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Real estate and its valuation methodology

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Abstract: The article defines the concept of real estate and determines its features and types, as well as the methodology for determining its value. In terms of valuation, the analysis in particular refers to the approaches, methods and techniques used in this process. Moreover, it contains rules that should be followed by property appraisers when carrying out an assessment. A summary of considerations and the resulting conclusions are included at the end of this article.

Keywords: real estate, real estate market, real estate value, real estate appraiser, real estate features, valuation approaches, methods and techniques.

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1. Introduction

Together with the political changes in our country that started in 1989, there was also a dynamic development of the real estate market involved in this process, as well as the formation of the prestige of the profession of a property appraiser. The issue of real estate has become the subject of interest for an increasing number of scientific disciplines. Its share in the national economy systematically increased, which was associated with the growing demand for real estate, in particular land and construction (single-family houses, apartment blocks, office buildings, production halls, warehouses, commercial and service facilities, recreational facilities, etc.). Servicing this dynamically developing market requires appropriate legal regulations and professional services of specialists, as well as the skillful use of appropriate methodology in determining the value of various types of real estate and their components. Analyzing these issues, in particular those relating to the presentation of definitions, types and features of real estate, as well as approaches and related methods and techniques, became the aim of this article and the basis for formulating the resulting conclusions.

2. Definition, types and features of real estate

In the light of the Civil Code [12], the basic category of regulations on property and assets is the *concept of things*, the essence of which is defined in its article. 45. From the content of this article it follows that *only material objects are things*. Generally, this concept of understanding things is accepted by all provisions of Polish law, as well as major European and non-European systems [1]. It should be added that an item understood in this way must be characterized by such features as: independent existence in trade, separation and material form of its object[2]. The concept of an item is also defined in encyclopedic publications, where it most often means a "material object", which in legal transactions can be treated as an intrinsic good and exists in the form of things: movable and immovable, divisible and indivisible, simple and complex, consumable and unnoticeable and marked as to identity or species. A slightly different definition is used by E. Gniewek, who believes that within the meaning of civil law, things are material parts of nature, existing in their original or processed state, which are isolated enough (artificially or naturally) that they can be treated in socio-economic relations as independent goods [3]. Taking into account the content of the above-mentioned definitions, it can be stated that things are only such material objects that are or can be independent objects of trade and property law relations, which can be classified as real estate and movable property. The definition of the concept of real estate dates back to Roman law, in which the ownership of a given property extended without any restrictions both into the ground and above its surface. This understanding of real estate was also recognized in the Napoleonic Code, which was the basis for the definition in the Second Polish Republic. It has also been adopted in American law, in which real estate includes land and objects permanently attached to the land (i.e. natural objects connected by roots, i.e. trees and shrubs, as well as artificial objects made by people, e.g. buildings, structures). and minerals that were located under the earth's surface, as well as the space above the earth [4]. However, the definition of real estate that is currently in force in our country results from the Act of April 23, 1964 - Civil Code [12] and from many other legal acts, in particular such as: the Act on land and mortgage registers and mortgage of July 6, 1982; Act on Real Estate Management of August 21, 1997 [16]; the Act of July 20, 2017 - Water Law [17], as well as the Act of June 9, 2017 - Geological and Mining Law [13] and the Act of July 3, 2002 - Aviation Law. In Poland, the analyzed concept is defined in Article 46 §1 of the Civil Code, which recognizes as real estate parts of the earth's surface constituting a separate subject of ownership (land), as well as buildings that are permanently attached to this land and parts of these buildings, if under specific regulations they constitute an object of ownership separate from the land.

