Zillow Housing Market Analysis: Data Visualization & Insights

Project Overview

Conducted a multi-layered data analysis using Zillow housing market data (2000–2025) to uncover long-term pricing trends, regional disparities, market distribution, and seasonal behavior. This project focused on transforming complex housing data into clear, actionable insights for buyers, investors, and policymakers using data visualization best practices.

What I Did

- Analyzed historical home value trends to identify major market cycles, including the 2008 housing crash and post-pandemic acceleration
- Built a **choropleth map** to compare regional home values and highlight high-demand versus undervalued markets
- Used **histograms and frequency distributions** to assess market skew, inventory concentration, and affordability gaps
- Visualized **seasonality trends** to determine optimal buying and selling windows
- Examined the relationship between **inventory levels and days on market** across price ranges to identify demand friction zones

Key Insights

- Home values show long-term upward momentum with clear cyclical downturns and recoveries
- Coastal markets, especially California, consistently command higher prices due to demand and supply constraints
- The housing market is heavily skewed toward lower-value homes, with luxury properties acting as outliers
- Seasonal patterns persist across economic cycles, with spring and summer driving peak activity
- Mid-range homes ($300K–$500K) experience longer market times, signaling pricing sensitivity and softer demand

Tools & Skills

Tableau • Data Visualization • Market Analysis • Frequency Distributions • Trend Analysis • Business Insight Development

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BUS 175

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Data Analysis on Zillow: Written Executive Report

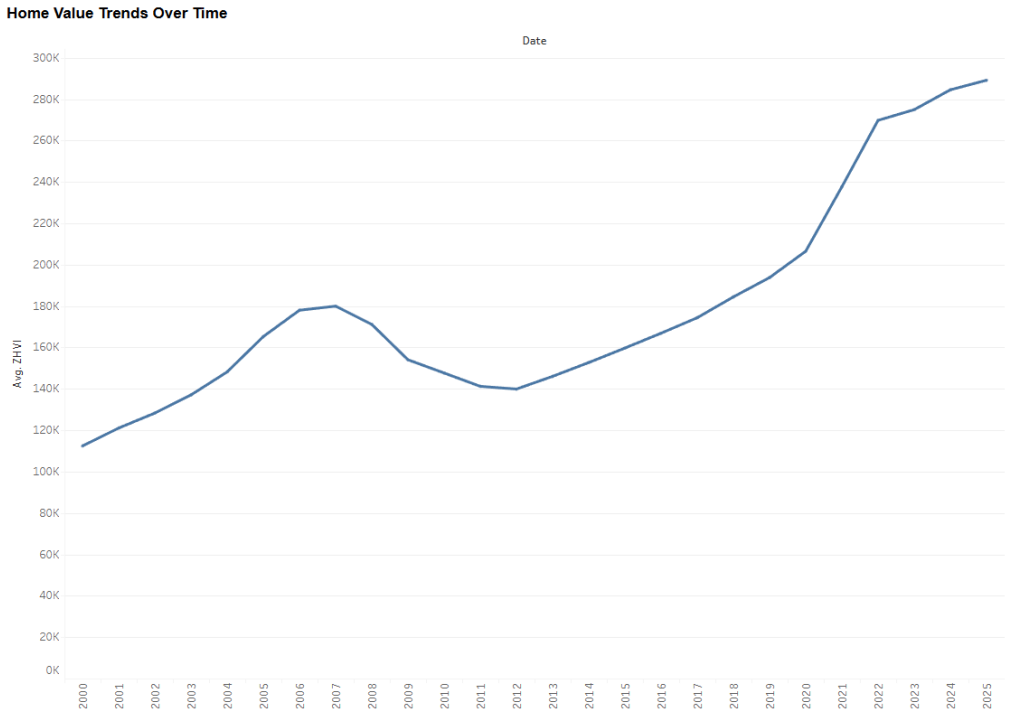
Youtube Link: https://www.youtube.com/watch?v=pjL-IT4RVZQ

First Analysis:

From this data we can see that it tracks the average home price on Zillow from 2000 to 2025. So from the data we can see that all of the points are different in which they show the average market value of the homes based on the specific year.

The reason why we are interested and look at this data is because we can see the effect that pieces and inflation has had on home prices across the years and how it has drastically increased and also fallen during the depression of 2008. This data can be greatly appreciated by buyers, sellers, and investors because it helps them see the market trends.

