ESTIMATING THE MARKET VALUE OF THE LAND AND SEPARATELY, THE BUILDING, OF A REAL ESTATE PROPERTY DESIGNATED FOR OFFICE SPACE

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Abstract: *The main purpose of this article is to estimate the market value of the entire property by applying various valuation methods, such as the direct comparison method, the income approach, and the cost approach. The primary objectives of the project are: providing general information about real estate properties and their classification, describing the methods for valuing land and buildings, and conducting a case study to estimate the market value of the land and building.*

To estimate the market value of the land, the direct comparison method was applied, which involved collecting and analyzing data on comparable sales and adjusting this data to reflect distinct characteristics between the comparable properties and the subject property. For estimating the value of the property, the income approach was used, through which data on its income, vacancy losses, and other expenses were collected. By applying the cost approach, the replacement cost of the building was estimated, and depreciation was subtracted to estimate the market value.

In the case study, I aimed to estimate the land and building separately, using appropriate valuation methods and techniques suitable for the type of property use. This type of property is based on the following legal aspect: the building and the land are owned by different owners. There is an agreement between the two owners that allows the building owner to use the land for free for the duration of the building's existence. The agreement also stipulates that, at any time, the building owner can decide to buy the land, and the landowner has the option to purchase the building.

In this context, I estimated the special value that the building owner should pay to acquire the land, and similarly, the estimated special value that the landowner should pay to purchase the building. The results highlight the importance of a precise and well-founded valuation, demonstrating the relevance of the methodologies used.

Keywords: *land; building; estimation; value; property*

1. Introduction

Real estate is represented by the land and all elements that are a natural part of it, elements that have been attached to the land, and all elements permanently attached to buildings located both below and above ground.

Purposes of Evaluation: guaranteeing loans, insurance evaluation, financial situation registration, evaluation in cases of insolvency, evaluation in case of expropriation or restitution of property, sale/purchase of a good, mergers and property exchanges.

Market value is the most probable price that a property should bring in a competitive and open market under all conditions requisite to a fair sale, between the buyer and seller,

each acting prudently, knowledgeably and assuming the price is not affected by undue impulse.

Office space can be described as an environment designed to meet the business needs of its occupiers, who offer management, administrative, financial, educational, medical or other professional services, according to NAIOP. Office properties can house multiple tenants or a single company. Depending on their location, they are typically designated as urban or suburban.

Office buildings in Romania are classified into A, B, and C categories according to the criteria established by BOMA International - the Building Owners and Managers Association International. Although not mandatory, BOMA standards for classifying and evaluating office spaces are widely used globally, including in Romania. [1]

Estimating the market value of a real estate property is a fundamental process, essential in the property valuation. This process involves the use of various methods and techniques, adapted to the specifics of each type of property. In this case, the valuation targets both the land and the building designated for office space, by applying the direct comparison method, the income approach, and the cost approach.

The direct comparison approach involves collecting and analyzing data on comparable sales, adjusting this data to reflect the distinct characteristics between the comparable properties and the subject property. The income approach is based on collecting data on income, vacancy losses, and other expenses associated with the property to estimate its value. The cost approach involves estimating the replacement cost of the building and subtracting depreciation to suit to the market value.

A particular aspect of this property is that the land and the building are owned by different owners. There is an agreement between them that allows the building owner to use the land for free during the existence of the building, also stipulating that at any time, the building owner can buy the land, and the landowner can purchase the building. In this context, the valuation aimed to determine the special value that each owner should pay to acquire the other part of the property.

2. 2.   Materials and Methods

The direct comparison approach is frequently used for the valuation of vacant land or land considered vacant for appraisal purposes, and it is preferred when data on comparable land sales is available. This method involves collecting, analyzing, and comparing data on recent sales and leases, as well as adjusting this data to reflect differences from the land being appraised. In the comparison analysis, the valuer considers similarities and differences, adjusting prices based on factors such as property rights, financing terms, location, physical characteristics, and market conditions. The purpose is to estimate the market value of the appraised land. [2]

The purpose of the income approach is to analyze the ability of real estate to generate future cash flows and to transform these flows into an indication of value. The income approach is applicable to any real estate that generates income as of the value date or has the potential to do so within the market context.