From the code definition, the following types of real estate can be distinguished: undeveloped or built-up land real estate; building real estate and residential real estate. Land is usually considered the basic form of real estate. This is justified in the first part of the content of Art. 46§1 of the Civil Code, which states that "real estate is parts of the earth's surface constituting a separate subject of ownership." Based on the analysis of this disposition, J. Dydenko indicates two conditions that the land property must meet. Firstly, as "part of the Earth's surface" it must have clearly defined boundaries. Secondly, as an object of specific property, it must have its owner [5]. In the light of Art. 48 CC the components of land are buildings and other devices permanently attached to them, as well as trees and other plants from the moment of planting or sowing, and rights related to ownership (as provided for in Article 50 of the Civil Code). From the principle of unity of real estate and objects erected on it (the Roman principle of superficies solo cedit - everything that has been permanently connected to the land shares the legal fate of this land, and its owner is at the same time the owner of everything that is located on this land and is permanently bound to it). Another exception results from Art. 49 CC and applies to devices for supplying and discharging fluids, steam, gas, electricity, and other similar devices. They are not included in the components of real estate if they constitute a component of an enterprise (e.g. electrical, water supply and sewage installations which, depending on the meter or water meter, are the property of an energy or water supply and sewage company). Yet another exception results from Art. 3 points 5 of the Act of July 7, 1994, Construction Law [14], a building intended for temporary use for a period shorter than its technical durability, which is intended for demolition or relocation, as well as a building not permanently connected to the land, is not part of the land, as: street sales and exhibition pavilions, street kiosks and tent covers, pneumatic coatings, entertainment devices, container facilities and barracks. It follows from the above that real estate includes such elements as: land (area) separated by boundaries; creations of nature connected with the ground, e.g. trees and other plants from the moment of planting. engineering works related to the ground (e.g. structures, buildings, small architectural objects); rights related to the ownership of real estate. Taking into account the subject of these conside rations, it should be added that in terms of Art. 143 CC ownership of the land extends above and below its surface to the depth (height) determined by its socio-economic purpose, which results from the provisions of the Spatial Planning and Development Act, and in relation to the ownership of minerals and water from the geological and mining law [13] and water law [17]. The Polish legislature with the second part of the provision of Art. 46§1 CC introduced another type of real estate, which are buildings permanently attached to the land (e.g. buildings erected on state or municipal land put into perpetual usufruct, which, when constructed or purchased by a perpetual usufructuary, become his property (Article 235 of the Civil Code) [1].In the opinion of the vast majority of authors, real estate is considered a legal fiction, because in fact the land and the building are inseparable (they constitute an inseparable part) [1]. In terms of art. 46§1 CC an object of ownership separate from the land may constitute an object of ownership under special provisions (e.g. Article 2(1) and (3) of the Act of 24 June 1994 on the ownership of premises [13]), in addition to buildings, also their parts. These are residential premises and independent premises that are used for purposes other than residential purposes, but such premises must constitute separate property. The real estate property includes: a separate premises, a share in a common part, and adjacent rooms, the inclusion or exclusion of which depends on the owner's decision. Separate ownership of the premises is created by signing a notarial deed and making an entry in the land and mortgage register of the premises.

By the amendment to the Civil Code of July 28, 1990, the legislator introduced Art. 41, in which he defined agricultural property. According to this article, agricultural real estate (agricultural land) is real estate that is or may be used to conduct agricultural activities in the field of plant and animal production, including horticultural, fruit-growing and fish farming. However, within the meaning of the Act of April 11, 2000 on shaping the agricultural system, agricultural property is agricultural property within the meaning of the Civil Code, Art. 461, excluding properties located in areas designated in spatial development plans for purposes other than agricultural. Agricultural real estate is distinguished from forest real estate (forests), which have their own legal regulations (Act of September 28, 1991 on forests, Journal of Laws of 2020, item 1463, as amended). Forest land, recorded in the land and building register, in light of § 68 section 2 and Annex No. 6 to EwGrBudR are: forests, i.e. land marked with the symbol "Ls" in the above Act and land covered with trees and bushes, marked with the symbol "Lz" and defined as covered with forest vegetation, the surface area of which is less than 0.1 ha, as well as areas of peat bogs, partially covered with clumps of shrubs and dwarf trees, lands covered with natural wicker and shrubby forms of willows in river valleys and land depressions, lands adjacent to surface waters covered with trees or shrubs, constituting a biological protection zone for shade. meadows and water reservoirs, ravines and ravines covered with trees and shrubs naturally and artificially to protect against erosion, not classified as forests; stone dumps and rubble areas covered with trees and shrubs; clusters of trees and shrubs having the character of a park, but not equipped with devices and buildings for recreation and relaxation; wooded and bushy areas of closed cemeteries[11].