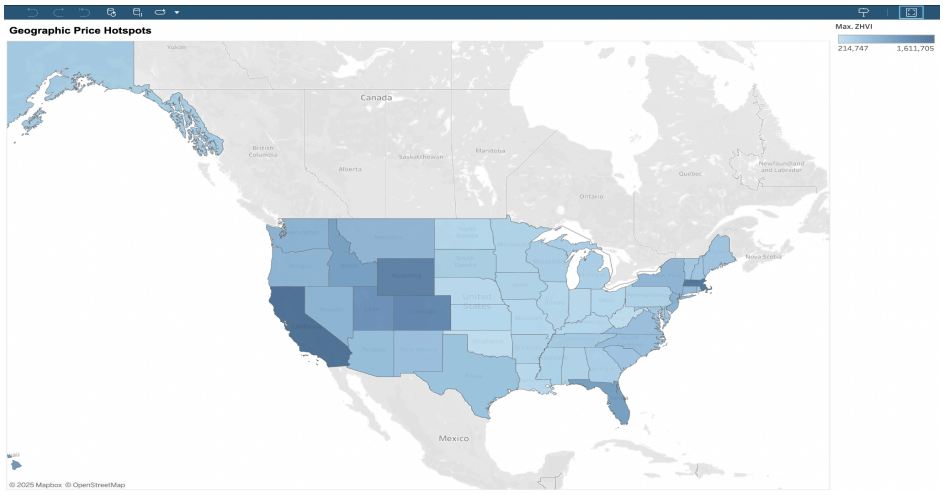
The analysis that I focused on was a line chart which shows the changes of prices in home values over time and throughout the years. It shows the prices of homes when they were just 100k and all the way up 289k for the average home and also it shows the dips that the market hit during the time of depression in 2008 and how it impacted the prices of the average home and how the market recovered from that.



The main information I found from this analysis was that we can see how the home prices had gradually climbed up and then fallen during the year 2008 when the housing market crashed. After the crash the home prices had gone up at a steady increase but it was basically to get the housing market to where it was at before and we can see in this day and age the prices have been on a major climb. So I would say in the near future the market will stabilize and become at a steady climb but not at once.

I believe that from the information many people can rely on it because it can help them make better decisions when buying and also when selling. If we look at it from a business decision then many investors and builders can benefit from this because they would know exactly how to price their home and if they should invest in one and also if they should build one and sell it. Overall, these trends can help everyone trying to get into the real estate market.

Second Analysis:



The choropleth map shows us the varying home values in U.S. regions according to the Zillow Home Value Index (ZHVI). A gradient of light-to-dark blue is used to shade each state, the darker colors indicating higher-value markets and the lighter ones showing more affordable or possibly undervalued areas. With the data visualizations, one can easily compare the regions and also observe quickly which parts of the country are experiencing the highest housing demand.

To create this visualization in Tableau, I first assigned a geographic role to each state and then applied Max ZHVI as the color measure. I opted for a sequential color scale because it shows the increase in home values in a very simple and clear way, therefore the patterns are easy to understand without further explanation. I considered a geographic heat map as the most suitable option for this dataset since the goal was to showcase pricing differences that wouldn't be noticeable in a simple table or bar chart.

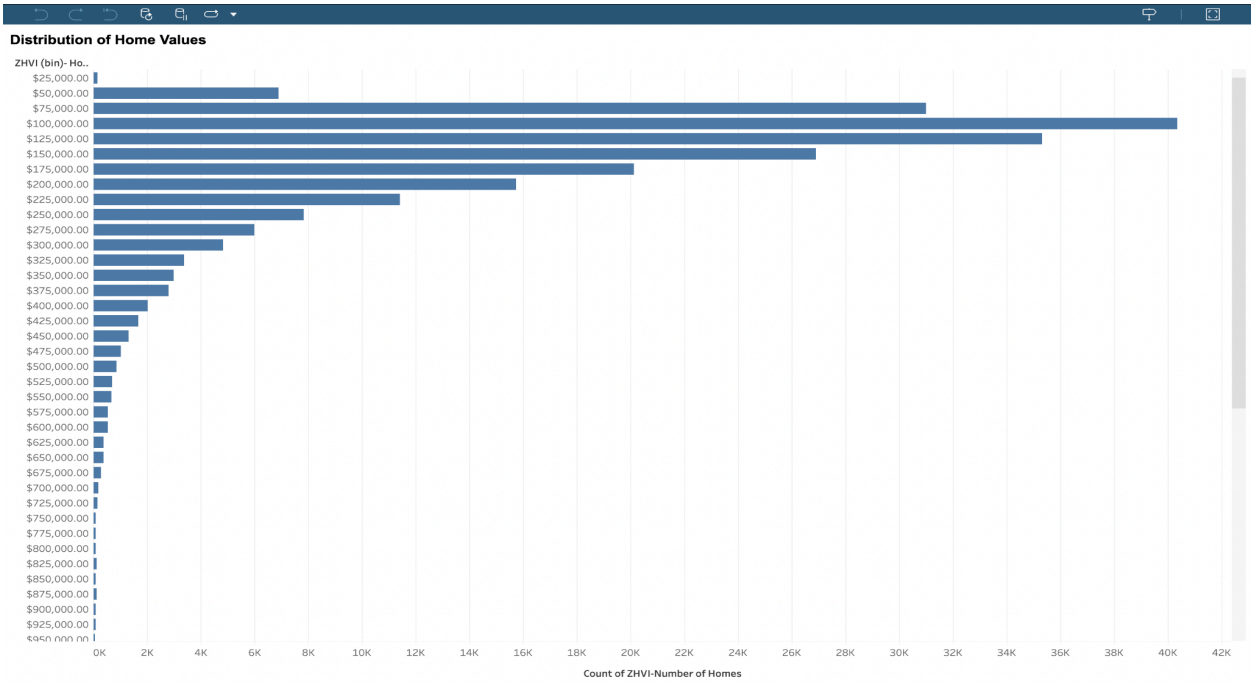
A number of recognizable patterns are depicted in the visualization. The West Coast, specifically California being the most significant, has the highest home values which correspond

