



Final Project — Connecticut Property Sales Trends

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Introduction

This report presents an analysis of the **Connecticut Real Estate Sales** dataset, which provides insights into property transactions across various towns and regions in the state. The primary objective is to examine trends in property sales, assess the relationship between **assessed values and actual sale prices**, and analyze the distribution of different property types. This analysis includes **data visualization, regional comparisons, and market trend evaluations** to identify key factors influencing property values. The findings aim to offer valuable insights for **real estate professionals, investors, policymakers, and homebuyers**, helping them make informed decisions regarding **property valuation, investment opportunities, and regional market dynamics** in Connecticut.

Research Questions:

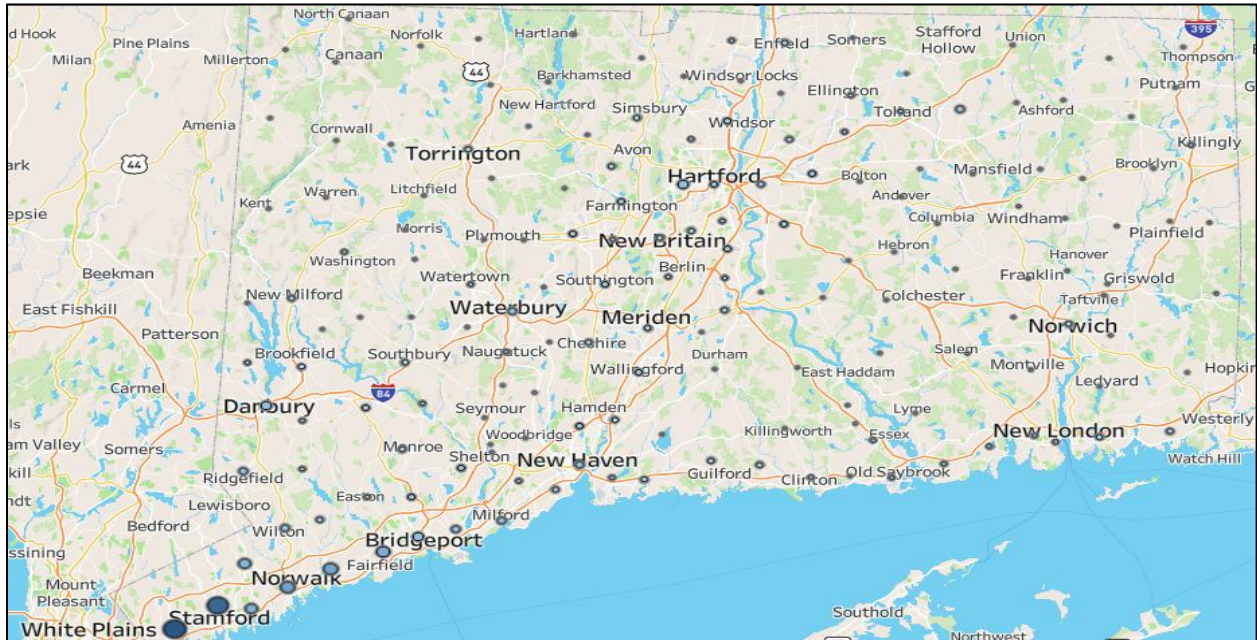
To better understand Connecticut's real estate market, this analysis focuses on key aspects of property sales, valuation, and regional variations. By examining long-term trends, property type distribution, and town-based performance, we aim to identify factors influencing market dynamics. Additionally, comparing assessed values with actual sales amounts provides insights into property appreciation and valuation gaps.

The following research questions guide this study:

- 1) How have Connecticut's property sales trends changed over time, and what regional differences can be observed?
- 2) What is the relationship between assessed property values and actual sales amounts over time?
- 3) What is the distribution of different property types in Connecticut, and which type dominates the market?
- 4) How do sales values vary across different residential property types, and which type generates the highest sales?
- 5) How do assessed values compare to sales values across different towns in Connecticut, and which towns have the highest and lowest property values?

Analysis and Insights

1) The long-term trends in Connecticut's property sales and how have they varied by region



