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The Income Capitalization Approach for Property Valuation: A Critical Assessment of Opportunities and Limitations

Rocco Murro[1]

Abstract

The article provides a critical analysis of income-based methods used in real estate valuation (the Income Capitalization Approach – ICA) with the aim of highlighting their theoretical foundations, operational applications, strengths, and limitations within increasingly complex real estate markets. The study adopts a comparative approach based on an examination of the theoretical assumptions and operational procedures underpinning the methodologies included in the ICA. Critical variables are evaluated, such as the definition of cash flows, the determination of capitalization and discount rates, the estimation of terminal value, and the reliability of market inputs. The investigation integrates insights from international literature and reflections derived from professional practice. The critical assessment shows that Direct Capitalization (DC) remains effective in stable and transparent markets, but proves rigid in contexts characterized by irregular income patterns, cyclicality, or limited information availability. Discounted Cash Flow (DCF) analysis emerges as a more flexible and theoretically robust methodology capable of modeling complex scenarios; however, its effectiveness is strongly dependent on the quality of the assumptions adopted and on market predictability.The article offers an interpretative framework that can guide both academic research and professional practice toward a more informed, transparent, and critical use of income-based valuation tools.

Keywords: *Property Valuation Methods, Income Capitalization Approach, Direct Capitalization, Yield Capitalization, Discounted Cash Flow Analysis.*

Introduction

Real estate valuation represents a research domain in which economic–financial considerations intersect with structural, behavioral, and market-related factors, giving rise to a complex and multidisciplinary analytical process [1]. Within this framework, methods based on the income generated by a property constitute one of the most established conceptual pillars, particularly in contexts where the asset is interpreted as an investment capable of producing cash flows over time. The Income Capitalization Approach (ICA) is among the most widely used valuation methodologies—both in professional practice and scientific literature—as it enables the translation of a property's income-generating capacity into financial terms.

The increasing complexity of contemporary real estate markets—characterized by more pronounced economic cycles, interest-rate volatility, strong heterogeneity of assets, and growing macroeconomic uncertainty—has made it increasingly important to adopt valuation tools capable not only of representing current property value, but also of capturing its prospective evolution. In this sense, income-based methods offer a set of tools that directly link value, risk, and expected return within a theoretical framework rooted in corporate finance and investment economics [2].

Within the ICA, Direct Capitalization (DC) stands out for its relatively simple structure and its ability to summarize property value through a relationship between income and a capitalization rate. This approach is particularly suitable for mature markets and segments characterized by stable and predictable income streams, such as commercial or rental residential properties. However, its simplicity exposes the method to significant limitations, especially in contexts marked by income instability, limited availability of comparable data, or strong fluctuations in market rates. The determination of the capitalization rate—a central parameter of the method—often requires a complex synthesis based on

[1] Sapienza University of Rome, Email: rocco.murro@uniroma1.it

empirical observations, property-specific adjustments, and professional judgment. Unsurprisingly, the literature highlights how DC may prove overly rigid or inadequate in the presence of rapidly changing conditions, nonlinear cyclicality, or speculative behaviors [3].

Yield Capitalization (YC) and Discounted Cash Flow (DCF) Analysis, by contrast, offer a more articulated and flexible tool capable of representing in detail the income dynamics over time. These methods incorporate explicit assumptions regarding rent growth, operating costs, vacancy rates, capital expenditures, financing conditions, and exit value. Although this informational richness is often considered a strength, it also results in operational complexity, making the methods highly sensitive to the quality of inputs and to the robustness of the underlying assumptions. Moreover, several studies emphasize that DCF—although grounded in rigorous theoretical principles—may become fragile in inefficient markets characterized by limited transparency or non-rational investor behavior, conditions that affect large segments of global real estate markets [4].

A critical reflection on income-based valuation methods is particularly relevant today, as real estate markets face macroeconomic pressures, shifts in user preferences, regulatory transformations, and technological innovations. Understanding the strengths, limitations, and operational implications of these valuation techniques is essential not only for improving accuracy, but also for supporting more robust and informed investment strategies.