to the thriving job markets and the scarcity of housing. On the other hand, quite a few states in the center and south of the country stand out as being much lighter on the map, which suggests that these are markets with lower prices and places that might be still undervalued. The visualization also displays a well-known trend: Coastal states usually have higher prices, while the Midwest is still a stable and affordable region.

The insights drawn from this data can be helpful for different people in their decision-making process. Investors can take this information and find the states suitable for luxury or high-demand opportunities against those for long-term, lower-cost investments. Developers can spot the locations of affordable housing or new growth projects that would have the greatest impact. The map can also be used by policymakers to visualize the places where low-income households have the hardest time finding affordable housing. In short, the graphic illustrates through different regions the general housing data that helps to make planning and strategies more intelligent.

Third Analysis:

The image displays a horizontal bar chart that shows the distribution of home values. On the y-axis it represents the home values starting from $0 all the way to $975,000. The x-axis represents the number of homes. The frequency shows how many homes have the value within the $25,000 bracket. Our group decided to use a histogram to display our data because it depicts an accurate analysis when trying to understand the shape of the data. Central tendency shows where most of the data lives, which is at the center for us. Skewness shows mostly right on the histogram, meaning that there's a long tail of very expensive homes. Essentially that data being analyzed is the inventory of houses across a spectrum of all the price points within a region or market. The goal of this visualization is to identify the common patterns and boundary conditions of the market. We performed a frequency distribution analysis that allowed us to visualize a histogram which is a key tool when analyzing quantitative data.



Some key discoveries that we have made while unveiling the market structure and skewness is through finding the market's center. The most important observation is the clear concentration of homes in a narrow band. The bar for homes that cost between $75,000-$150,000 is the longest, specifically the $100,000. The counts for this portion of the histogram exceed 30,000 homes, this immense clustering shows the modal class and the market's best spot where inventory and transaction volume are the highest.

Following the average, the frequency displays a fall off gradually. This visual shows a strong right skew where the market is heavily concentrated towards lower value properties. Homes that are valued at $400,000 is a small fraction of the total when the count of available homes. The skew tells us that this is a value based market where luxury properties are extreme outliers rather than the main desired market. Homes that are more than $600,000 are statistically more rare, which indicates a high end breakpoint. People who are looking for homes in the $400,000 or more are competing for scarce resources even though the pool of home buyers is small.

Now knowing all this information real estate must shift the bulk of their time towards homes that range from $75k to $150k. Marketing strategies for homes in this range should highlight speed and competitive pricing due to the high volume of similar properties. When listing a property that is worth more than $400,000 it requires a different niche marketing approach, focusing on unique features and quality.

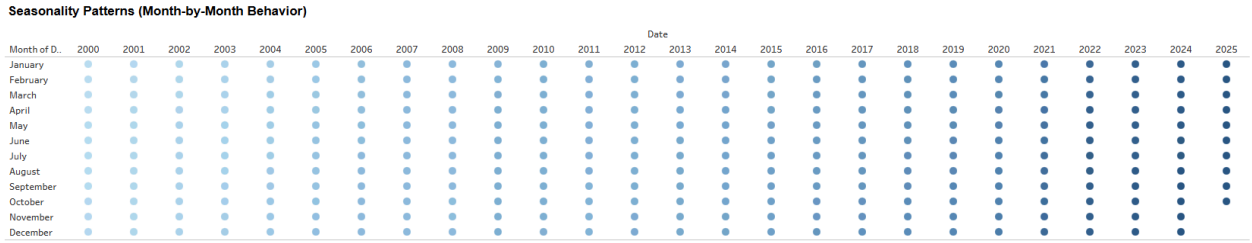
In conclusion, the straight forward frequency distribution analysis has easily mapped the economic geography of the housing market. It also confirms that the market is heavily skewed towards more affordable housing.

