**Housing prices typically exhibit nonlinear connections owing to the effects of various economic indicators.**

1. **Nonlinear Connections:**
   * **Nonlinearity implies that the relationship between housing prices and economic indicators is not proportional or straightforward. Changes in economic indicators may not result in linear changes in housing prices. Instead, the connection may be characterized by curves, thresholds, or other non-linear patterns.**
2. **Effects of Various Economic Indicators:**
   * **Housing prices are influenced by a multitude of economic indicators. These indicators include, but are not limited to, interest rates, inflation, employment rates, GDP growth, and consumer confidence.**
   * **Interest rates, for example, can have a nonlinear impact on housing prices. Initially, lower interest rates may stimulate demand and increase prices, but excessively low rates may lead to economic instability, affecting housing prices in unexpected ways.**
3. **Complex Dynamics:**
   * **The housing market is influenced by a complex interplay of supply and demand dynamics, investor behavior, government policies, and global economic trends. These factors can create intricate and nonlinear relationships.**

**Behavioral economics also plays a role. Buyer sentiment, perceptions of the market, and speculative behavior can introduce nonlinearities into the housing price dynamics.**

Analyzing the Housing market using median list price and median sale price involves exploring various aspects of the data.

Demand refers to the MSP, as it signifies the willingness of buyers to pay for housing. Meanwhile, supply corresponds to the MLP as it reflects the availability of housing stock in the U.S. market.

Market Conditions:

• In a seller's market with high demand and limited supply, sellers may list properties at a lower price to attract multiple offers, leading to a higher sale price.

• In a buyer's market with ample supply and low demand, sellers may initially list properties at higher prices, but due to the competitive nature of the market, they may have to reduce prices to close a deal.

1. **Trend Analysis Over Time:**

**A graph of a number of sales

Description automatically generated with medium confidence**

**California**

**Kansas**

**Texas-**

1. **Price Distribution:**

**A graph of a distribution of medians

Description automatically generated with medium confidence**

**Central Tendency:**

**Compare the peaks of Median List Price and Median Sale Price to understand their central tendencies.**

**Spread and Variability:**

**The variance and the standard deviation are measures of the spread of the data around the mean. They summarize how close each observed data value is to the mean value. Observe the width of the distributions. Wider distributions suggest higher variability.**

**Compare the widths of Median List Price and Median Sale Price distributions to assess their variabilities.**

**Skewness:**

**Positive skewness**

**Overlap:**

**Overlapping regions indicate similar price ranges, while non-overlapping regions suggest differences.**

**The summary statistics you provided represent the central tendency (mean) and variability (standard deviation) of Median List Price and Median Sale Price. Let's break down what each value means:**

**For Median List Price:**

* **Mean (Average): $278,590.74**
  + **This value represents the average or central value of the Median List Prices in your dataset.**
* **Standard Deviation: $174,552.93**
  + **The standard deviation measures the amount of variation or dispersion in a set of values. In this context, it indicates how spread out the Median List Prices are around the mean. A higher standard deviation suggests greater variability in the list prices.**

**For Median Sale Price:**

* **Mean (Average): $236,321.50**
  + **Similarly, this is the average or central value of the Median Sale Prices in your dataset.**
* **Standard Deviation: $141,586.75**
  + **This standard deviation indicates the amount of variation or spread in the Median Sale Prices. A higher standard deviation suggests greater variability in the sale prices.**

**In summary, these statistics provide a numerical summary of the central tendency and dispersion of Median List Price and Median Sale Price. They can be useful for understanding the typical price level and the degree of variation in the prices within your dataset.**

1. **Correlation Analysis:**

**A graph with blue dots and red line

Description automatically generated**

* Linear Regression: y = 0.79x + 12647.59
* Correlation Coefficient: 0.96
* A strong positive

**6. Price Discrepancy Analysis:**

**A chart with numbers and a red square

Description automatically generated**

**Note: Negative values in the price discrepancy plot indicate that the property sold for less than the list price, while positive values indicate that the property sold for more than the list price.**

**7. Outlier Detection:**

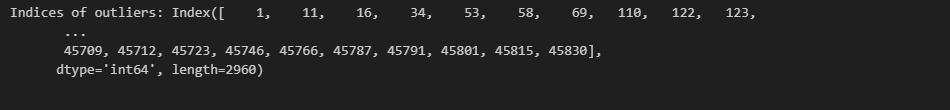
Outliers may represent unique or exceptional cases that can provide valuable insights or indicate data quality issues.

A graph of a number of lines

Description automatically generated with medium confidence

Box Plots:

Box plots visually represent the distribution of data and identify outliers. Outliers are the points that fall beyond the "whiskers" of the box plot.



A screenshot of a computer screen

Description automatically generated

Based on the context of our study, the nature of the data, and the goals of your analysis keeping the outliers is beneficial as they essential for understanding the phenomena being studied. A sample of the outlier was reviewed and all the regions listed are expected to have higher house Prices