Written Analysis

Project: New Jersey Housing Analysis: A Post-Pandemic look at county level housing growth.

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**Analysis for Price per square foot vs Supply of months of inventory**

This calculation shows that there is a statistical significance between average median listing price per square foot and months of supply of inventory by county.

This calculation was a monthly average grouped by county for both median listing per square foot and Supply of months of inventory. After regression, these two against each other we found an r-value: .52, p-value: .01, std\_err: 19.8, slope: 53.1 and an int: 100.8

This positive correlation suggests that there is another reason besides supply that is driving consumer interests in each county. This led us to investigate regions and property types to get more specific indication on what is driving growth in each county.

**Price vs Supply by Region**

Like the first analysis this calculation shows the statistical significance between average median listing price per square foot and months of supply of inventory by county for each region.

This calculation was not statistically significant as each region had outliers. However, highlighting the outliers gave us insights on what counties to do a deep dive into to understand what is bringing them from the average.

**Growth in listing price vs. growth in supply**

This analysis shows the change in average growth in monthly supply and median listing price per square foot by county.

The calculation is taking the average supply for January 2022 to January 2023 and finding the percent growth from January 2024 to April 2024. The same is done for median listing per square foot.

The findings from this analysis is there are three outlier counties that suggest they have abnormal growth from the other countries with supply and square footage pricing. This led us to understand more about their property types to see what was causing this.

**Analysis of Sold Above Listing Price Over time by Region (From 2022)**

- In the earlier half of our post-pandemic view, it is seen that Central Jersey was the leading region for sales above listing price.

- In the later half of the post-pandemic view, Central Jersey started to be overtaken by Northern Jersey, and it can be predicted that going forward the Northern Region will be the leading region for sales above listing price.

- It is consistently shown that Southern Jersey hold the lowest trend for sales above listing price, it can be predicted that the Southern region will not rise into competing areas with the Northern and Central regions.

**Sold above listing price by County in New Jersey (From 2022)**

- The individual counties that are driving the Northern Region above Central Jersey in the post-pandemic sales above listing price price is Passaic County, and Essex County. The leading County in in Central Jersey is Somerset County. It can be said that it was carrying Central Jersey to be the leading region in sales above listing price.

- In Southern Jersey it is seen that the individual counties that are driving the Southern Region down in the post-pandemic sales above listing price, is Cape May, and Salem. Cape May can be seen as driving the Southern Region down, however it should be noted due to its high starting point for sale price, that there was not as much growth as other Counties in the Region.

**Line Graph on Median Price per Sqft for outliers Analysis**

The line graph provides a visual representation of how median prices per square foot have changed over time in the selected counties.

**Key Points:**

1. **General Trend**:
   * The graph shows distinct trends for each county, with Essex, Passaic, Somerset, and Sussex Counties having higher median prices compared to Salem County, which consistently shows lower median prices.
2. **Essex County (Blue Line)**:
   * The median price per square foot starts around $250 and fluctuates between $250 and $325.
   * There are noticeable peaks around mid-2022, early 2023, and again in early 2024, indicating periods of higher demand or price increases.
   * Overall, Essex County shows a relatively stable trend with moderate volatility.
3. **Passaic County (Orange Line)**:
   * The median price per square foot starts around $250 and fluctuates between $250 and $300.
   * Similar to Essex County, there are peaks around mid-2022 and early 2023, with a more consistent pattern towards late 2023 and early 2024.
   * The trend indicates moderate stability with periodic price increases.
4. **Salem County (Green Line)**:
   * The median price per square foot starts below $100 and fluctuates between $75 and $125.
   * There are significant peaks and troughs, indicating high volatility in the market.
   * Salem County consistently has the lowest prices among the selected counties, reflecting its more affordable housing market.
5. **Somerset County (Red Line)**:
   * The median price per square foot starts around $275 and fluctuates between $250 and $325.
   * The trend is similar to Essex and Passaic Counties with noticeable peaks around mid-2022 and early 2023.
   * Somerset County shows a stable trend with moderate volatility, indicating a relatively stable market.
6. **Sussex County (Purple Line)**:
   * The median price per square foot starts around $250 and fluctuates between $250 and $300.
   * Similar to the other high-priced counties, Sussex shows peaks around mid-2022 and early 2023.
   * The trend is stable with slight increases over time, indicating a stable market with periodic price increases.