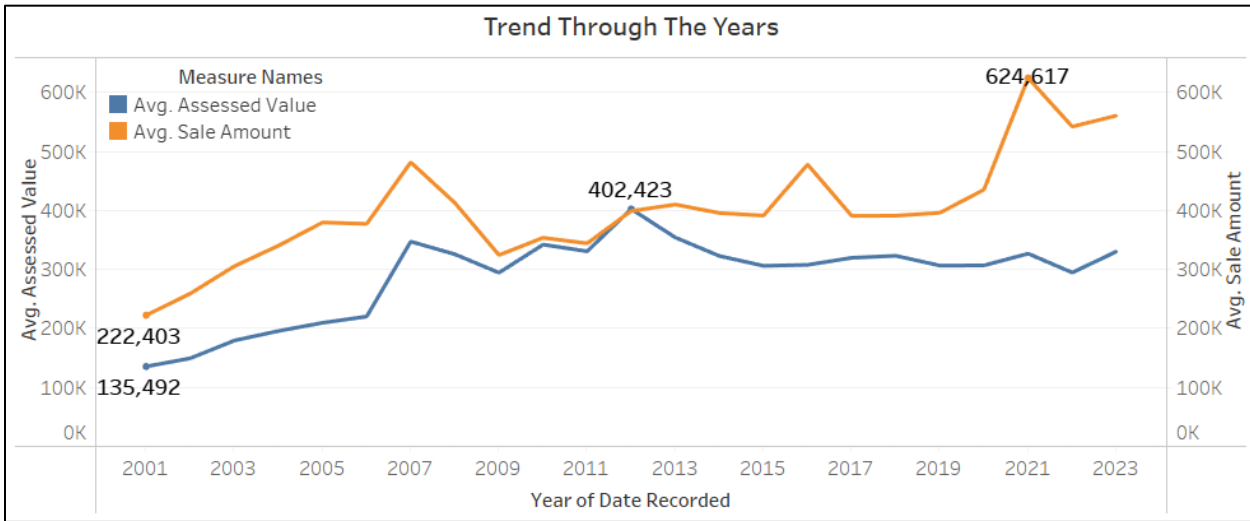
Insights: The geographic map above illustrates Connecticut's property sales distribution across various regions. Urban and coastal areas, such as Stamford, Bridgeport, New Haven, and Hartford, show higher sales activity, driven by economic hubs, job opportunities, and higher housing demand. Conversely, rural and inland areas like Torrington and Windham exhibit lower sales volumes, likely due to slower development, demographic shifts, and reduced market demand.

Design Decisions: A geographic map is used to visually display the distribution of property sales across different towns, making it easier to identify regional trends. The map highlights high-sales areas and provides a comparative understanding of real estate activity across Connecticut.

2) Assessed Value and Sales Amount Over Time

Insights: The line chart above illustrates the trend in Connecticut's average assessed property values and actual sales amounts over time. The orange line represents the average sale amount, while the blue line represents the average assessed value. Over the years, there is a noticeable

increase in both metrics, with sales amounts generally exceeding assessed values. Significant spikes in sales amounts are observed around 2007, 2011, and particularly in 2021, where the average sale amount peaked at \$624,617. The gap between assessed values and sales amounts has widened in recent years, indicating an upward trend in market prices.



Design Decisions: A dual-axis line chart is used to effectively compare the trends of assessed values and sale amounts over time. The color differentiation helps distinguish between the two metrics, making it easier to identify fluctuations, trends, and periods of rapid growth in property prices across Connecticut.

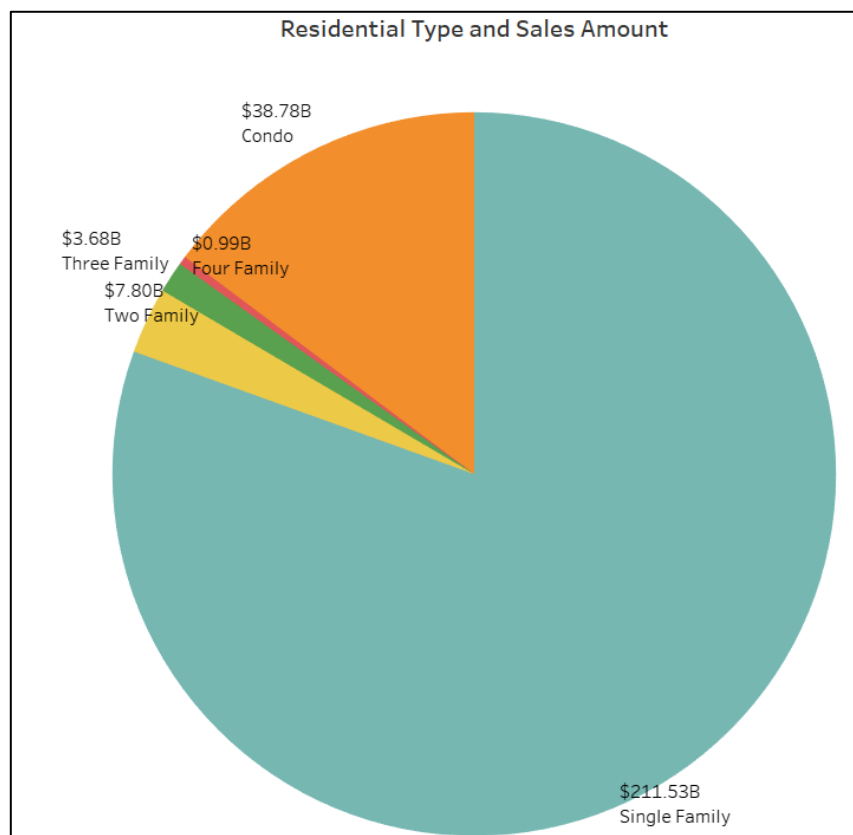
3) Treemap of Property Type Distribution

Insights: The treemap above visualizes the distribution of property types, showing the proportion of different categories. The largest portion of the area is occupied by **Residential** properties, indicating that they dominate the dataset. Other property types, such as **Commercial, Apartments, and Vacant Land**, take up significantly smaller proportions. This suggests that residential properties make up the majority of real estate transactions or listings in the dataset.

