Determinants of Rent II: Property Level

This chapter extends the monocentric city model by exploring dynamic, real-world factors influencing urban land values and property investments. It distinguishes land rent from land value and highlights how rent growth expectations and market uncertainty shape investment decisions.

Viewing land as a call option, we'll see how uncertainty can raise land values and delay development, resulting in denser cities. We'll explore polycentric city structures, varied land uses, and examine how neighborhood and property life cycles impact long-term property value.

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From Property Rent to Property Value

1 Property Value vs. Property Rent

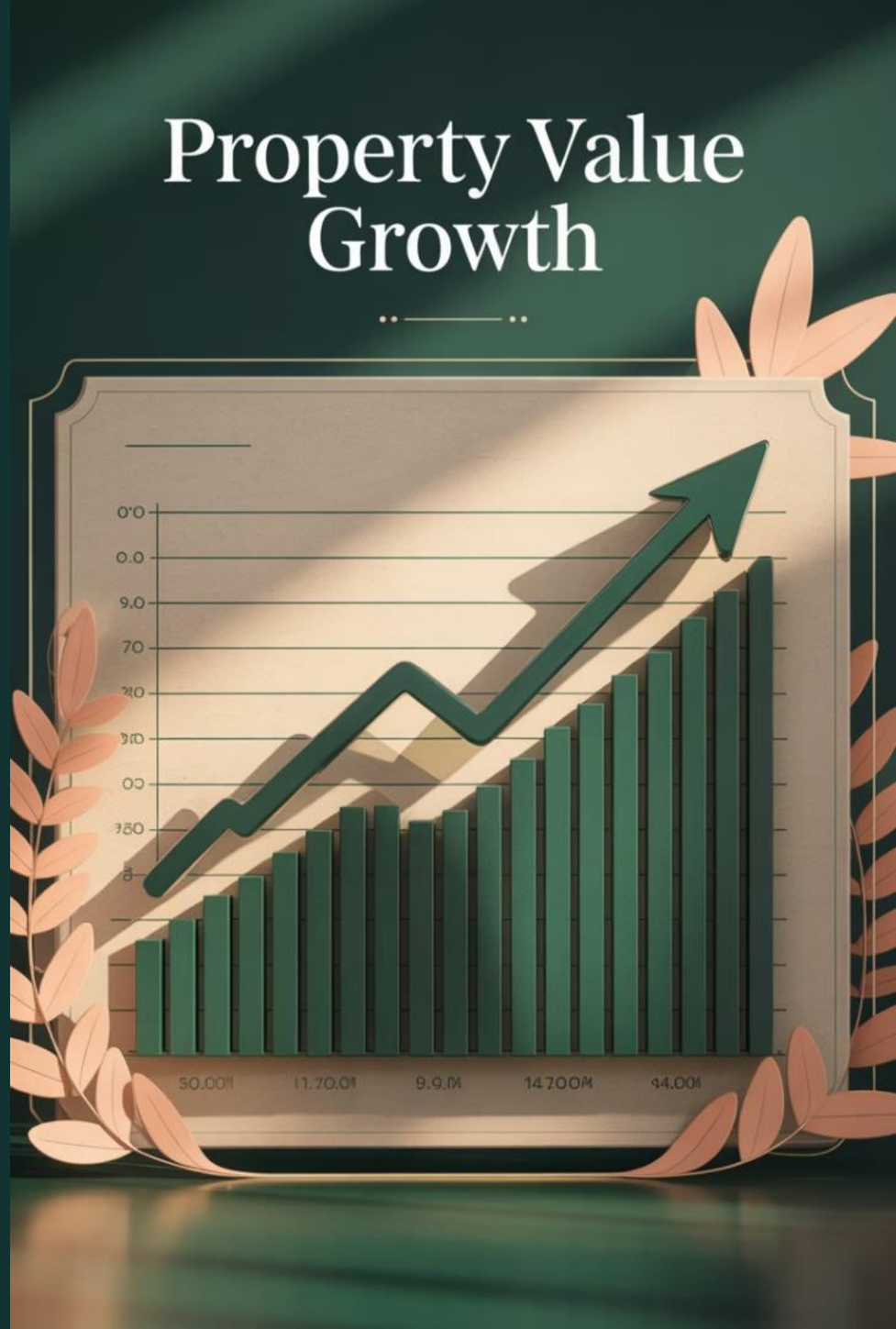
Property value is the present value of expected future rents. Higher growth rates in future rents increase present value.