A graphical interpretation of these definitions is presented in Figure 1.

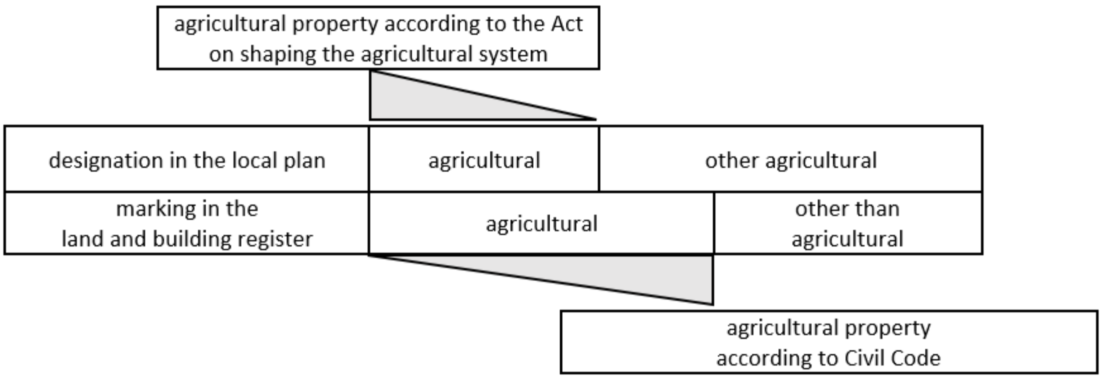

Fig. 1. Understanding the concept of agricultural real estate according to the Civil Code and the Act on shaping the agricultural system [10].

The particular specificity of real estate, compared to other goods, is determined by its features, which are classified in the following three groups: physical, economic and institutional.

The **physical features** of real estate include: *physical complexity*, because the real estate involves many elements - land, buildings, structures, perennial plants; permanence in place (real estate), which is expressed in the generation of legal and economic effects; *durability over time* - indestructibility of the ground, long service life of buildings and structures; *diversity*, which is expressed by the fact that in practice there are no two identical properties; *indivisibility*, which refers to the building's volume and the lack of separation of the land from the building. The second group consists of **economic features** of real estate, in particular such as: *scarcity* - limited supply of developed areas; *location* - sunlight, wind direction, availability of services and local transport, and location of shopping and production centers; *interdependence* - mutual interaction of methods of use and changes made, which affects the value of the property; *capital intensity* - the need to use external capital, which is associated with a long repayment period of the loan; *low liquidity* - lack of ease and certainty of converting real estate into cash at its market price or a price close to it. The specificity of real estate is also evidenced by its **institutional features** - the legal solutions related to issues of the real estate world, as well as the influence of institutions, administration and the way they operate.

All the above-mentioned particular features of real estate determine its specificity and difference from other economic goods, as well as its attractiveness and value. The value of real estate is most significantly influenced by physical factors (i.e. material features of the natural environment and those artificially created by humans), economic factors (in particular those affecting the volume of demand and supply), legal factors (mainly - business law and tax law, spatial policy, environmental protection requirements as well as form of property management) and environmental (demographic situation, lifestyle, family size, habits and surroundings of the real estate, including broadly understood infrastructure and negative and positive factors in this environment).

The degree of impact of the features and factors mentioned in this article is determined in the valuation process and market assessments using methods such as statistical analysis, interview or comparison, which will take into account buyers' preferences and the situation on the real estate market, as well as the existing trends in this industry.

3. Real estate valuation methodology

The valuation of real estate in our country, in accordance with the applicable law, can be carried out using the approaches indicated in Table 1.

Table. 1. Types of real estate value determined using particular approaches [5].

