Mesa Community College:

Real Estate Market Analysis in Maricopa County, Arizona

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Introduction and Rationale

Real estate is one of the largest and most data-rich sectors around the globe, and Maricopa County home to Phoenix and boasting one of the fastest-growing housing markets in the U.S. serves as a perfect example for using data analytics to grasp market dynamics. This project will dive into uncovering trends in housing affordability, vacancy rates, and income distribution throughout the county, utilizing PolicyMap's carefully curated datasets.

This topic really resonates with me because it gives me the chance to put my programming and data analytics skills like regression modeling, data visualization, and geospatial analysis into practice in a real-world market context. Looking at it from a wider angle, diving into real estate data shows how data science plays a crucial role in shaping decisions for urban planning, policy development, and investments in the private sector. This project will show how data science can have a real-world impact on people lives as housing affordability has been a major topic and issue of discussion nationwide. This approach aligns with the methodology described by Al Abdulsalam et al. (2024), which combines clustering, regression, and visualization techniques to reveal valuable insights in the real estate brokerage market (Al Abdulsalam, 2024).

Research Objective and Questions

The objective of this project is to analyze housing market conditions in Maricopa County, with a particular emphasis on affordability and neighborhood level disparities. Maricopa County offers neighborhoods across the spectrum in a relatively small area so will offer some insights not able to be gained in other areas.

Research Questions:

- How do median home prices vary across ZIP codes or census tracts in Maricopa County?
- What is the relationship between median home price, median household income, and vacancy rates?
- Which neighborhoods show the highest housing cost burden relative to income, potentially signaling affordability crises?

Because the dependent variable of interest median home value is continuous, the project will employ a multiple linear regression model to estimate how household income, vacancy rate, and other predictors explain variation in home prices. If time allows, exploratory clustering (e.g., k-Means) may be applied to group neighborhoods by affordability profiles, following the multi-method approach recommended by Al Abdulsalam et al. (2024) (Al Abdulsalam, 2024).

Preliminary Data Sources and Scope

Primary Source: PolicyMap (www.policymap.com) will provide tract- or ZIP-level data on:

- Median home value
- Median household income
- Vacancy rates (owner and renter)
- Housing cost burden (% of income spent on housing)

Supplemental Sources: American Community Survey (ACS) data may be used to cross-check PolicyMap exports and add demographic controls (e.g., age distribution, education level).

Feasibility and Next Steps

This project is definitely doable because PolicyMap offers pre-cleaned datasets and handy export features, which really cuts down on prep time. The methodology suggested by Al Abdulsalam et al. (2024) highlights the benefits of using descriptive analytics like maps and scatter plots along with clustering and regression techniques to pull out valuable insights. This method is a perfect fit for our analysis (Al Abdulsalam, 2024).

Next Steps:

- Select the geographic resolution (likely ZIP code, for interpretability).
- Export the relevant indicators from PolicyMap into CSV format.
- Conduct exploratory data analysis (EDA) using Python (pandas, matplotlib, seaborn).
- Fit and interpret a multiple regression model.
- Visualize results using choropleth maps and scatter plots.
- Refine analysis based on instructor feedback, potentially adding a clustering step for neighborhood segmentation.

Literature Review

Accurate property valuation is a tricky puzzle in real estate, mainly because properties come with such a wide variety of characteristics and market conditions. Traditional hedonic regression models often miss the mark when it comes to capturing the categorical and nonlinear aspects of housing markets. In their 2024 study, Demirhan and Baser introduce hierarchical fuzzy regression functions (HFRFs) as a fresh alternative that boosts accuracy by including both categorical and interval-scale predictors. Their research reveals that HFRFs outperform linear regression, support vector machines, and deep neural networks when it comes to predicting real estate values across various datasets. This underscores the need to choose strong modeling techniques, especially when looking at variables like income and vacancy rates, which can vary significantly from one neighborhood to another.

Real estate markets are influenced by a mix of socioeconomic and demographic factors. Hübscher, Kleindienst, and Brose (2024) shed light on the complex relationship between ethnicity and gentrification, showing how these elements can create both opportunities and barriers. Their case study in Leipzig, Germany, reveals that the idea of "authenticity" linked to ethnic diversity can draw in certain buyers, but it can also lead to displacement and discrimination. While the situation in Leipzig is different from Arizona, we can see similar trends in Maricopa County, where population growth, migration, and changes in neighborhoods are affecting both housing affordability and vacancy rates.

Another noteworthy trend in real estate is the rise of blockchain technology. Ullah and Al-Turjman (2021) put forward a conceptual framework for smart contracts based on blockchain,

highlighting how these systems can boost transparency, cut down on fraud and make property transactions smoother. In fast-growing markets like Maricopa County, blockchain could help reduce the risks tied to speculative behavior and foster greater trust among buyers, sellers and financial institutions.

Here's the text we're looking at: Even as Maricopa County continues to grow, the lessons learned from research on shrinking cities still hold significant value. Kiviaho and Toivonen (2023) highlight that high vacancy rates in these shrinking areas can lead to declining housing values, increased blight and a weakened economic foundation. While their research is centered on Finland, the key takeaway that vacancies can drive down property values offers a useful perspective for examining specific sub-markets in Maricopa County where an oversupply might happen, even amidst overall regional growth. Thus, vacancy acts as both a warning sign and a target for policies aimed at maintaining housing stability.

