

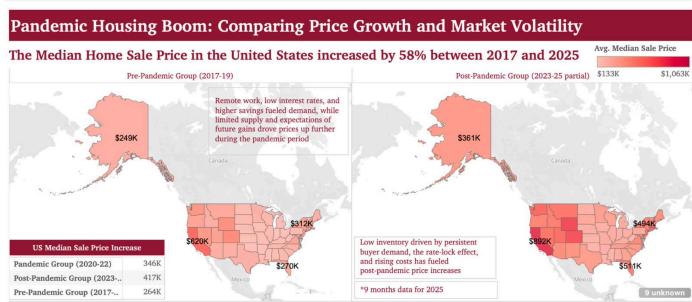
Pandemic Housing Boom: Price Growth & Market Volatility Analysis using Tableau

How did the price growth and market volatility during the Pandemic Housing Boom (2020-2022) compare to the slower, more stable growth before the pandemic (2017-2019), and how are those price changes affecting the amount of homes for sale (supply) in the current market (2023-2025)? As the housing market moves into the post-pandemic years (2023-2025), the rising mortgage rates and limited inventory continue to shape affordability and supply across the country (Redfin, 2025). The motivation behind this topic is by the lasting effects of the pandemic housing boom, which made home ownership harder for many Americans as prices increased and available homes reached record lows. By comparing price volatility before the pandemic (2017-2019) and during the housing boom (2020-2022), we aim to understand how these rapid changes affected different regions and property types (Redfin, 2025). That being said, we will also want to learn and look at how ongoing inventory shortages are influencing prices in the current market (2023-2025).

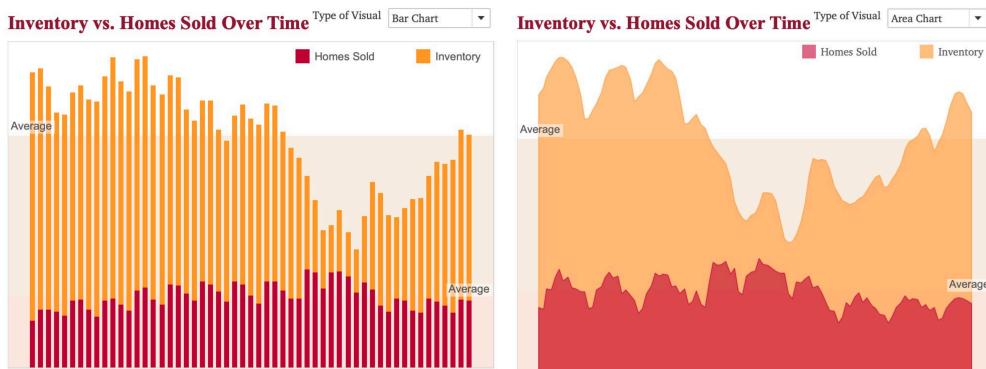
Through this analysis, we aim to benefit others because we hope to demonstrate how the structural changes that began during the pandemic continue to shape the housing market today. This study aims to test our two hypotheses that explore how housing prices and supply dynamics evolved during and after the Pandemic Housing Boom using data from the Redfin Data Center: Median Sale Price (Redfin, 2025).

The first hypothesis, **Geographic Concentration of Volatility**, proposes that the surge in home prices between 2020 - 2022 was not evenly spread across the country but concentrated in fewer than 20% of the major U.S. metropolitan areas, primarily high demand coastal and technology driven regions (Redfin, 2025). The second hypothesis, **Supply Shortage and Price Floor**, examines whether the severe drop in housing inventory during the boom years created a lasting “price floor” in the current 2023-2025 market (Redfin, 2025). By analyzing the inverse relationship between Months Supply of Inventory and Year over Year Median Sale Price growth, the study expects to state that when inventory levels fall below three months, the price growth consistently exceeded 15%, and that these tight conditions continue to prevent major price declines, despite higher mortgage rates (Redfin, 2025). While Single Family Residential likely saw sharper increases during the boom, Condos are expected to show more resilience during the post-boom adjustment, while smaller declines in price (Redfin, 2025). Together, these hypotheses provide a framework for understanding how regional, structural, and property-type factors have shaped the housing market’s volatility from 2017-2025.

During the period of our analysis (2017–2025), the median home sale price in the U.S. increased by **58%**. The **Map Chart** highlights regional variations and provides insights into how home prices shifted at the state level before and after the pandemic. This visualization aligns with our second hypothesis, as it compares housing prices across states in the pre- and post-pandemic periods, revealing how overall trends evolved across different states. The data is similar to what is shown on the Redfin dataset because it tracks the housing prices over time (Redfin, 2025). These findings are important because they help people understand how the housing market and overall affordability have changed in recent years, especially in response to the pandemic’s economic effects.

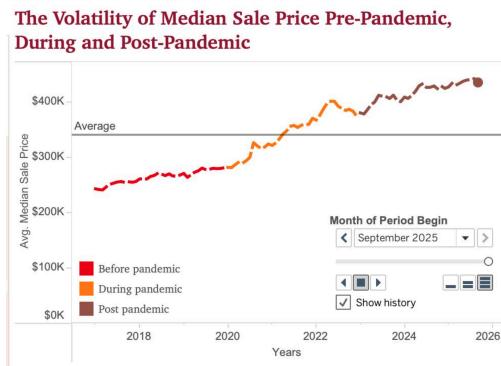


When looking at the **Bar Chart**, it projects how housing inventory and homes sold changed from 2017 onward. It highlights regular seasonal changes, with inventory rising and falling each year, while home sales follow a similar pattern. During the pandemic, inventory dropped significantly, but sales stayed strong, which is showing high demand despite fewer homes available. This chart is essential because it shows how changes in supply impact sales activity. It supports hypothesis two because it uses Redfin data to show national housing market patterns (Redfin, 2025).