Design Decisions: A treemap is used to effectively represent the proportion of each property type in a single view. The larger the section, the higher the count or volume of that property type. Color differentiation enhances readability, and labels provide a clear understanding of category distribution.



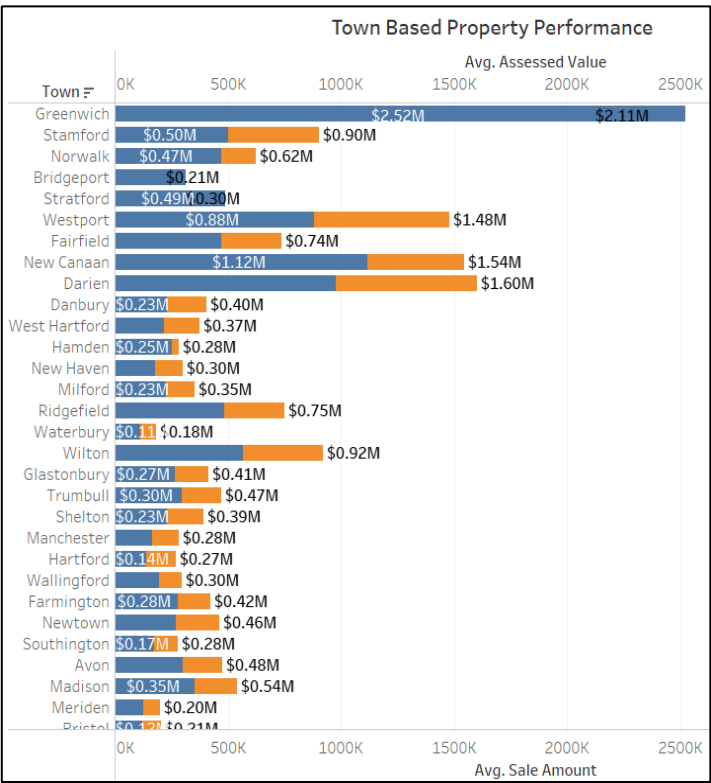
4) Pie Chart of Sales Values by Residential Type



Insights: The pie chart above visualizes the sales distribution across different residential property types. Single Family homes dominate the market, accounting for the vast majority of sales, with \$211.53 billion in sales value. Condos follow as the second-largest category, contributing \$38.78 billion. Other residential types, such as Two Family, Three Family, and Four Family homes, represent significantly smaller portions of the total sales. This suggests that Single Family homes are the primary drivers of the residential real estate market, while multi-family properties make up a smaller share.

Design Decisions: The pie chart effectively visualizes **sales proportions**, using distinct colors for clarity. However, **label overlap** in smaller slices could be improved with leader lines or external labels. A **bar chart** might better highlight smaller categories for easier comparison.

5) Town Based Property Performance (Assessed value & Sales value)



Insights: The chart compares average assessed value (blue) and average sale amount (orange) across towns. Greenwich, New Canaan, and Darien have the highest values, indicating premium markets, while Waterbury, Hartford, and Bridgeport show lower values, reflecting affordability. Some towns, like Darien and Wilton, have sale prices exceeding assessed values, signaling strong demand, whereas others, like Bridgeport and Waterbury, see lower sale prices, suggesting weaker markets.

Design Decisions: A dual-bar horizontal chart allows easy comparison between assessed and sale values. Color coding differentiates metrics, while direct labels improve readability. The layout effectively highlights value disparities across towns.

Conclusion

- The analysis reveals significant variations in **assessed property values and sale prices** across different towns, with high-value areas like **Greenwich and Darien** showing premium real estate trends, while towns like **Hartford and Waterbury** reflect affordability.
- The **residential property distribution** highlights the dominance of **Single-Family homes**, contributing the largest share of sales, with market trends influencing price appreciation and demand.
- A **strong correlation** between assessed values and sale prices suggests that higher-valued properties tend to sell at a premium, emphasizing the importance of accurate property valuation.
- Regional economic factors, **local demand, and market conditions** play a crucial role in shaping property performance, highlighting the need for dynamic pricing strategies and informed decision-making.
- The insights derived from this study can assist **real estate investors, homebuyers, and policymakers** in making data-driven decisions, ensuring efficient resource allocation and market stability.

References:

- a) Tableau Software. (2023). *Data visualization best practices*. Retrieved from <https://www.tableau.com/>
- b) National Association of Realtors. (2023). *Real estate market trends and analysis*. Retrieved from <https://www.nar.realtor/>
- c) Government of Connecticut. (2023). *Property assessment and taxation reports*. Retrieved from <https://portal.ct.gov/>