2 Growth Premium

Properties sell at higher multiples of current rent in cities expecting greater future rent growth.

3 Highest and Best Use (HBU)

Optimal delay in development occurs when future HBU evolution is expected to yield higher returns.



Effect of Uncertainty on Land Value

Land as a Call Option

Landowners have the right but not obligation to develop at any time.

Profiting from Uncertainty

Owners can take advantage of market upswings while avoiding downside exposure.

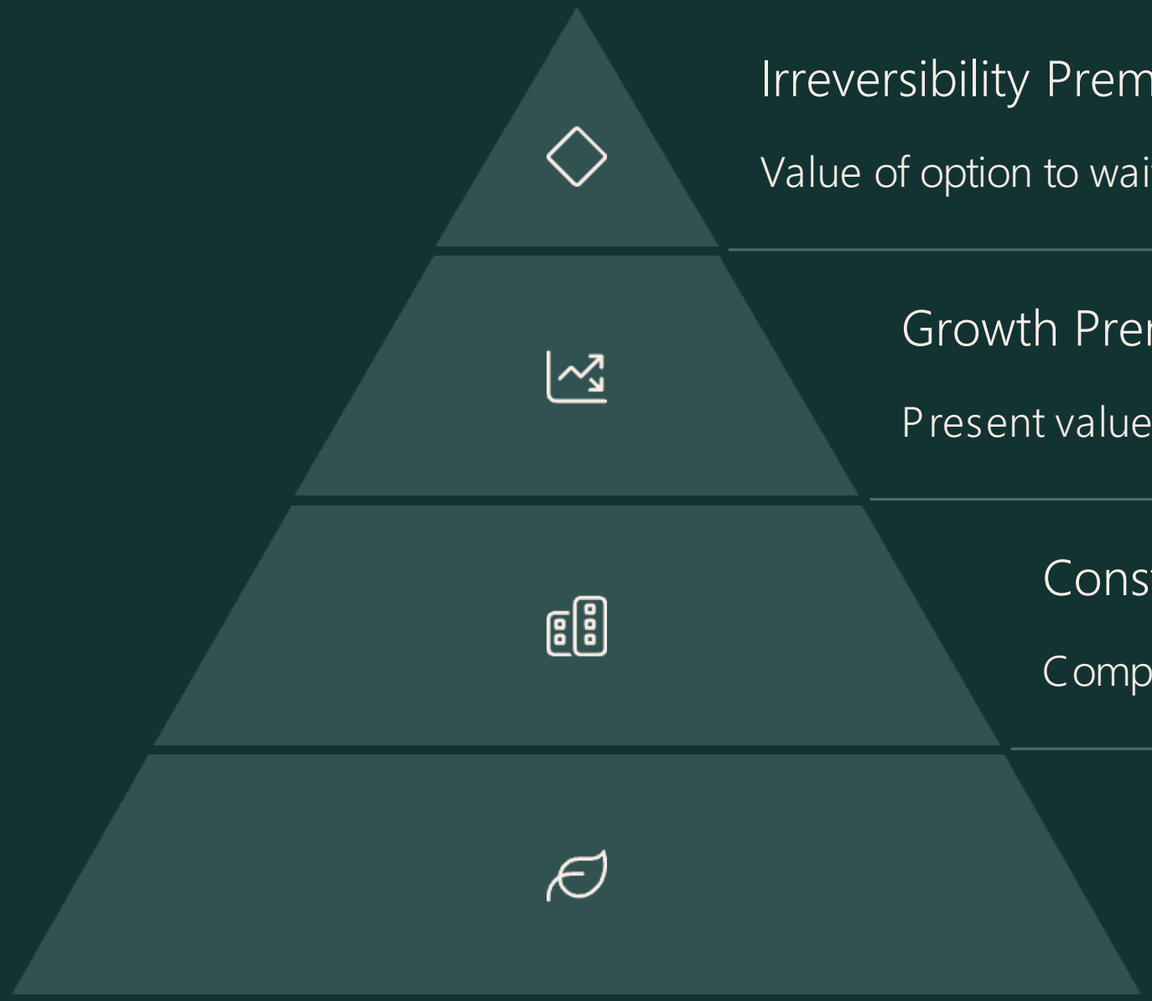
Irreversibility Premium

Uncertainty creates a premium in rent required before development occurs.