This article aims to provide an in-depth examination of the two main income approaches—DC and YC (primarily in the form of DCF Analysis)—highlighting their theoretical foundations, application opportunities, and methodological challenges. Through a structured comparison, the objective is to offer an interpretative framework that can guide both academic research and professional practice toward a more informed, transparent, and critical use of income-based valuation tools. Therefore, the article is structured as follows: first, the main theoretical premises and methodological aspects of the ICA are illustrated (Section 2); a critical analysis is then presented, and the main findings—both opportunities and limitations—are discussed (Section 3); finally, concluding remarks are provided (Section 4).

Materials and Methods

Alongside the Sales Comparison Approach and the Cost Approach, the ICA represents one of the three principal methodologies used to estimate the market value of a property. This approach is based on the principle that a rational buyer is not willing to pay a price higher than the present value of the economic benefits generated by the property over its economic life. The method therefore requires the identification of an economic benefit—defined as income or cash flow—and the specification of a discount factor, namely the discount rate (or capitalization rate), which incorporates the risk associated with the investment [5]. The primary economic benefit of a property consists of rental income net of operating expenses.

The ICA is the standard valuation method in contexts where income generation prevails over owner-occupation considerations and in markets characterized by an increasing separation between ownership (investors) and use. It is particularly employed in the valuation of:

- offices, retail units, shopping centers, and sports facilities, on the basis of current and expected rents, vacancy rates, and operating costs;
- residential income properties (multi-family);
- hotels and hospitality assets, characterized by highly variable income streams dependent on indicators such as the Average Daily Rate (ADR) and Revenue per Available Room (RevPAR);
- industrial and logistics assets, typically valued on the basis of long-term lease contracts.

Procedures

The ICA comprises two fundamental methodologies: Direct Capitalization-DC and Yield Capitalization-YC.

DC converts a single year's operating income (normalized Net Operating Income, NOI) into market value by: a) dividing the NOI by a capitalization rate (cap rate) derived from market evidence; or b) multiplying the NOI by a multiplier (gross rent multiplier) representing the ratio between value and income. This is the most widespread method for properties characterized by stable income streams (e.g., leased offices, established shopping centers) [6]. The procedure provides a "snapshot" of normalized annual income, assumed to be representative of future income performance.

YC considers a multi-year time horizon. It discounts all future cash flows (operating income and terminal value) at a discount rate consistent with the investment's risk profile. The procedure requires the valuer to:

- define the duration of the analysis period;
- forecast annual cash flows;
- select an appropriate required rate of return;
- convert future benefits into present value;
- estimate the net sale price at the end of the analysis period (reversion or terminal value), also discounted.

This methodology—more complex and articulated than DC—is applied when cash flows are not constant but are predictable and subject to temporal variations. It implies detailed estimation of annual cash flows for a finite projection period (typically between 5 and 15 years) and the determination of a terminal value [7]. DCF Analysis is a technique derived from YC and is applicable to any income configuration, whether regular or irregular. The valuation is typically carried out using a spreadsheet that documents rents, expenses, and annual cash flows in detail. DCF, widely used by accountants and corporate analysts, has been adapted for real estate valuation. Such adaptation has become necessary because real estate valuation often involves very long-time horizons, whereas in corporate finance DCF is normally applied over shorter "pay-back" periods (typically 5–10 years) with a relatively low or zero terminal value [8].

Although both methodologies are grounded in the same principle, significant differences arise in the following aspects:

- Time Horizon: DC employs a single-period model based on one year's income and a cap rate that presumes a perpetual annuity; YC (or DCF Analysis) uses a multi-period model with a projection period generally between 5 and 15 years. This duration reflects the limits of forecasting ability and often aligns with the length of lease contracts or with the time needed for the property to reach stabilized income.
- Definition of Economic Benefit: DC assumes constant perpetual income, disregarding potential future variations; YC requires explicit cash-flow projections and a final reversion; the valuer must define a model for the evolution of income over time (variable, constant, increasing, or decreasing).
- Rates Used: DC employs the overall capitalization rate (Ro), representing the ratio between a single year's NOI and market value; YC uses the yield rate (Y_0), defined as the rate of return required by the market for investments with comparable risk. This rate reflects the investor's opportunity cost and is derived through analysis of comparable investments and investor expectations.