The next graph we want to look at is the **Line Chart** because it tracks the volatility of Median Home Prices from 2017-2025 separated into distinct time periods around the pandemic. The clear upward trend from 2020-2022 followed by stabilization post 2023 shows the lasting impact of low supply and strong demand during the pandemic years. The color coded timeline visually conveys how price growth accelerated during the pandemic and remained elevated, even as

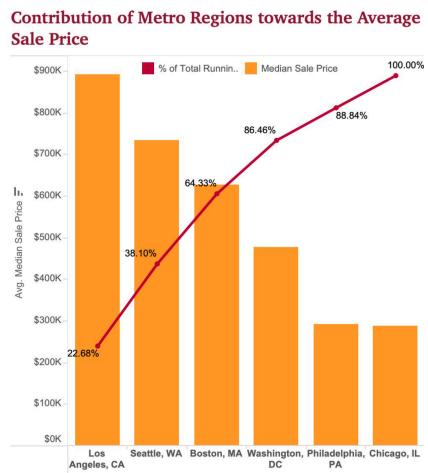
conditions are normalized. This chart aligns with the second hypothesis because it argues that limited inventory during the boom years established a lasting minimum price level. According to the Redfin dataset, the Monthly Median Sale Price visualization provides realtime evidence of how national price dynamics evolved before, during, and after the pandemic (Redfin, 2025). This graph is significant because it demonstrates the long term market resilience and supports the idea that structural supply shortages continue to sustain elevated home prices, despite higher interest rates.



Next, we have the [What-if Analysis Chart](#) that demonstrates how the Median Sale Price changes with varying levels of the market heat represented by the Average Sale to List Ratio. It illustrates that current prices are inflated by competition from low housing supply, and that prices could drop significantly if market conditions cool. The slider allows users to test scenarios, (0.85 - simulates selling at 85% of list price/strong buyers market) to extreme (1.15 - simulates selling at 115% of list price/extreme bidding wars), showing real-time price sensitivity. This visualization is essential because it quantifies how dependent housing prices are on market competition and supply constraints. It connects directly to hypothesis two as it demonstrates how limited inventory sustains higher prices. This relates to Redfin's dataset by providing an interactive extension of the same Median Sale Price data, which is allowing users to model hypothetical market scenarios beyond past trends (Redfin, 2025).

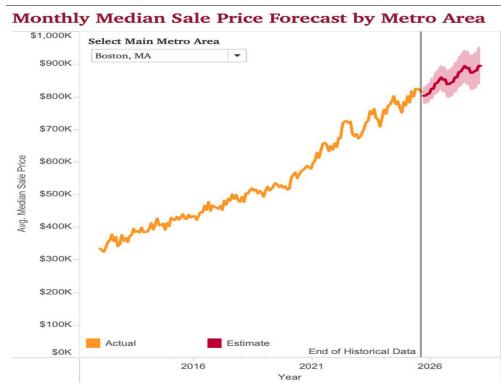


The next graph we will look at is the **Pareto Chart** since it highlights how a small number of major U.S. metropolitan areas account for the majority of Median Home Price increases. The graph shows that cities, like Los Angeles, Seattle, and Boston dominate the higher price ranges, confirming that price surges were geographically concentrated. The line emphasizes how fewer than 20% of metro regions contribute disproportionately to the overall housing price escalation. It connects to the first hypothesis, which proposes that the 2020-2022 surge was focused mainly in high demand, coastal, and tech driven markets. This relates to Redfin's dataset because the regional Median Sale Price data displays disparities across metropolitan areas, offering credible evidence of market concentration (Redfin, 2025).



Moving on to the **Forecast Prediction Chart**, it shows that even after the 2022 housing peak, the prices are expected to stay high and slowly rise, which is showing a lasting “price floor”. It also highlights regular seasonal trends, with prices going up in spring and summer, while it declines in winter. Despite the high mortgage rates, the ongoing lack of homes for sale

continues to keep prices from falling. This chart is important to understand and connects to hypothesis two because it helps predict future housing trends and shows how supply shortages shape prices. This aligns with the Redfin data to show similar steady price growth and limited supply across major U.S. cities (Redfin, 2025).



Overall, all the graphs are significant with all the hypothesis and research questions because they all help show how the housing market changed over time and why prices moved the way they did. Some charts showed where and when they ascended the fastest during the pandemic compared to before while the others highlighted which cities or property types had the most impact on the national price growth and supply changes. All of them helped predict future prices and test how supply or demand could change them. These visuals connect to all two hypotheses by showing that the price surge was concentrated in certain regions, supported by low supply, and affected different property types in unique ways.

To summarize, the pandemic housing boom caused a rapid price growth and higher market volatility compared to the steady growth before 2020. These sharp increases made homes less affordable and reduced the number of houses available for sale. As the market moves through 2023-2025, high mortgage rates and low inventory continue to keep prices elevated and limit buyer options.

Bibliography

Redfin. (2025). Redfin Data Center: Median Sale Price. Tableau Public. Accessed October 23, 2025. <https://public.tableau.com/app/profile/redfin/viz/RedfinDataCenterTrend/MedianSalePrice>