Steps in the application of the income approach

The value approach estimates the value of the property by estimating the costs of acquiring the land and constructing a new property with the same utility or adapting an older property for the same use, without accounting for costs related to the construction or adaptation time. The cost of the land is added to the total construction cost.
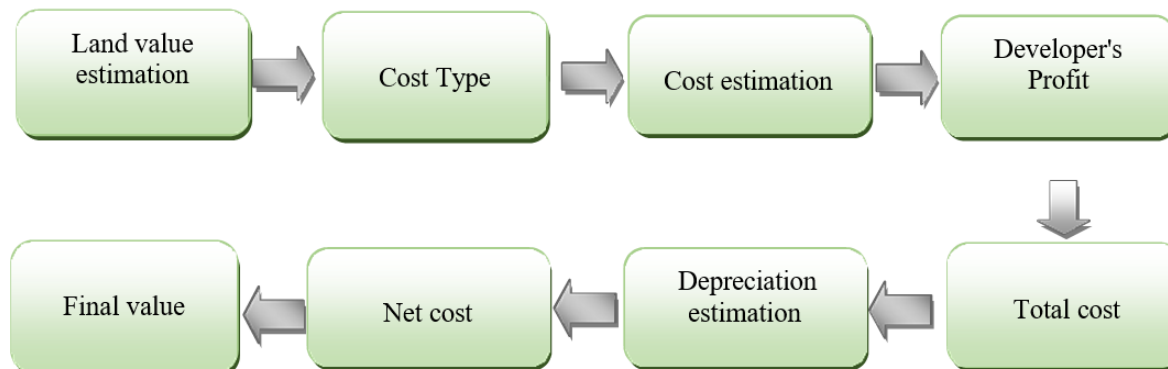
Steps in the application of the cost approach [3]

3. The case study

3.1. Data Collection and Processing

The property is affected not only by their own characteristics, such as location, height, but also by surrounding buildings.

This article selects the Târgoviște, Dâmbovița county, the property (according to figure no. 1, using the Eterra application), and the buildings in this area are mainly high-rise residential buidings. The terrain data uses (coordinates in the Stereographic 1970 projection system, represented at a 1:500 scale) and the building footprints data adopt Stereographic 1970 projection system. [4] [5]

The main characteristics of the real estate property subject to the case study:

Tab. 1 - Features of the appraised real estate property

Gross built area	1,680 sqm
Rentable area	900 sqm
Building age	20 years
Average lifespan for office buildings	60 years
Land area associated with the building	776 sqm

The drawing in the image below is the final product obtained from the measurements. It helped me identify the property.

Fig. 1 - Property and building visualization of the subject property. [6]
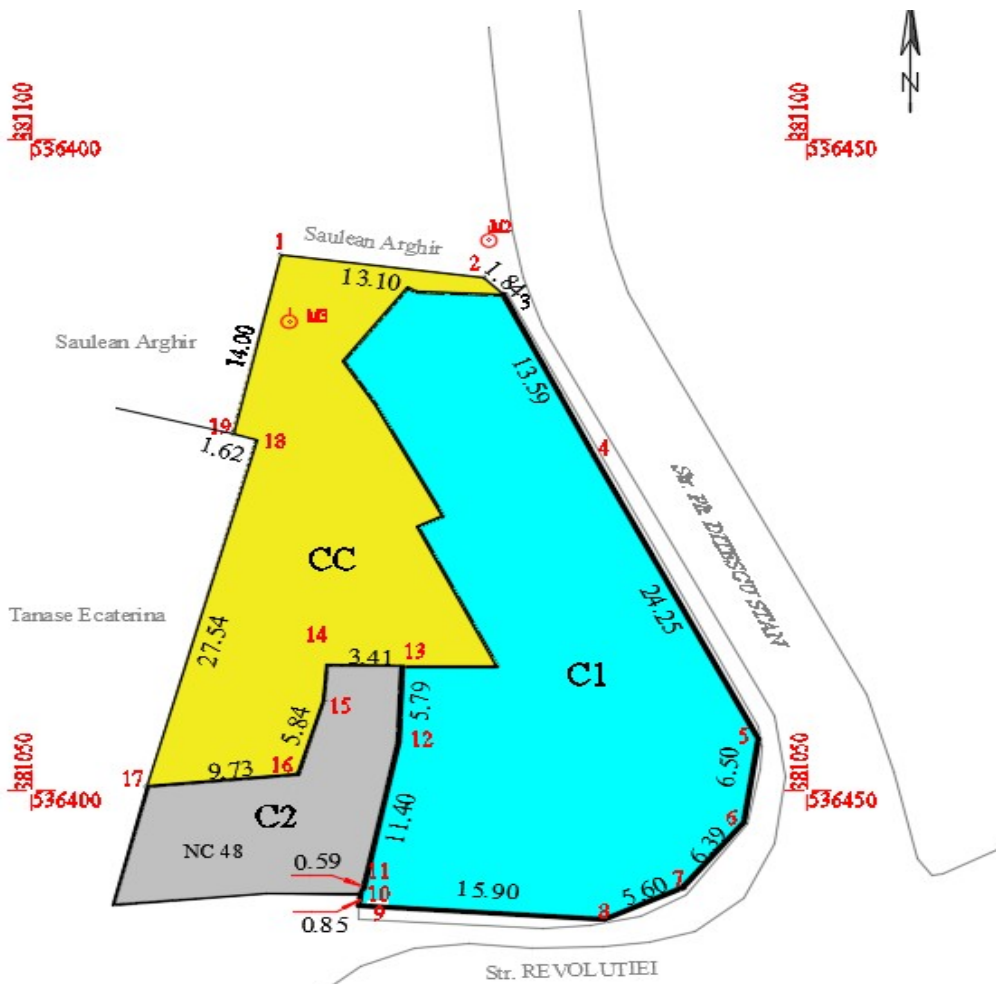

