Análisis y visualización de tendencias del mercado inmobiliario en Bogotá para mejorar la toma de decisiones

El análisis histórico del mercado inmobiliario de Bogotá (1970-2022) evidencia tendencias de precios, segmentación por zonas y efectos de ubicación que orientan decisiones de inversión.

Abstract

Esta síntesis recopila estudios empíricos que emplean series temporales, análisis comparativos y modelos econométricos para examinar el mercado inmobiliario de Bogotá entre 1970 y 2022. Los análisis se fundamentan en datos oficiales, listados periodísticos y bases de datos espaciales, y abarcan tanto la ciudad en su conjunto como áreas específicas definidas por estratos socioeconómicos y proximidad a infraestructuras.

1. En cuanto a tendencias a largo plazo, varios estudios señalan una marcada caída en los precios reales de la vivienda y, en contraste, un crecimiento sostenido en los valores de la tierra. Algunos trabajos recientes identifican un aumento de los precios reales al controlar por las características de la propiedad, pese a presiones macroeconómicas, y destacan una demanda decreciente de vivienda nueva.

2. La segmentación socioespacial se evidencia en estudios que analizan tres estratos de ingreso y zonas diferenciadas. La proximidad al sistema TransMilenio se asocia a un precio hasta 13% superior y a una depreciación de aproximadamente US\$47/m² por cada metro de alejamiento. Se detecta además divergencia entre Vivienda de Interés Social (VIS) y no VIS, y una estabilidad en las diferencias de precios entre zonas altas, medias y bajas a lo largo de décadas.

3. Algunos trabajos abordan el impacto especulativo en zonas de alto valor, evidenciado por explosiones en tendencias de crecimiento y por la tendencia de modelos econométricos a sobreestimar precios en contextos de fuerte especulación. Se registra además que los rendimientos de inversiones en alquiler y tierra suelen ser modestos en comparación con alternativas financieras.

Estos hallazgos ofrecen una visión detallada de los comportamientos históricos y segmentados en el mercado inmobiliario de Bogotá, proporcionando bases empíricas para la toma de decisiones en contextos urbanos complejos.

Paper search

Using your research question "Análisis y visualización de tendencias del mercado inmobiliario en Bogotá para mejorar la toma de decisiones", we searched across over 126 million academic papers from the Semantic Scholar corpus. We retrieved the 50 papers most relevant to the query.

Screening

We screened in papers that met these criteria:

- **Geographic Focus**: Does the study analyze real estate market data specifically from Bogotá or its metropolitan area?
- **Market Analysis Scope**: Does the study examine residential and/or commercial property trends AND include price analysis with market indicators?
- **Methodological Rigor**: Does the study employ quantitative methods with a clearly described methodology and statistical analysis?

- **Market Context**: Does the study incorporate both economic indicators and spatial analysis related to the real estate market?
- **Data Source Credibility**: Is the study either a market report from a recognized real estate organization OR academic research with empirical data?
- **Data Visualization**: Does the study include visual representations of market trends?
- **Evidence Base**: Is the study based on empirical data rather than solely opinion or theoretical discussion?

We considered all screening questions together and made a holistic judgement about whether to screen in each paper.

Data extraction

We asked a large language model to extract each data column below from each paper. We gave the model the extraction instructions shown below for each column.

- **Study Design**:

    Identify the specific type of research design used in the study. Look in the methods section for explicit description of the research approach. Possible types include:

- Quantitative market analysis
- Time series analysis
- Econometric study
- Comparative market segment study

If the design is not explicitly stated, carefully review the methodology section to determine the most appropriate classification. If uncertain, note "Design not clearly specified" and provide a brief explanation of the study's approach.

- **Geographic Scope and Data Sources**:

    Extract specific details about:

- Geographic area of study (specific zones/districts in Bogotá)
- Data sources used (e.g., DANE statistics, real estate registry, newspaper listings, property exchange records)
- Time period covered by the data

Capture exact details, including specific years, zones, and data collection methods. If multiple data sources are used, list all of them. If geographic boundaries are not precisely defined, note the level of geographic specificity used (city-wide, by income segment, by district).

- **Market Segments Analyzed**:

    Identify and list the specific market segments examined in the study:

- Income levels (low, medium, high)
- Property types (residential, commercial)
- Specific urban zones or districts

If the study uses a segmentation approach, capture the exact criteria used for segmentation. If segments are defined by income, note the specific income ranges or classifications used.

- **Key Market Indicators**:

  Extract the primary market indicators analyzed:

- Housing prices (per square meter)
- Rental rates
- Land value
- Price trends
- Speculation indicators

For each indicator, capture:

- Specific measurement method
- Units of measurement
- Time frame of analysis
- Key statistical techniques used to analyze the indicator

If multiple indicators are examined, list them in order of importance as presented in the study.

- **Primary Research Findings**:

  Summarize the main conclusions of the study, focusing on:

- Identified market trends
- Evidence of market speculation
- Price dynamics across different segments
- Factors influencing housing market changes

Capture the findings verbatim where possible, and ensure the summary reflects the study's key insights about Bogotá's real estate market. If the study presents quantitative findings, include specific numerical or statistical results.