Accordingly, DC values properties on the basis of current rents and values. Future rent increases are accounted for implicitly through the yield used to value the property (implicit all-risks yield). The all-risks yield may be defined as one that reflects implicitly all future benefits and disadvantages of the investment. Because the all-risks yield takes no explicit account of future rental growth, current rents and rental values are used in the valuations. It does not explicitly account for future rent growth; no rental projections are made: any growth is embedded in the lower yields adopted. Consequently, emphasis is placed on selecting reliable comparable properties and identifying a cap rate that truly represents the property's characteristics [9].

YC (and DCF Analysis), by contrast, requires detailed forecasts of income, expenses, occupancy variations, and the final sale price; it explicitly incorporates future growth and values the asset based on a market-derived yield. The estimate of the reversion or terminal value plays a crucial role, as it can account for 50% to 70% of the market value of the property. It can be determined by:

- capitalizing the NOI of the first year beyond the projection period using a going-out cap rate;
- discounting the current value assuming a (real or nominal) growth rate and possible adjustments for obsolescence.

The going-out cap rate (or terminal cap rate) incorporates the reduction in the property's remaining economic life and the higher risk associated with projecting future NOI. It differs from the going-in cap rate, calculated as the ratio between first-year NOI and initial property value. The going-out cap rate is generally estimated by subtracting the expected income growth rate (g) from the discount rate (k) and adding an additional risk component (risk-out), typically around 1%, to account for the uncertainty related to future market conditions [10].

Results and Discussion

Among the valuation methods, the ICA is most directly grounded in the financial principles of present value and the time value of money. Its operational logic attributes to the property a value proportional to its capacity to generate income over time, making it particularly consistent with the investor's perspective, which typically compares the property's price with the economic returns generated by its use. The possibility of deriving value from the discounting of future income flows also allows for more rational, financially grounded investment decisions based on measurable quantities.

This approach is particularly useful for valuing properties that exhibit predictable income streams—such as commercial properties, rental residential properties, or other cash-flow-stable assets—and in all cases where economic value is closely tied to medium- to long-term income generation. In such contexts, the method provides an analytical reference for determining market value as well as for negotiating and assessing expected returns. In summary, the ICA offers a coherent quantitative framework for estimating the value of an asset based on its income flows, thereby supporting more informed investment decisions.

However, the literature highlights several structural weaknesses of the method. First, ICA relies on assumptions that are often restrictive, including the premise that market participants attribute value to properties solely on the basis of expected income [11]. During periods of economic instability or in markets driven by speculative behaviors, this assumption tends to weaken, potentially leading to distortions in estimated values [12].

Moreover, the method is highly sensitive to the inputs used. Variables such as the discount rate, income growth rate, or estimated operating income have a substantial impact on the final result. In markets characterized by limited liquidity and scarce comparable data, the estimation of income-related variables may be imprecise, resulting in valuations that lack full reliability. The determination of the capitalization rate is itself not an objective operation: although it can be derived from comparable transactions, adapting it to the specific case involves a high degree of professional discretion. Even minimal variations in the cap rate estimation can produce amplified effects on the final value, since this parameter is derived from the relationship between operating income and the market prices of comparable assets [13].

Additionally, it is often difficult to obtain reliable information regarding income and operating expenses of comparable properties, as these data are not always publicly accessible. During periods of economic turbulence or in non-transparent markets, the scarcity of recent observations makes constructing reliable market-based cap rates challenging. In the absence of robust data, the valuation risks becoming overly dependent on subjective assumptions [14].

Another limitation concerns the method's ability to adequately represent economic cycles or speculative events. During real estate bubbles, for example, prices tend to be driven more by expectations of capital gains than by current income, which may lead to valuations misaligned with actual market prices. As noted by D'Amato et al. [15], ICA may exacerbate market pro-cyclicality: lower cap rates during expansionary phases lead to higher values, while the opposite occurs in recessions.

Opportunities and Limitations of Direct Capitalization

The DC is a widely applied form of the income approach. The method enables the rapid and relatively intuitive estimation of value, making it especially effective in real estate transactions and investment analyses that require timely decision-making. The use of actual income, combined with market-derived cap rates, allows the valuer to produce estimates aligned with current market conditions. It is particularly suitable for properties generating regular and predictable income flows, such as offices, retail units, or rental residential properties.

The simplicity of the formula and its limited data requirements make the method accessible even to practitioners without advanced valuation expertise. Moreover, its streamlined structure allows for easy updates when operating income or capitalization rates change.