Fig. 2 - Site and boundary plan of the property

3.2. Market Analisys

Before applying the valuation methods, I conducted a real estate market analysis in Târgoviște for office buildings. Following the analysis, I found the following:

Tab. 2 - Real estate market analysis

Land Market Value	190 EUR/sqm
Market Rent for	4 EUR/sqm/month
Gross Replacement	600 EUR/sqm
Functional	The building does not exhibit functional
Average Office	7.5 EUR/sqm
Fixed Expenses	20,000 EUR
Variable Expenses	5% of the Effective Gross Income
Vacancy Rate	10%
Capitalization Rate	9.5%

3.3. Land and building valuation

For the land valuation, the initial data used included site characteristics, the valuation objective, the evaluation purpose, and the evaluation date.

Tab. 3 - Assumptions for the evaluated land

Evaluation Object	A vacant plot of land with a total area of 1,221 square meters
Purpose of the Evaluation	Estimating the market value
Evaluation Date	23.05.2024
Site Desciption	Plot area: 1,221 sqm Location: Plutonier Dițescu Stan Street no. 1-3 Geometric shape: Irregular Topography: Flat Utilities: water, gas, sewage, electricity

The method chosen for estimating the market value of the land is the sales comparison approach, as it is the most appropriate when there is information available regarding sales of similar lands.

For the application of this method, information from transactions involving land similar to the one being evaluated was collected and analyzed. The method involves creating a market grid with data gathered from comparable properties, applying adjustments where differences are identified, and finally verifying the obtained results and estimating the market value of the land. [7]

Tab. 4 - Land Market Grid

No. crt.	Comparison elements	Land to be Evaluated	Comparable Land A	Comparable Land B	Comparable Land C
0	**Price Type**		transaction	transaction	transaction
1	**Property Rights Transferred**	leased	unrestricted	unrestricted	unrestricted
2	**Restriction legal(approx.)**	POT 64% max CUT 1.3 max	similar	similar	similar

3	Financing Conditions	normal	normal	normal	normal
4	Sales conditions	normal	normal	normal	normal
5	Market conditions	May 2024	May 2024	May 2024	April 2024
6	Location	Târgoviște, St. Plt. Dițescu	Târgoviște, St. LT Stancu Ion	Târgoviște, St. Mihai Bravu	Târgoviște, St. Crăițelor
7	Area (sq. meters) Shape Street frontage(m) Topografy	1,221 irregular 42 flat	1,057 rectangle 45 flat	1,150 rectangle 24 flat	866 rectangle 54 flat
8	Utilities	water, gas, sewage, electricity nearby	water 100 m., gas 200 m., sewage 200 m., electricity 100 m.	water 200 m., gas 200 m., sewage 200 m., electricity 100 m.	water, gas, sewage, electricity, nearby
9	Zoning	small industry/services	similar	similar	similar
10	CMBU	small industry/services	housing	housing	housing
Price	(€)		180,000	155,000	216,000
	(€/mp)		170	135	249

Tab. 5 - Estimation of the Sales Price of Comparable Land

Characteristic	Comp. A	Comp. B	Comp. C
Area (mp)	1.057	1.150	866
Price (€)	180,000	155,000	216,000
Price (€/mp)	170	135	249
Information available at the time of evaluation	transaction	transaction	transaction
Estimated negotiation margin (€/ sqm)	0% 0.00	0% 0.00	0% 0.00
Unit sale price (€/ sqm)	170	135	249

[8] [9] [10]

Tab. 6 - Estimation of the land's market value

Area (mp)	1.221
Unit value (€/mp)	120
Estimated market value	147,440

Case I – Estimating the Amount the Building Owner Should Pay for the Purchase of the Land

The amount that the building owner should pay for the purchase of the land is considered a special value. If we refer to the landowner, this special value is at the level of the land's market value, minus the loss in value due to the agreement made for the remaining lifespan of the building.