	TYPE OF APPROACH		
COMPARATIVE	PROFITABLE	MIXED	COSTLY
Types of immovable value			
Market value			**Replacement value**

The analysis of Table 1 shows that the market value of real estate can be determined using three approaches, namely comparative, income and mixed. However, the cost approach should be used to determine the reconstruction value of a given property [5]. From September 8, 2023 regarding the valuation of real estate, the Regulation of the Minister of Development and Technology [21] drawn up pursuant to Art. 159 of the Act of 21 August 1997. on real estate management[16].

Market value as defined by the International Valuation Standards Committee (IVSC) is expressed as the estimated amount that can be obtained from an asset on the valuation date, assuming that the parties to the transaction express a firm intention to enter into the contract, are independent of each other, and they act with discernment and prudence, and at the same time they are not in a forced situation, and the appropriate period of displaying the property on the market has expired [18]. Adopted by IVSC/TEGOVA is in line with the definition adopted by the EU in Art. 49 (2) of the European Directive, in which the market value expresses the price at which land, structures and buildings can be sold on the date of preparation of the valuation in a private transaction between the parties, assuming that the seller actually intends to conclude the transaction and the buyer is independent of him. It is also necessary that the property is exposed to the market in a timely manner and that market conditions enable a correct transaction to be carried out, as the time allocated for negotiations is sufficient [1]. Another type of value important for market participants is the replacement value, the essence of which is determining the expenditure necessary to purchase land and construct buildings and structures [18].

In the comparative approach, the value of real estate is determined by analyzing the prices of comparable real estate that were traded on the market. This type of approach is used when the prices and characteristics of properties similar to the one being valued are known. The methods of real estate valuation under the comparative approach are specified in § 4 of the Regulation of the Minister of Development and Technology of September 5, 2023, which concerns the valuation of real estate and the preparation of an appraisal report, which is graphically presented in Fig. 2.

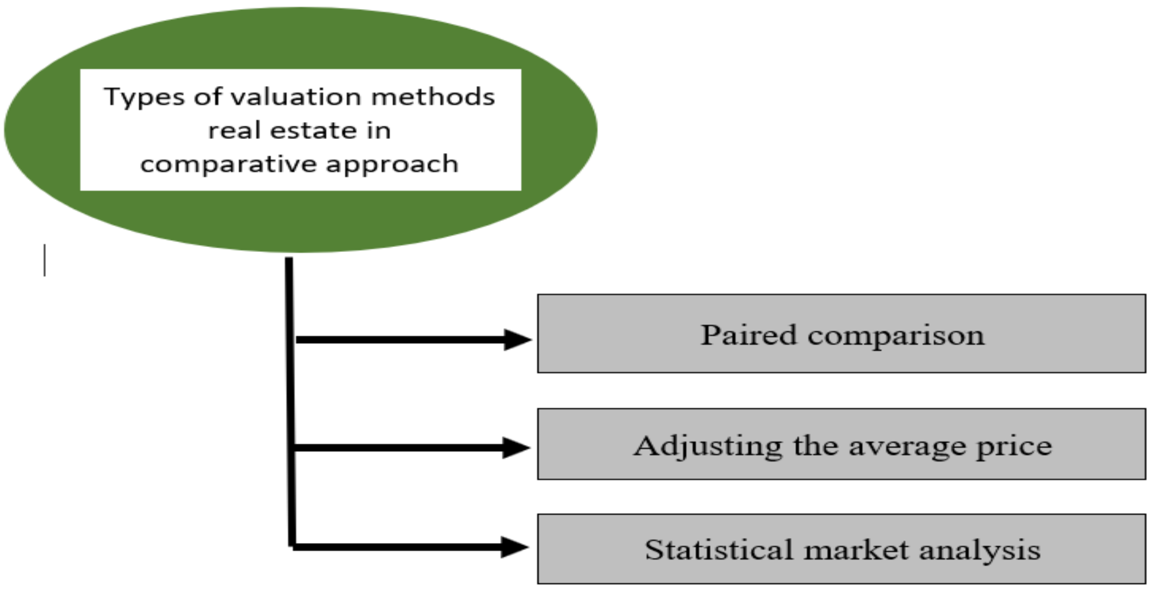

Fig. 2. Real estate valuation methods used in the comparative approach. Source: Own study based on the content of chapter 2 Regulation of the Minister of Development and Technology of 5 September 2023r., Dz.U. z 8 September 2023r. poz. 1832