**Summary and Insights:**

* **Market Stability**:
  + **Essex, Passaic, Somerset, and Sussex Counties**: These counties show relatively stable trends with moderate volatility. Prices generally fluctuate within a $50 range, reflecting stable markets with periodic price increases.
  + **Salem County**: Exhibits high volatility with significant peaks and troughs, indicating a less stable market with lower median prices. This might be due to varying demand, economic factors, or different market dynamics.
* **Investment Insights**:
  + **High-Price Counties (Essex, Passaic, Somerset, Sussex)**: Investors looking for stable markets with higher returns might focus on these counties. The consistent trends and moderate volatility indicate reliable markets.
  + **Low-Price County (Salem)**: Investors looking for affordable entry points might consider Salem County. However, the high volatility suggests a more risky market, which could offer high returns during peak periods but also significant risks.
* **Market Trends**:
  + The periodic peaks across most counties around mid-2022 and early 2023 suggest common market factors influencing prices, such as seasonal demand, economic conditions, or policy changes.

**Conclusion:**

* **Investors**: High-price counties offer stable investment opportunities with moderate risks, while Salem County offers affordable options with higher risks.
* **Homebuyers**: Those looking for stability might prefer Essex, Passaic, Somerset, or Sussex Counties, while those seeking affordability might consider Salem County.
* **Real Estate Professionals**: Understanding these trends helps in setting competitive prices, identifying target markets, and making informed decisions based on market conditions.

**Box Plot for Property Types for Outliers Analysis**

The box plot provides a visual representation of the distribution of median prices per square foot for different property types across the four counties. It highlights the spread, central tendency, and potential outliers in the data.

**Key Points:**

1. **Essex County**:
   * **All Residential**: Median price around $300 per sqft, with a range from approximately $250 to $350 per sqft.
   * **Condo**: Median price around $250 per sqft, with a range from approximately $200 to $300 per sqft.
   * **Multi-Family (2-4 Unit)**: Median price around $175 per sqft, with a range from approximately $150 to $200 per sqft.
   * **Single Family Residential**: Median price around $350 per sqft, with a range from approximately $300 to $400 per sqft. This is the highest median price among all property types.
   * **Townhouse**: Median price around $300 per sqft, with a range from approximately $250 to $350 per sqft.
2. **Passaic County**:
   * **All Residential**: Median price around $275 per sqft, with a range from approximately $225 to $325 per sqft.
   * **Condo**: Median price around $250 per sqft, with a range from approximately $200 to $300 per sqft.
   * **Multi-Family (2-4 Unit)**: Median price around $200 per sqft, with a range from approximately $150 to $250 per sqft.
   * **Single Family Residential**: Median price around $300 per sqft, with a range from approximately $250 to $350 per sqft.
   * **Townhouse**: Median price around $275 per sqft, with a range from approximately $225 to $325 per sqft.
3. **Salem County**:
   * **All Residential**: Median price around $200 per sqft, with a range from approximately $150 to $250 per sqft.
   * **Condo**: Median price around $175 per sqft, with a range from approximately $125 to $225 per sqft.
   * **Multi-Family (2-4 Unit)**: Median price around $150 per sqft, with a range from approximately $100 to $200 per sqft. Some outliers are present.
   * **Single Family Residential**: Median price around $250 per sqft, with a range from approximately $200 to $300 per sqft.
   * **Townhouse**: Median price around $200 per sqft, with a range from approximately $150 to $250 per sqft.
4. **Somerset County**:
   * **All Residential**: Median price around $275 per sqft, with a range from approximately $225 to $325 per sqft.
   * **Condo**: Median price around $250 per sqft, with a range from approximately $200 to $300 per sqft.
   * **Multi-Family (2-4 Unit)**: Median price around $200 per sqft, with a range from approximately $150 to $250 per sqft.
   * **Single Family Residential**: Median price around $300 per sqft, with a range from approximately $250 to $350 per sqft.
   * **Townhouse**: Median price around $275 per sqft, with a range from approximately $225 to $325 per sqft.