Urban Impact

Results in smaller, denser cities with higher rents than would exist without uncertainty.

Speculative Land Value Components



Irreversibility Premium

Value of option to wait for better development timing

Growth Premium

Present value of expected future rent increases

Construction Cost Rent

Compensation for building expenses

Agricultural Rent

Opportunity cost of undeveloped land

Historical Urban Rent Growth

0.4%

Annual Growth

Average real rent growth in European cities over 500 years

100%

Industrial Revolution

Real rents doubled between 1850-1900 during rapid urbanization

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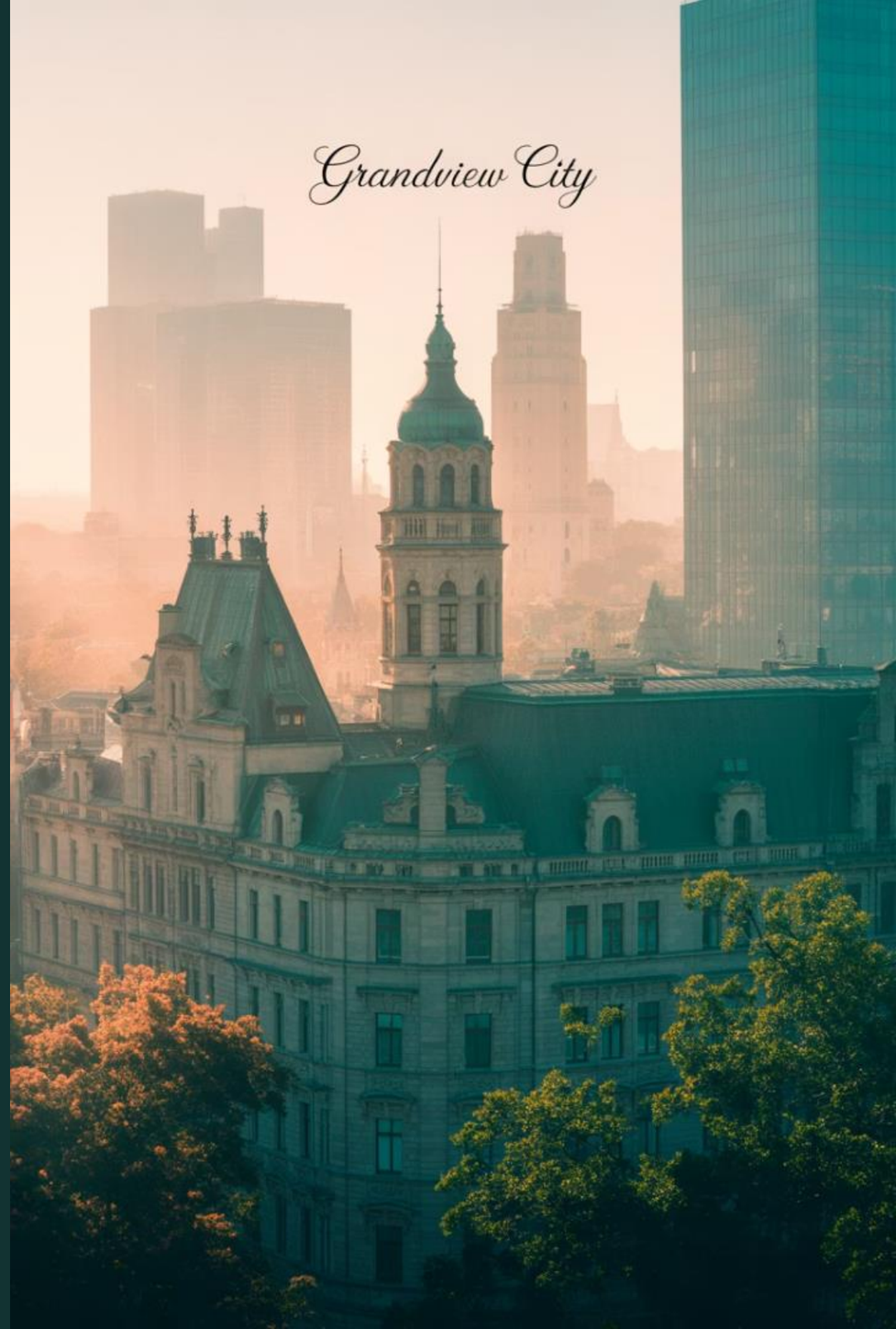
Cities Studied

Long-term data from major Western European urban centers



Density Variations in Real Cities

Central Density Logic

Denser, more intensive land uses locate closer to central points where transportation costs are minimized.