The essence of the *pairwise comparison method* within the meaning of § 8 section 1. of the discussed regulation involves subsequent comparison of the valued property with known characteristics with similar properties that were traded on the market and for which transaction prices, terms of concluding the transaction, as well as the features that characterize these properties are known. However, the essence of *adjusting the average price* specified in § 48 section 2 of this regulation consists in comparing the property being the subject of the valuation with a group of at least eleven similar properties that were the subject of market trading and for which the prices and conditions of the transaction, as well as their characteristics, are known. In turn, specified in § 4 section 5 of the regulation in question, *the statistical market analysis method* is an integral part of the valuation process, the aim of which is to identify factors shaping the value of the appraised property. This method is intended to be used only to determine the value of representative properties, which constitute the basis for determining the cadastral value. The other two methods (i.e. pairwise comparison and average price correction) are used to determine the market value of real estate. Moreover, the above-mentioned provision stipulates that in the process of general real estate valuation the method of statistical market analysis should be used.

When valuing real estate, the *income approach* is also used (§ 9 of the Regulation of 2023), the essence of which is to determine the value of the real estate assuming that its buyer will pay a price for it, the amount of which depends on the expected income he will receive from this real estate. The use of the income approach is fully justified when it comes to determining the value of real estate that generates income or can provide income. Therefore, the basic condition for using this approach is knowledge of the income obtained or possible to obtain from rents and other income that is derived from similar properties and is also possible to obtain in the case of the property being valued [5].

Determining the value of real estate using the income approach can be carried out using the methods and techniques indicated in rigure 3.

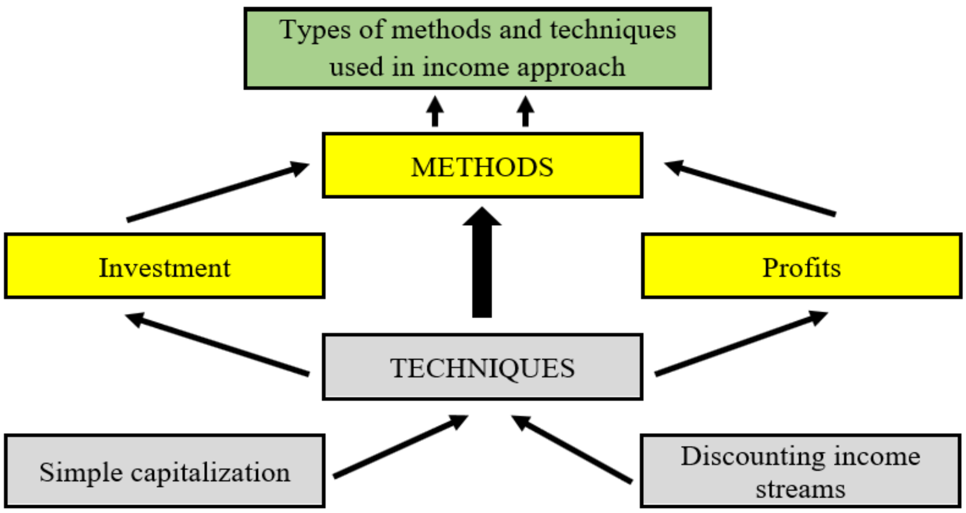

Fig. 3. Methods and techniques used in real estate valuation using the income approach [7, 21].

Both when using the investment method and the profit method, it is possible to support them with the simple capitalization technique and the technique of discounting income streams [7].

The *investment method* used in the income approach involves determining the value of the property based on the income obtained from rental or lease rents, which should be determined in accordance with the applicable rules in this area. However, the *profits method*, which is also used in the income approach, essentially involves determining the value of the property based on the income from the business conducted on the property. The amount of this income is adequate to the share of the property owner in the income generated from the activities conducted on the property being valued and similar properties. The profits method is used only when it is not possible to determine the potential rent or lease for the valued property (this usually applies to properties such as sports and event halls, hotels, restaurants, gas stations and cinemas, which are rarely subject to trade and are not the subject of rent or lease). The investment method and the profit method are usually used together with the simple capitalization technique or the technique of discounting income streams [8].