**Summary and Insights:**

* **Essex County**:
  + Highest median prices for single-family residential properties, followed by all residential and townhouses.
  + Multi-family properties are the least expensive, indicating they are more affordable or less in demand.
* **Passaic County**:
  + Similar trend to Essex County but with slightly lower prices overall.
  + Single-family residential properties and townhouses have similar median prices, indicating a competitive market for these property types.
* **Salem County**:
  + Generally lower median prices across all property types compared to Essex and Passaic Counties.
  + Multi-family properties have significant outliers, suggesting a more volatile market.
* **Somerset County**:
  + Prices are comparable to Passaic County.
  + Consistent trends with all residential and single-family residential properties being the most expensive, while multi-family properties are more affordable.

**Conclusion:**

* **Market Comparison**: Essex County stands out with the highest median prices, particularly for single-family residential properties, suggesting it is a more affluent or high-demand area. Salem County has the lowest prices, indicating it might be more affordable.
* **Investment Insights**: Multi-family properties offer more affordable entry points across all counties, potentially attractive for investors looking for rental properties. Single-family homes and townhouses command higher prices, reflecting their desirability.

**Pricing Strategy**: Real estate professionals can use this data to set competitive prices and identify target markets for different property types.

**Analysis for Price Change by Property Type**

These bar graphs show the percent change of the median price per square

foot by the five property types for the years 2022 to 2023 and 2023 to 2024

for five counties which are Essex, Passaic, Somerset, Salem, and Sussex.

There have been some noticeable changes throughout these periods of time.

The percentage change helps us to understand the overall trend of the

market in these regions for these years. An increase in the percentage

change indicates that the market is rising, whereas a decrease tells us the

opposite.

Bar Graph 1: Percent Change of Median Price per Sqft by Property Type and

County (2022-2023)

The first bar graph shows how from 2022 to 2023, Somerset County had

significant growth compared to the other four counties. This would explain

why Central New Jersey was outpacing North New Jersey from 2022 to 2023.

However, condos and multi-family properties are at a lower price which

shows us that it may have not impacted the overall median price per square

foot as severely. The overall trend shows us that the percent change was at

more of an increase than decrease for 2022 to 2023.

Bar Graph 2: Percent Change of Median Price per Sqft by Property Type and

County (2023-2024)

The second bar graph shows how from 2023-2024, there have been some

significant increases and decreases. Salem County saw a massive increase in

their multi-family units compared to the previous year due to their lower

price point. Also, we can see that Somerset County had some significant

decrease in their property types. There were some slight increases and

decreases in the percent change for the other counties but not as significant

as we see in Salem and Somerset counties.

Pie Chart + Essex County Analysis:

The pie chart for Essex County in Northern New Jersey shows that the

average price per square foot by property type for 2022-2024 is higher in the

single family residential and all residential properties.

The single family residential is worth more than the other property types in

Essex County and is more desirable to buyers. The multi-family units are

worth the least compared to the rest and are more affordable. The condos

and townhouses are close in price and are worth more than multi-family units

and can still be affordable.

**Average Price per SqFt by Property Type in Somerset County (From January 2022)**

- It is seen that the largest average price per square foot in Somerset County is Single Family Residential properties, with a 21.6%.

- It should be noted that it is not by a large margin as the All Residential properties come at a close second with a 21.4%.

- The lowest average price per square foor in Somerset County is Multi-Family (2-4 Units) coming in at 17.4%.