the market, expected benefit, interest. At this point, there is no objective mathematical technique in real estate valuation [28].

Real estate valuation has become an institution used in many different areas. At this point, it has found its place in many different legislations. This situation can be determined by examples from the relevant legislation. In the 11th article of the Expropriation Law (EL) No. 2942 (OG Date: 08.11.1983, Official Gazette No: 18215) explains the principles on which the expropriation value of the immovable property to be expropriated will be determined, and how the valuation will be carried out in determining the price of the relevant immovable property (EL Art. 11). In Article 17 of the Zoning Law No. 3194 (OG Date: 09.05.1985, Official Gazette No: 18749), the real estate valuation institution is used by assigning the duty of municipalities and governorships to sell the parts remaining after expropriation by making a price assessment (Law Article 17). It is also seen that real estate valuation is used in taxation, which is a sign of the state's sovereignty. In this context, the Tax Procedure Law No. 213 (TPL) (OG Date: 10.01.1961, OG No: 10705), the Law No. 6183 on the Collection Procedure of Public Receivables (CPPR) (OG Date: 28.07.1953, OG No: 8469) and No. 1319. The Real Estate Tax Law (RETL) (OG Date: 11.08.1970, OG No: 13576) and the Fees Law (FL) No. 492 (OG Date: 17.07.1964, OG No: 11756) may be mentioned. According to RETL, it has been stated that appraisal commissions (Article 72) and census commissions (Article 79) will evaluate real estate and make determinations on issues within the scope of real estate valuation. Again, in articles 90 and 91 of CPPR; The sales commissions created will deal with the real estate valuation methodology during the valuation and sales process of the seized real estate. According to Article 29 of the RETL; in determining the tax value, it is explained how to reach the unit value for lands and buildings in line with the provisions included in the TPL. According to Articles 60 and 61 of the Civil Code and tariff no. (4), fees are accrued on a relative or fixed basis based on value in land registry and cadastre transactions. In addition, Article 18-B of the Law on Privatization Practices No. 4046 (OG Date: 27.11.1994, OG No: 22124). In the article, it has been stated that a value determination commission will be established for the thing subject to privatization and the evaluation will be made through the established commission. Finally, as an example, the Capital Markets Law (CML) No. 6362 (OG Date: 30.12.2012, Official Gazette No: 28513) and its sub-regulations can be mentioned. In the CML and its sub-regulations communiqués (Communiqué: III-62.3), real estate appraisal institutions, their authorization and activities, and information about real estate appraisers are explained.

As can be seen in the legislative infrastructure regarding real estate valuation; Real estate valuation finds its place in many different areas and is important. When the issue is evaluated in an economic context; It comes to the fore in many different areas, from taxation to the process that forms the basis of registration in the land registry, from the capital market to lending and banking (getting a loan with collateral), to insurance, expropriation and privatization [29, 30]. In this respect, failure to evaluate real estate in a realistic manner brings with it many different economic and sociological problems [31].

In order to evaluate real estate valuation in an economic context and understand its importance, it will be useful to evaluate the subject by giving examples of some numerical data. The highest share of municipal revenues is undoubtedly property tax revenue. Examples can be given from many different municipalities in Türkiye. Since the scope is very broad, if we only give examples from the central three district municipalities of Konya Province in the study, it can be understood how important real estate valuation is in the context of property tax. According to the 2022 Konya/Meram Municipality activity report, the total tax collection of the Municipality is seen as 79,390,577.11-TL, and within this collection, building/land and land tax is seen as 76,717,007.04-TL [32]. Again, according to Konya/Selçuklu Municipality 2022 activity report; While the total net income of the municipality is seen as 1,329,509,644.20-TL, 152,843,855.59-TL of this income comes from building/land and land taxes [33]. Finally, according to the 2022 activity report of Konya/Karatay Municipality, which is the other central district, the actual tax revenue is seen as 144,960,155.85-TL, and it is stated that the share of tax revenue in the total collection is 10.84% [34]. Even though tax revenues are not given under a separate subheading in the activity report, it can be said that approximately 70% of the tax revenues are from building/land and plot taxes. Another economic data for real estate valuation is undoubtedly title deed fees. According to GDLRC's 2022 administrative activity report; the title deed fees for 2022 are seen as 2,125,110,018.79 TL [10]. Another important issue for real estate valuation is the share of the construction sector in total revenue. According to Turkish Statistical Institute 2022 gross domestic product data according to economic activity branches (A10 level); 112,081,870-TL (.4.4% share in gross domestic product) in the I. Quarter (January-February-March), II. 185,205,029-TL in the quarter (April-May-June) (5.4% share in gross domestic product), III. 194,643,378-TL (4.6% share in gross domestic product) in the quarter (July-August-September) and IV. In the quarter (October-November-December) it appears to be 240,985,652-TL (5.0% share in gross domestic product) [35]. Finally, it would be useful to evaluate the issue in terms of housing loans with banks. According to the 2022 million-TL basis data of the Banks Association of Türkiye; housing loan 285,614-TL (Million TL) in the I. Quarter (January-February-March) of 2022 (Share in total loan: 38%), II. 318,815-TL (Million TL) in the Quarter (April-May-June) (Share in Total Credit: 38%), III. 325,840-TL (Million TL) in the Quarter (July-August-September) (Share in Total Credit: 37%), IV. In the quarter (October-November-December) 330,708-TL (Million TL) (Share in Total Credit: 34%) is seen [36]. As can be seen in the examples given; Real estate and its income in terms of its trademark are extremely important issues within the market mechanism. In this context, it can be said that the valuation of real estate has an equally important position.

When the issue is evaluated both in the legal and economic context, real estate valuation; It is seen that it has become one of the dominant factors that must be considered in the purchase and sale transactions to be carried out by activating the market mechanism in clearly revealing the values of both state-owned immovable properties and privately owned immovable properties. At this point, it is essential to provide a more solid legal basis for real estate valuation, which concerns many individuals and legal entities in legal and economic terms, and to establish uniformity and a certain standard in the legislation.

DISCUSSION AND CONCLUSIONS

In this study, real estate valuation methods encountered in the literature and practice are given and a general evaluation of these methods in legal and economic terms is made. Real estate valuation has an important place in human life in legal and economic fields. Public institutions and organizations, companies and people have legal and economic connections with each other through real estate. With the increase in the share of tax revenues from real estate sales in the treasury in Türkiye, real estate valuation has started to gain great importance. However, its institutional scientific infrastructure has not yet been established. For this reason,

encountering different valuation results for the same real estate in applications such as purchase-sale, expropriation, property tax, banking, etc. raises legal and economic problems. Valuation must be done accurately and reliably, taking into account all the features of a real estate.

It can be seen from the evaluations above that revenues related to real estate have a high rate in both treasury revenues and local administrations. For this purpose, it is understood that the implementation of real estate valuation in a way that reflects current market values and is based on scientific foundations is of extremely high importance for the country's economy.

At the same time, real estate valuation constitutes one of the most important subcomponents of land management. In real estate valuation processes, the land should be examined as a whole, considering all its qualities in terms of sustainable land management, and its social, legal and economic aspects should also be taken into account. It will be beneficial to establish real estate valuation standards through studies to be carried out within this framework and to ensure uniformity in the legislation by providing a more solid-based legal infrastructure.

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