Results

Characteristics of Included Studies

Study	Study Focus	Geographic Coverage	Time Period	Data Type	Full text retrieved
Jaramillo, 2004	Time series and comparative analysis of housing prices, rents, and land values	Bogotá (city-wide, 3 income strata)	1970–2004	Departamento Administrativo Nacional de Estadística (DANE) statistics, newspaper listings, Lonja de Propiedad Raiz	No

Study	Study Focus	Geographic Coverage	Time Period	Data Type	Full text retrieved
Sanchez and Vega, 2015	Comparative market segment study; bubble detection via explosive growth tests	Nine zones of Bogotá	2014	No mention found	No
Jaramillo González and Cuervo Ballesteros, 2014	Time series and quantitative analysis of rents, sales, and land prices	Seven fixed areas in Bogotá	1970–2013	Newspaper listings, Lonja de Propiedad Raiz, Departamento Administrativo Nacional de Estadística (DANE), Banco de la República	No
Lozano-Gracia and Anselin, 2012	Econometric modeling for mass appraisal; spatial heterogeneity	Bogotá (city-wide, socio-economic strata)	No mention found	No mention found	No
Calvo, 2011	Econometric analysis of TransMilenio's impact on property values	Suba, Avenida Boyacá with Primera de Mayo (Bogotá)	Early 2000s	Property characteristics, spatial data	Yes
Perdomo, 2010	Econometric analysis of TransMilenio's impact on property values	Suba, Avenida Boyacá with Primera de Mayo (Bogotá)	Early 2000s	Geographic/spatial data	Yes
Meneses-González and Sánchez, 2022	Quantitative market analysis of housing and credit dynamics	Bogotá, Medellín, Cali	2017–2022 (focus: 2022)	Superintendencia Financiera, Banco de la República, La Galería Inmobiliaria	Yes
Garza, 2007	Time series analysis of new housing prices	Bogotá (city-wide)	1992–2004	Spatial database (17,000+ records)	No

Study	Study Focus	Geographic Coverage	Time Period	Data Type	Full text retrieved
Cuervo Ballesteros, 2022	Time series analysis of spatial price differences	Seven sectors of Bogotá	1970–2012	Newspaper listings, Departamento Administrativo Nacional de Estadística (DANE), cadastral data	Yes
Jaramillo González, 2014	Descriptive analysis of land price evolution	Seven areas in Bogotá	1970–2012	No mention found	No

Study Focus:

- Four studies used time series analysis.
- Three studies used comparative or market analysis.
- Three studies used econometric analysis or modeling.
- Two studies used quantitative analysis.
- Two studies used spatial modeling or analysis.
- One study used descriptive analysis.
- Two studies analyzed the impact of TransMilenio.
- One study focused on bubble detection.

Geographic Coverage:

- Four studies covered Bogotá city-wide.
- Eight studies focused on sub-areas within Bogotá (zones, sectors, or strata).
- One study included other Colombian cities (Medellín, Cali, in addition to Bogotá).
- We didn't find mention of studies without geographic coverage information.

Time Period:

- Four studies covered long time periods from 1970 to 2012, 2013, or 2014.
- Two studies focused on the early 2000s.
- One study focused on 2014.
- One study covered 2017–2022 (with a focus on 2022).
- One study covered 1992–2004.
- We didn't find mention of the time period for two studies.

Data Type:

- Four studies used official statistics (Departamento Administrativo Nacional de Estadística (DANE), Banco de la República, Superintendencia Financiera).
- Three studies used newspaper listings.
- Three studies used spatial or geographic data.
- One study used property characteristics data.

- Four studies used other data sources (Lonja de Propiedad Raiz, La Galería Inmobiliaria, cadastral data).
- We didn't find mention of data type information for three studies.

Market Price Dynamics

Long-term Price Trends

Most studies with long time horizons (Jaramillo, 2004; Jaramillo González and Cuervo Ballesteros, 2014; Cuervo Ballesteros, 2022; Jaramillo González, 2014) report a pronounced long-term decline in real housing prices in Bogotá, contrasted by significant growth in land values. This trend is consistent across multiple data sources and methodologies. More recent studies (Meneses-González and Sánchez, 2022) indicate that, despite macroeconomic pressures, real housing prices in Bogotá continue to grow, particularly after controlling for property characteristics. However, the demand for new housing has weakened due to high inflation and interest rates, while supply is recovering.