This maximizes profits by minimizing aggregate transportation costs for society.

Economic Principle

Scarce input factors (like central locations) should be used more sparingly and productively.

Higher-density land uses tend to be more productive per acre and have steeper rent gradients.

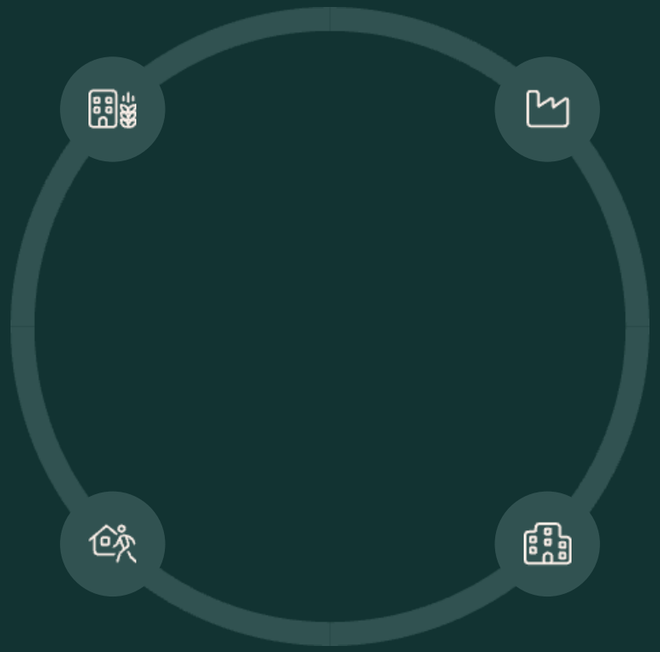
Concentric Ring Model

CBD

Central business district with highest density commercial uses

Middle/Upper Income

Lower-density, newer housing for higher-income residents



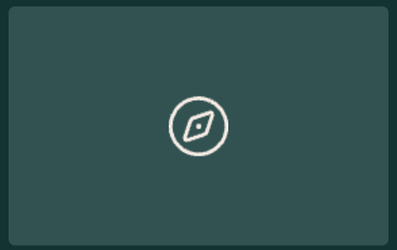
Transition Zone

Warehouses and industrial plants requiring good transportation access

Working Class Housing

Higher-density, older housing for factory workers

Sector Model of Urban Form



Directional Growth

Similar land uses cluster along rays or wedges from center

Outward Expansion

Established land uses continue in same direction as city grows

Environmental Factors

High-income areas often located upwind from industrial zones

Effect of Land Use Boundaries

Compatibility Effects

Similar land uses tend to "clump together" in cities, forming districts. Compatible uses bring synergy and increase value for each other.

Negative Externalities

Incompatible uses detract from each other's value. Location rents often depress near boundaries for unfavorably affected uses.

Zoning Impact

Both free markets and zoning regulations tend to separate incompatible uses and draw compatible uses together over the long run.