Real estate valuation can also be performed using the cost approach, which is used to determine a special type of value called replacement value. This value is in accordance with Art. 150 section 3 of the Act of August 20, 1997 on real estate management, defined for real estate which, due to its type, current use or purpose, is not or cannot be the subject of market trading and when specific regulations require it. The market value consists of: the market value of the land and the cost of replacing the components of the property, less the value of their wear and tear. The market value of the land is the cost of purchasing the land, while the cost of replacing the component parts is an amount equal to the costs of their replacement or taking into account the costs of documentation and supervision and the reduced value of consumption of these component parts. The cost approach uses methods such as replacement costs. Each of these methods can be supported by the following techniques: detailed, integrated elements and indicator [5]. The essence of the *recreatem cost method* is to determine the costs of making a replica of an actually existing object, using the same technology and materials that were used to build a given object or create its components. In turn, the *replacement cost method* involves determining the cost of producing an object with the same function as the valued object, but by using currently used technologies and materials. Pursuant to Art. 154 of the Real Estate Management Act of August 21, 1997[16] the selection of the appropriate approach as well as the method and technique of property valuation is made by a property appraiser, taking into account in particular the purpose of the valuation, the type and location of the property, as well as its intended use in the local plan, the condition of the property and available data on prices, income and characteristics of similar properties. In the case described above, this choice is made after analyzing the technology and characteristics of the materials used to value the facility, as well as its functions and characteristics. However, to determine the direct costs of building a facility, the appraiser may use one of three valuation techniques: detailed, integrated elements and indicative [9].

To evaluate tools using techniques, specialized catalogs are used, which for various types of applications provide prices for a reference unit (e.g. 1 m2 of excavation, plaster, or trapezoidal sheet roofing). In turn, manufacturing costs are the costs for removing integrated elements using tools, which are determined on the basis of the number of scaled structural elements and the integrated prices of these construction works. In this technique, specialized catalogs are made available, in which expenditure indicators are included, which fall on a reference unit, arbitrarily with good scaled elements. After starting the calculations, you should enter the so-called global price adjustment factor that includes services available on the market.

The description of the three approaches shows that the cost approach allows you to determine the replacement value of real estate, while the comparative and income approaches allow you to determine the market values of real estate in the most common typical cases. Sometimes, the existing conditions exclude the possibility of using a comparative or income approach to determine the market value of real estate. In such a case, Art. 152 section 3 of the Real Estate Management Act [16], the market value of real estate can be determined by using a mixed approach, which creates specific elements of the cost, income and comparative approaches. Its implementation is carried out using the methods highlighted in the figure below.

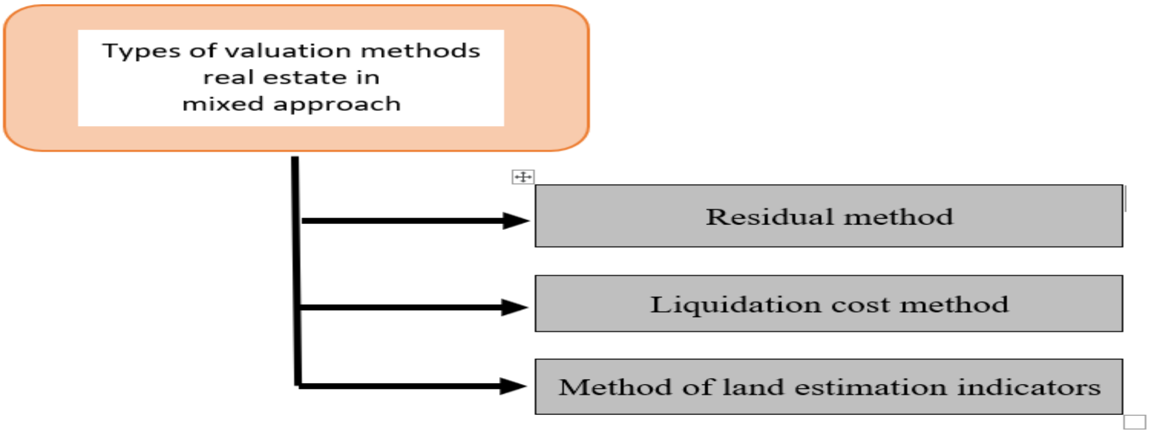

Fig. 4 Methods of determining the market value of real estate in a mixed approach [21].