Spatial Price Differentiation

Zone	Price Evolution	Growth Rate	Market Segment
City-wide (Jaramillo, 2004)	Long-term real price decline; land price growth	No mention found	3 income strata
Nine zones (Sanchez and Vega, 2015)	Exuberant growth in most zones; speculation in expensive districts	No mention found	High vs. low-value zones
Seven areas (Jaramillo González and Cuervo Ballesteros, 2014)	Updated series for rents, sales, land; spatially controlled	No mention found	3 income strata
Socio-economic strata (Lozano-Gracia and Anselin, 2012)	Model performance varies by stratum; overprediction of values	No mention found	Socio-economic strata
Suba, Av. Boyacá (Calvo, 2011; Perdomo, 2010)	Price premium for TransMilenio proximity; 13% higher prices	\$47/m² decrease per meter from station	Proximity to infrastructure
Bogotá, Medellín, Cali (Meneses-González and Sánchez, 2022)	Real prices in Bogotá rising; Vivienda de Interés Social (VIS, social interest housing) gradual growth, non-VIS decline	No mention found	VIS vs. non-VIS
City-wide (Garza, 2007)	Strong relationship between price/m² and unit area	No mention found	New housing

Zone	Price Evolution	Growth Rate	Market Segment
Seven sectors (Cuervo Ballesteros, 2022)	Spatial price differences stable over 40 years	Price ratio 1:4.7 (1974) to 1:4.9 (2012)	High, medium, low price zones
Seven areas (Jaramillo González, 2014)	Land price evolution by area and stratum	No mention found	3 income strata

Price Evolution:

- Two studies reported evidence of long-term real price decline.
- Land price growth was reported in two studies.
- Exuberant or strong growth was found in two studies.
- Speculation in expensive districts was noted in one study.
- Spatial price differences, including their stability over time, were reported in three studies.
- Infrastructure effects (such as price premiums for proximity to transit) were found in one study.
- Two studies focused on model performance or relationships rather than empirical price trends.

Growth Rate:

- We found a specific quantitative growth rate or price ratio in two studies.
- We didn't find mention of a specified growth rate in the other seven studies.

Market Segment:

- Three studies analyzed three income strata.
- One study compared high vs. low-value zones.
- One study focused on socio-economic strata.
- One study analyzed proximity to infrastructure.
- One study compared Vivienda de Interés Social (VIS, social interest housing) vs. non-VIS housing.
- One study focused on new housing.
- One study compared high, medium, and low price zones.

We didn't find market segment information missing for any study; all studies specified at least one segment or comparison group.

Thematic Analysis

Socio-spatial Segmentation Patterns

Segmentation by income, geography, and property type is evident across studies. Jaramillo, 2004 and Jaramillo González and Cuervo Ballesteros, 2014 analyze three income strata, while Cuervo Ballesteros, 2022 documents stable spatial price differences across seven sectors, segmented by price level. Meneses-González and Sánchez, 2022 highlight the divergence between Vivienda de Interés Social (VIS, social interest housing) and non-VIS housing, with the former showing gradual growth and the latter experiencing decline. The persistence of spatial and social segmentation is attributed to both structural urban factors and enduring social connotations.

Investment Returns and Market Efficiency

Several studies (Jaramillo, 2004; Jaramillo González and Cuervo Ballesteros, 2014; Jaramillo González, 2014) estimate the profitability of rental and land investments, often finding returns to be low or inferior to passive financial options, especially during periods of market depression. Lozano-Gracia and Anselin, 2012 report that even advanced econometric models overpredict property values, suggesting inefficiencies or unmodeled factors in the market.

Speculation and Bubble Indicators

Theme	Key Findings	Supporting Evidence	Market Impact
Speculation in high-value zones	Speculation drives price increases in expensive districts	Sanchez and Vega, 2015: Univariate explosive growth tests; exuberant growth in most zones	Potential for bubble formation; uneven price dynamics
Overprediction of values	Models overpredict house values, even with spatial controls	Lozano-Gracia and Anselin, 2012: Hedonic models, spatial variables	Suggests inefficiencies or speculative pricing
Infrastructure-driven premiums	Proximity to TransMilenio yields price premium (13%)	Calvo, 2011; Perdomo, 2010: Propensity score matching and hedonic models	Localized speculation or value appreciation
Persistent spatial price gaps	Price differences stable over decades; inertia	Cuervo Ballesteros, 2022: Descriptive and principal component analysis	Segmentation persists despite urban change
Low investment returns	Rental/land investment returns often low	Jaramillo, 2004; Jaramillo González, 2014	May deter speculative investment in some segments

Five studies each addressed a distinct theme related to housing market dynamics:

- Two studies identified speculation or bubble risk as a key mechanism or market impact (specifically in high-value zones and through overprediction of values).
- One study found that infrastructure improvements (proximity to TransMilenio) were associated with localized price premiums and possible localized speculation or value appreciation.
- One study reported persistent spatial price gaps and segmentation, with price differences remaining stable over decades despite urban change.
- One study found that low investment returns in rental or land markets may deter speculative investment in some market segments.

Each theme and market impact was represented by a single study. We did not find studies in this table that addressed multiple themes or market impacts simultaneously.

Limitations

The evidence base covers a wide range of time periods and geographic areas but is limited by the reliance on secondary data, lack of methodological transparency in some studies, and the absence of full-text access for several key papers. The diversity of study designs and data sources complicates direct comparison and synthesis. Recent, granular market dynamics may be underrepresented, as many studies focus on long-term trends and available data may lag behind current market conditions.

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