Nevertheless, several limitations exist. DC is based on the assumption of a stable long-term relationship between income and value, thereby simplifying dynamics that are often more complex. The accuracy of the valuation critically depends on the choice of cap rate, which is strongly influenced by macroeconomic conditions, risk perceptions, and property-specific characteristics. An inaccurate estimation of the cap rate may lead to significantly distorted valuations. The method is also less suitable for properties with irregular income streams, properties undergoing transformation, or assets subject to significant future uncertainties [16].

In summary, although DC is an efficient and widely used tool, its application requires awareness of its limitations and careful assessment of data quality. Integrating DC with more articulated methods, such as YC, may help to obtain a more complete and robust representation of the property's economic value.

Opportunities and Limitations of Discounted Cash Flow Analysis

The DCF Analysis is one of the most articulated and flexible valuation methodologies used in real estate and financial analysis. Its main strength lies in its ability to explicitly model complex assumptions related to income evolution, vacancy patterns, operating and capital expenditures, refurbishment activities, the financial structure of the investment, and the final realization value. This level of detail enables the construction of a dynamic representation of the asset, offering a long-term perspective that surpasses the limitations of more static approaches such as DC.

Because the method is based on future cash flows, it allows the incorporation of differentiated risk assumptions through the discount rate, enabling valuation in contexts with variable returns, economic shifts, or differing risk profiles. The possibility of developing alternative scenarios—and analyzing the sensitivity of key variables—supports the identification of primary value drivers and enables early recognition of sources of uncertainty [17].

One of the major advantages of DCF is the discipline it introduces in quantifying rental growth assumptions, prompting the valuer to reflect more deeply on the investment's characteristics. The selection of an appropriate yield rate is also facilitated through comparison with other investment instruments. Another strength of DCF lies in its methodological transparency: the model requires valuers to explicitly articulate all assumptions related to key determinants of value—including rents, vacancy rates, operating expenses, tax variables, and financing conditions. This facilitates the comparison of alternative investment opportunities, as the assumptions underlying the projections are verifiable and comparable. Sensitivity analysis (frequently implemented through tools such as Tornado charts, Monte Carlo simulations, etc.) enables an immediate understanding of which variables exert the greatest impact on the final value, guiding investor attention toward critical risks and supporting more informed decision-making [18].

Nevertheless, the practical application of DCF in real estate introduces several critical issues. The method requires the estimation of a large number of parameters—annual cash flows, discount rates, long-term growth rates, terminal values—creating multiple sources of uncertainty. Long-term projections are inherently uncertain, especially in sectors characterized by volatility, innovation, or strong cyclicality. While DCF reflects current market conditions and available information, it cannot foresee unexpected events, sudden regulatory changes, or external shocks. In such circumstances, the model's predictive capacity may be significantly reduced [19].

A recurring observation concerns the quality of the inputs used. The discount rate, for example, is central and highly sensitive: small variations can generate substantial changes in valuation outcomes. The rate should reflect asset-specific risk, market conditions, and the economic cycle. Yet, its estimation inevitably involves subjectivity. Likewise, rental growth assumptions often rely on forecasts vulnerable to economic shocks, regulatory changes, or urban transformations [20, 21].

Another significant limitation is the disproportionate influence of the terminal value: in real estate DCF models, the terminal value may account for 60% to 80% of the total property value in 10-year analyses, making the model highly sensitive to assumptions regarding the going-out cap rate. Consequently, even detailed cash-flow analysis in the early years may have marginal influence compared with the weight of the terminal value. The going-out cap rate—on which the terminal value depends—is arguably the most influential input in the model, yet forecasting its level five to ten years ahead represents a complex and inherently speculative exercise. Ding and Gordon [22] emphasize that this exposes DCF to structural vulnerability: small changes in the terminal cap rate can significantly alter the entire valuation.

Specialist literature notes that DCF-based valuation often resembles an interpretative process rather than a strictly mechanical calculation. As Andrew Baum [23, 24] observes, two valuers may reach markedly different conclusions for the same property simply by adopting slightly different assumptions regarding rental growth or the terminal cap rate. In some cases, DCF may even be strategically used to support a predetermined value rather than derive an intrinsic one.

The methodology also rests on an assumption of informational efficiency that does not fully correspond to real estate markets, which are characterized by asset heterogeneity, limited data transparency, low liquidity, and investor behaviors that are not always rational. As David Geltner et al. [25] note, DCF models tend to presuppose a mechanistic view of market behavior, neglecting behavioral elements that may significantly influence prices.