Fourth Analysis:

The dataset utilized in this project comes from Zillow, and it includes monthly housing market data from various U.S. metro areas, spanning from 2000 to 2025. Since this data is captured on a monthly basis over the course of 25 years, it is possible to closely examine the seasonality of real estate. This project specifically aimed to answer the question of whether home values demonstrate seasonality on a monthly basis, as distinct from broader national trends, price shocks, and cooling/heating periods. Analyzing monthly housing market behavior is important as real estate is a cyclical market, and many timing decisions by consumers align with the year.

The analysis for this discussion was performed using Tableau software. A dot plot was created to visualize the behavior of ZHVI by month. The rows indicate each month (January through December). One column represents one year during the period from 2000 through 2025. For any given month and year the Zillow Home Value Index (ZHVI) demonstrates itself through the dot's color and size. The resulting picture allows the eye to see patterns rather than rely on

looking at a numeric table. The dot-plot format was chosen to quickly show price rhythms that are apparent over many decades. An individual chart that summarized just average prices would be too compressed to clearly see if some months seem to show stronger or weaker pricing on a regular basis.



This chart shows a uniform seasonal trend every year. The seasonality persists in both an overall slowing or heating market. The months of spring and summer, approximately April-August, experience more housing activity, higher prices and more pricing momentum. Many factors, including anticipation of school changes, weather, and general ease of relocation, cause buyer demand to increase during these months. The winter months are most apparent in November through January, during which slower momentum is almost always experienced. Competition and active and motivated buyers, tend to be lower, leaving less urgency and pricing pressure.

Seasonal behavior even persisted in the boom market of 2020-2022 – the relative activity was the same, but just at elevated price levels. The fact that it has held up across macro booms, recessions, and post-pandemic corrections makes it pretty clear that seasonality is not wiped out by broader economic forces. It is baked into the market structure. That's why the seasonal slowdown is so relevant in the last couple of years in particular. As inventories have started to come back in many metros, the impact of seasonality is more dramatic because buyers can see both a pickup in supply and a simultaneous drop in seasonal competition.