Polycentric Cities

1

Traditional CBD

Single dominant center known as downtown

2

Major Activity Centers

Airports, medical centers, sports complexes serving metropolitan needs

3

Neighborhood Centers

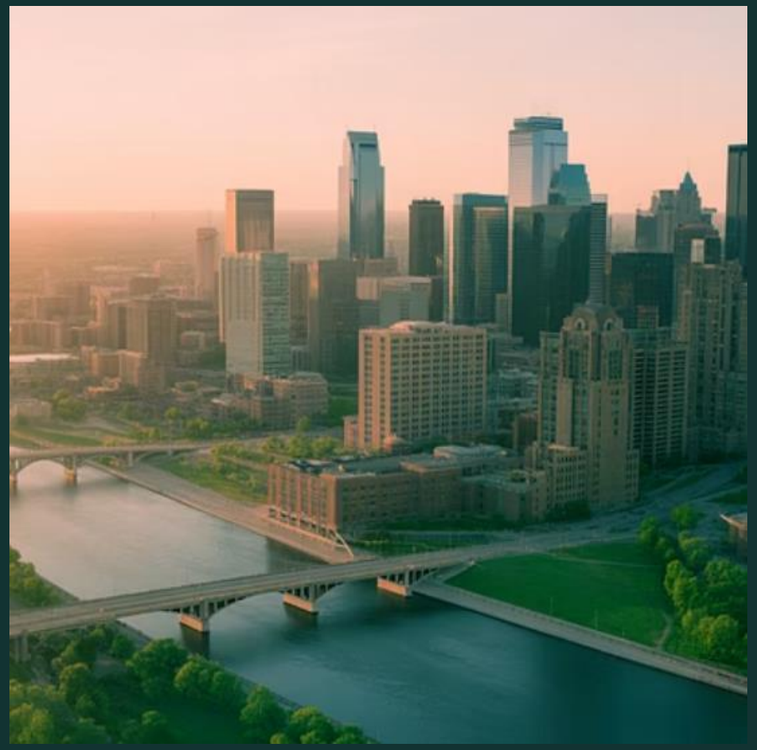
Business districts serving local community needs

4

Edge Cities

Large suburban centers at highway nodes, almost as large as traditional CBDs

Polynuclear Cities



Some metropolises have never had a single dominant CBD. These range from "twins" like Minneapolis-St. Paul to multicentered conglomerates like Los Angeles to urban clusters like China's Pearl River delta.