DCF should therefore not be interpreted as a tool capable of automatically providing the "correct" value, but rather as an analytical laboratory that enables stress-testing the robustness of an investment under alternative scenarios. The added value of the method does not lie in the single output value produced, but in the analytical process it requires: transparent formulation of assumptions, identification of value drivers, understanding of risks, and exploration of variable interactions.

In the real estate context, DCF remains an extremely useful tool, provided that it is applied with methodological rigor and full awareness of its interpretative and predictive limitations. Consequently, the reliability of its results depends crucially on the valuer's professional expertise. The accuracy of the valuation is decisively influenced by data quality and by the plausibility of the adopted assumptions.

Conclusions

The analysis of income-based approaches to real estate valuation highlights how these methods constitute a fundamental reference framework for interpreting the value of property in contemporary markets. Their ability to anchor value estimation to current or expected income flows provides strong theoretical coherence and aligns closely with investor rationality. However, the analysis also reveals limitations and critical issues that become particularly evident in contexts characterized by volatility, informational uncertainty, and nonlinear market dynamics.

DC stands out for its operational simplicity, speed, and ease of application, making it particularly effective in the presence of stable income streams and mature markets. Nevertheless, the method exhibits strong dependence on the quality of the capitalization rate and the availability of reliable comparable data. In illiquid, opaque, or structurally evolving markets, the reliability of this parameter tends to diminish, amplifying the subjectivity of valuations. The cap rate inherently synthesizes returns, risks, and future expectations into a single figure, and its estimation therefore becomes vulnerable during periods of macroeconomic instability, speculative cycles, or limited transaction activity. Moreover, DC is not well suited to representing irregular income flows, asset transformations, or significant changes in market conditions.

YC and, more comprehensively, DCF Analysis address these limitations by offering a detailed representation of income dynamics and enabling the construction of alternative scenarios. However, DCF presents equally relevant challenges. The large number of required inputs increases methodological complexity and amplifies the potential for error, while the heavy weight of the terminal value makes the model particularly sensitive to assumptions regarding the terminal cap rate and long-term growth. The effectiveness of DCF therefore depends fundamentally on the quality of forecasts and on the valuer's ability to formulate realistic and market-consistent assumptions. Moreover, as noted in the literature, DCF may shift from being a valuation tool to an interpretative device: by adjusting key parameters, the model can be made to converge toward predetermined values, thereby diluting part of its theoretical rigor.

Within this framework, several directions for improvement emerge that could enhance the reliability and robustness of income-based methods. First, greater integration between static and dynamic approaches is needed: using DC and DCF in parallel, rather than as alternatives, can support triangulation of results and reveal potential inconsistencies in underlying assumptions. DC, in particular, may serve as an effective reasonableness check for DCF outputs, reducing the risk that valuations become excessively dependent on terminal value assumptions.

Second, sensitivity analysis and scenario planning should be adopted systematically as integral components of the valuation process. Tools such as tornado charts, Monte Carlo simulations, and

probabilistic interval models enable a more realistic representation of uncertainty in real estate markets and enhance transparency in the relationship between inputs and valuation outputs.

Third, reducing the informational opacity of real estate markets is essential. Investment in shared databases, market observatories, and updated territorial information systems would improve data quality and, consequently, model reliability. The increasing use of PropTech solutions, Artificial Intelligence, and big data can contribute to building stronger historical datasets, refining cap rate estimation, and improving rent-growth forecasts.

Finally, a valuation culture oriented toward methodological transparency and critical awareness should be promoted. DCF should not be viewed as a mere "value calculator" but rather as an analytical laboratory for understanding investment dynamics, identifying risk factors, and supporting scenario-based decision-making. Similarly, DC requires cautious and context-sensitive application, avoiding mechanical use in circumstances that fall outside its domain of validity.

In conclusion, DC and DCF Analysis remain indispensable tools in real estate valuation, but their effectiveness depends on the valuer's ability to integrate analytical outcomes with market knowledge, critical rigor, and responsible use of data. The evolving nature of real estate markets calls for a continuous refinement of valuation practices, moving toward more flexible, transparent methodologies grounded in increasingly reliable informational inputs.

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