In light of Chapter 2 of the Regulation of the Minister of Development and Technology of September 5, 2023, the *residual method* may be used to determine the market value when construction works are planned on the property, consisting of: construction, extension, superstructure, reconstruction or renovation of a given facility. Moreover, the residual method allows determining the real estate values for the land, together with its components or separately without its components. However, the use of this method to value real estate requires the following conditions: the existing conditions exclude the use of the comparative or income approach; the type and scope of work necessary to be performed on the property is known; the elements of the approaches used in this method include data reflecting the condition of the property [5]. However, *the liquidation cost method* is used to determine the value of immovable property whose components are intended for demolition. In such a case, the value of the property is equal to the cost of purchasing the land less the cost of liquidation of its components. If it is possible to recover materials after demolition, the value indicated above is increased by the value of these materials (§ 21 and § 22 of the Regulation of September 5, 2023). In turn, *the method of estimated indicators* is used to determine the value of real estate intended for agricultural and forestry purposes. However, it may be used when there is a lack of data on both transaction prices and market rental rates on the local market. Pursuant to § 18 and 19 of the 2004 Regulation. the value of land is the product of the estimated index of 1 ha of land and the price of 1 deciton of rye grain or 1 m3 of wood in relation to the valuation of forest properties (similarly, these issues are specified in (§ 21 and § 22 of the Regulation of 2023). Usually, the value of land determined by this method depends on its location in the tax district and on the estimated indicators of land assigned to agricultural land and their classes (§ 23 of the regulation of September 5, 2023).

Determining the value of real estate and equipment permanently associated with it, regardless of the approach, methods and techniques used, should be carried out in accordance with the principles arising from legal provisions and professional standards of the appraiser, as well as the principles of professional ethics and the principle of impartiality, with particular care in the implementation. ation of individual activities that make up the valuation process.

4. Conclusions

In this article, real estate is understood as land constituting a separate property, together with all its component parts permanently associated with it. In special cases, a building or a separate premises within it may also constitute a separate property. However, separation of land property. as part of the earth's surface requires defining its surface with external boundaries and indicating the legal entities that own this property. Pursuant to Art. 143 CC within the limits determined by the socio-economic purpose of the land, its ownership includes the space above and below its surface. The property includes the following elements: land separated by boundaries; creations of nature and technical infrastructure related to the land, as well as the rights that remain with the ownership of a given property.

The value of a property is influenced by its features as well as the characteristics of the market in which the property being valued is located. An appraiser performing a real estate valuation may use the following approaches in this process: comparative, income, cost, mixed. For the selected approaches, he or she usually selects appropriate methods and techniques (methods: pairwise comparison, average price correction, statistical market analysis, investment method, profit method, replacement cost method, residual method, liquidation costs and estimated indicators), which are supported by the following techniques: simple capitalization, discounting of income streams, detailed capitalization, integrated elements and indicators (expressed and described in the regulation of the Minister of Development and Technology of June 5, 2023).

Based on the analysis performed regarding the subject matter of the article, the following conclusions can be drawn:

1) Due to the specific nature of real estate valuation, the entity competent to carry out this process is a property appraiser, which results from legal provisions.
2) The property appraiser should be responsible for selecting the appropriate approach, method and technique for property valuation. This choice should be guided by: 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 information on prices and features of similar properties.
3) The real estate valuation process carried out by the appraiser must be carried out in accordance with the principles resulting from legal provisions and professional standards, as well as professional ethics and with impartiality and special care.
4) The issue of real estate valuation is regulated by many legal acts, often amended, which requires property appraisers to constantly monitor these changes and implement them into their professional activities.

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