Neighborhood Life Cycle

Initial Growth

Rapid rise in usage and land values as area becomes ripe for urban development

Maturity

Fully built neighborhood with stable values and gradual structure replacement

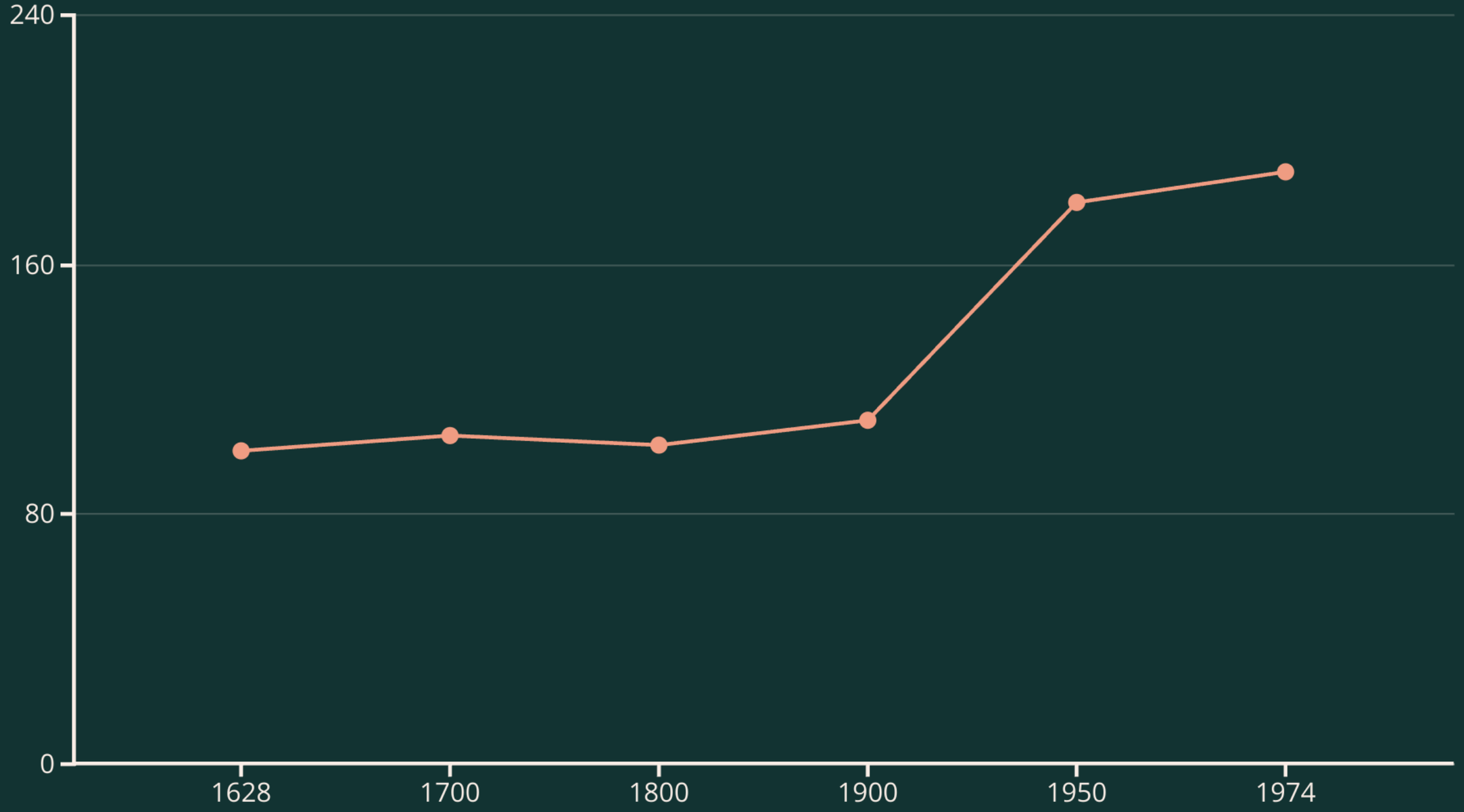
Renewal

Redevelopment becomes profitable as property values bottom out

Decline

Aging structures, lower-income residents, disinvestment and deterioration

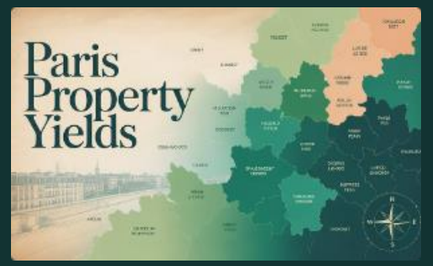
The Herengracht Case Study (Real price change over a long period of time)



Neighborhood Investment Returns

Amsterdam Yields

High variation within blocks. Canal belt shows lower yields while neighboring Jordaan offers higher yields due to lower property prices relative to rental income.



Paris Yields

More uniform distribution across the city, indicating a more homogeneous property investment landscape in space.

Property Life Cycle

Initial Development

Structure built to serve highest and best use, structure value dominates property value

Aging Structure

Building depreciates due to physical, functional, and economic obsolescence

Changing Land Value

Redevelopment option value grows as structure depreciates and HBU evolves

Redevelopment

Occurs when structure becomes worthless relative to redevelopment potential

Components of Property Value

Land Value Perspectives

Traditional appraisal view: value of vacant land similar to subject property

Economic view: value derives from development/redevelopment option

Structure Value

Difference between property value and land value

Declines over time due to various forms of obsolescence

Initially dominates property value after construction

Types of Obsolescence

Physical Obsolescence

Structure physically wearing out as components deteriorate over time

Functional Obsolescence

Changing technology and user requirements make design outdated

Economic Obsolescence

Structure becomes unsuited to evolving highest and best use of site

The Depreciation Principle

Key Insight

Over the long run, change in location value provides a theoretical ceiling to the investment capital gain of the unlevered investor in stabilized property.

Numerical Example

If redevelopment occurs every 50 years and land value is 20% of redeveloped property value, built property value grows 3.2% less annually than location value.

Rental Implications

Rents must also grow at a rate less than that of the location value as property competes with newer, less obsolete buildings.

Optimal Redevelopment Timing

Monitor Structure Value

Track depreciation of existing building relative to potential new development

Evaluate Redevelopment Option

Calculate value of potential new development minus demolition and construction costs

Identify Optimal Timing

Redevelop when existing structure becomes worthless relative to redevelopment potential

Key Takeaways

Land Value vs. Rent

Property value reflects present value of expected future rents, with growth expectations and uncertainty affecting current values.

Urban Form Models

Both concentric ring and sector models explain aspects of real cities, with polycentric structures increasingly common.

Life Cycles

Neighborhoods and properties follow predictable cycles of development, maturity, decline, and renewal.

Investment Implications

Structure depreciation means property value growth is capped by location value growth, a fundamental principle for investors.