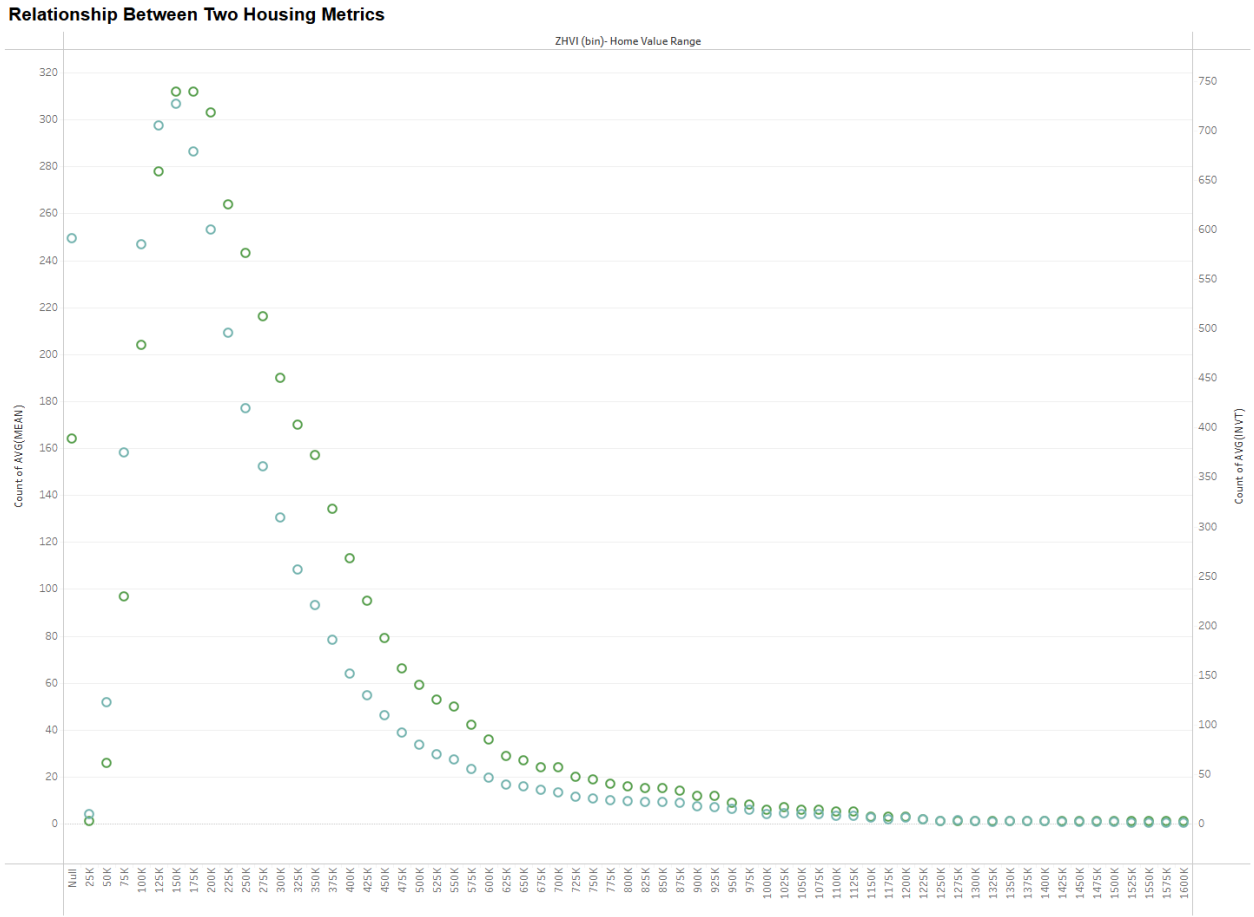
The actionable intelligence from this chart is useful for consumers, investors, housing agencies and others. Homebuyers who want an extra bit of leverage in negotiations could shop for homes and make offers during the winter months. Buyers can negotiate for reduced prices or additional concessions and receive more time to carry out due diligence in cities where inventory levels are on the rise and price increases are slowing down. The analysis enables sellers to schedule their home listings during late spring or early summer periods when prices peak and buyer motivation reaches its peak. Real estate investors could target dip-buying opportunities in slower months and resell or refinance when activity bounces back during peak season. Housing agencies or housing affordability analysts may want to consider seasonality in their planning and marketing in markets where prices are still high, even though they're cooling. Real estate companies and listing platforms, like Zillow, could include months of pricing signals or buy-versus-sell leverage scores to give more transparency to home listings.

Taken in total, this Tableau visualization helps to demonstrate the presence of a month-to-month seasonality effect, which is a fairly consistent and predictable measure of market activity. There are ebbs and flows of real estate pricing power across the calendar year,

and this seasonality holds steady in both upturns and downturns, boom cycles and corrections, and periods of rising demand or bulging inventory. It is one of the last planning tools available to home buyers, sellers, investors, and policymakers, and leveraging these windows of opportunity can materially impact affordability and transaction performance in a competitive housing market.

Fifth Analysis:

This visualization presents a critical inverse relationship between home value ranges and inventory levels(blue) and days on market(green), both of which are key market metrics. Along the x-axis, each range represents a price bin grouping similar homes together, while the dual metrics reveal how affordability directly impacts both supply and availability and market velocity. This combined view offers insights into how different price segments behave, with the blue series tracking the average number of homes for sale in each bin and the green series measuring how long those homes spend on the market before going under contract.



The data shows dramatic concentration of inventory in the most affordable home value ranges, with properties valued around $200,000 dominating the inventory counts. This clustering indicates that the bulk of available housing stock remains in the entry-level affordable segments, creating intense competition among buyers in these ranges. As home values increase beyond

$400,000, inventory declines heavily, reflecting a fundamental shift in market dynamics where higher-priced homes represent a smaller fraction of the total housing stock.

The green data points represent average days on market. In the most affordable ranges, again $200,000, despite high inventory, homes still move relatively quickly, suggesting strong demand pressure in the affordable segment where multiple buyers compete for limited options within their budget constraints. The most significant findings emerge in the $300,000-$500,000 range, where days on market increase substantially even as inventory levels begin to decline. This bracket shows the longest market times relative to their inventory levels. Indicated a potential “friction” zone where homes may be overpriced relative to buyer capacity.

When both metrics are considered together, the $300,000 - $500,000 segment reveals potential softening demand; homes are sitting longer even though there are fewer of them available, suggesting that buyers in this price range are either unable or unwilling to transact at current asking prices. This pattern contrasts with the lower price ranges, where high inventory still moves quickly.