The calculation of the loss in value is done by capitalizing the market rent over the determined period (the remaining lifespan of the building).

To estimate the land value, we followed these steps:

Estimation of the capitalization rate for the land: **25.3%** → Calculation of the capitalization period: **40 years** → Calculation of the capitalization factor: **3.96** → Calculation of capitalization over a specified period: **92.139 EUR**

Calculation of the special value of the land: **55,301 EUR** ← Calculation of the special value of the land: **55,301 EUR** ← Calculation of the market value of the land: **147,440 EUR**

Case II – Estimating the Amount the Landowner Should Pay for the Purchase of the Building

The second part of the case study involves estimating the value of the building in the event of its purchase by the landowner.

The amount the landowner should pay for the building is estimated at the level of the building's net replacement cost.

According to the information available, the building is unaffected by functional depreciation, but it will be necessary to verify if the building is affected by external depreciation factors.

To assess the value of the building, we conducted a detailed market analysis:
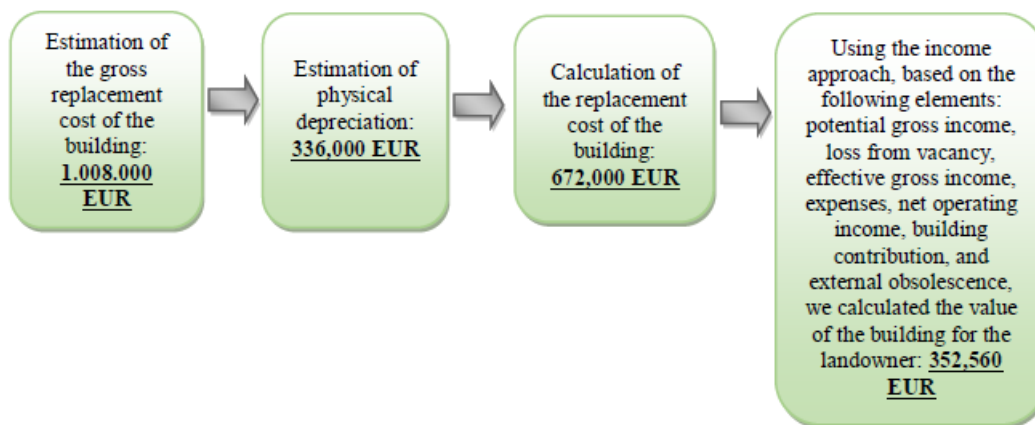
4. Conclusions

In conclusion, this article aimed to estimate the market value of both the land and the building separately for an office space property located in Târgoviște, Dâmbovița County. The land was evaluated through direct comparison with three similar plots in the same area. The market value estimation of such a property underscored the need for a detailed and well-founded approach that considers economic, legal, and technical factors. The project highlighted the importance of correctly applying theoretical real estate valuation concepts to ensure a fair and accurate assessment, thereby avoiding the risks of undervaluation or overvaluation of the property.

Firstly, this paper use traditional comparison analysis to estimate the special value of the buildings, and then of the land. For a large number of real estate data, it is important to extract the quantitative information which have a significant impact on the real estate price. As a conclusion it is more convenient for appraisers to make the right judgments and could greatly improves the efficiency and accuracy of the valuation.

5. References

1. *M., Stupu, Classification of Office Spaces: Class A, B, and C, Investments and Consultancy, Romania, 2017*
2. *ANEVAR, Real Estate Property Valuation, Second Edition, ANEVAR, Romania, 2018*
3. *D., Răboj, Valuation of Real Estate Properties, Romania, 2023*
4. *G., Badea, Cadastre, CONSPRESS, Romania, 2013*
5. *D., Caius, Lecture Notes, Cartographic Drawing and Infographics, Romania, 2021*
6. *ANCPI, Geoportal ANCPI, Romania, 2024*
7. *S.V., Stan, Applications with Land Valuation, IROVAL, Romania, 2014*
8. *OLX, Land 1150 sqm - Parc Chindia Area, OLX.ro, Romania, 2024*
9. *OLX, Land in Târgoviște - Central Area 1057 sqm PUD 170 EUR/sqm, OLX.ro, Romania, 2024*
10. *Storia, Sale of Land 866 sqm in Targoviste Parc Chindia, Storia.ro, Romania, 2024*