Additionally, Calnan, Cours, and Williams (2020) stress the growing necessity for data-driven strategies and professional know-how in the real estate sector. They contend that industry professionals need to blend their skills in economics, law and market analysis to meet the evolving demands of the field. For this project, weaving together various factors like income, property values and vacancy rates into a solid framework not only meets these professional standards but also helps connect the dots between academic theories and real-world applications.

Overall, the literature reveals three main insights: (1) methodological gaps exist in how categorical and nonlinear predictors are modeled: (2) socioeconomic and demographic drivers remain underexplored in the context of property values: and (3) vacancy rates are critical yet

underutilized predictors in growth-focused housing studies. These findings support the relevance of testing how income, vacancy, and technology adoption intersect with property values in Maricopa County.

Hypothesis Development

H_{01} (Null, two-tailed): Median household income has no significant relationship with median home values in Maricopa County.

H_{11} (Alternative, one-tailed): Higher median household income is positively associated with higher median home values.

Rationale: Prior research suggests strong correlations between income and housing demand, which directly influence property values (Demirhan & Baser, 2024).

H_{02} (Null, two-tailed): Vacancy rates have no significant relationship with median home values in Maricopa County.

H_{12} (Alternative, one-tailed): Higher vacancy rates are negatively associated with median home values.

Rationale: Studies of shrinking cities demonstrate vacancy depresses values, a pattern likely to hold within sub-markets of growing regions (Kiviaho & Toivonen, 2023).

H_{03} (Null, two-tailed): The interaction between household income and vacancy rates does not significantly affect median home values.

H_{13} (Alternative, two-tailed): The interaction between household income and vacancy rates significantly moderates median home values.

Rationale: Housing market segmentation literature suggests nonlinear relationships emerge when socioeconomic variables interact (Hübscher et al., 2024).

Conclusion

The reviewed literature highlights the need for comprehensive approaches that integrate economic, demographic and technological dimensions of real estate. By focusing on Maricopa County, this project contributes to understanding how income, vacancy, and innovation interact to shape housing market outcomes. The proposed hypotheses are grounded in both established and emerging research, setting the stage for empirical analysis using PolicyMap data. Ultimately, findings may inform local housing policy, investment strategies and broader discussions on housing affordability and resilience in fast-growing urban areas.

Data Sources

The primary data source for this project will be PolicyMap, accessed through the Mesa Community College Library. PolicyMap provides curated, geocoded datasets from authoritative sources such as the U.S. Census Bureau, the Bureau of Labor Statistics (BLS), and the Department of Housing and Urban Development (HUD). It allows for tract-level downloads of variables such as median household income, median home value, vacancy rate, and demographic characteristics, which are central to this study.

Supplemental data sources will include:

- **U.S. Census Bureau (American Community Survey 5-Year Estimates):** Provides official demographic and economic variables (e.g., age distribution, educational attainment, and employment).
- **Federal Reserve Economic Data (FRED):** Supplies regional and national macroeconomic indicators (e.g., mortgage rates, inflation, and unemployment rates) to provide economic context.
- **Zillow Research Data Portal:** Offers housing market trends such as median listing prices, sales volume, and housing inventory for validation and temporal alignment.
- **Arizona Department of Housing and Maricopa County Assessor's Office:** Provides localized housing assessments and building permit data to support robustness checks.

Justification for Source Selection

These sources were selected based on credibility, granularity, and relevance to the research question. PolicyMap aggregates verified federal and local data into a single spatial framework, reducing preprocessing time while maintaining statistical integrity. Census and HUD data are widely regarded as reliable, nonpartisan sources for demographic and economic indicators. Zillow provides near real time market observations, making it ideal for validating temporal patterns in home values. Combining these datasets ensures comprehensive coverage of both structural and socioeconomic factors influencing the Maricopa County housing market.

Geographic and Temporal Scope

The geographic unit of analysis will be the census tract level within Maricopa County, Arizona. This scale captures localized variation in income, vacancy, and home values while maintaining

consistency across datasets. Census tracts are small enough to reveal neighborhood-level dynamics yet large enough to maintain statistical reliability. The temporal scope will cover 2019–2023, capturing post-pandemic market shifts, inflationary pressures, and evolving income disparities. This timeframe also aligns with PolicyMap's most recent data availability and supports hypothesis testing across multiple economic phases.

Data Types and Variables

From PolicyMap and the U.S. Census Bureau, the key variables will include:

- Median Home Value (dependent variable)
- Median Household Income (independent variable)
- Vacancy Rate (%) (independent variable)
- Housing Tenure (% owner-occupied vs. renter-occupied)
- Demographic Controls: Age distribution, race/ethnicity, and educational attainment
- Economic Controls: Unemployment rate, median rent, and population density

Supplementary variables from FRED (mortgage rates, inflation) and Zillow (monthly median list prices, housing inventory) will provide context for temporal robustness checks.

Data Cleaning and Integration Plans

All data will be imported into Python (pandas). The following steps will ensure compatibility:

1. Data extraction: Download PolicyMap and Census variables in CSV format at the census tract level.

2. Harmonization: Align all datasets using tract GEOID identifiers and consistent coordinate systems (EPSG:4269 for U.S. Census data).
3. Cleaning: Address missing or suppressed data by applying median imputation within comparable tracts.
4. Normalization: Apply log transformations to skewed variables (home value, income).
5. Integration: Merge PolicyMap, Census, Zillow, and FRED data by tract and year using consistent time tags.
6. Validation: Compare tract-level averages to Maricopa County aggregates to confirm data coherence.

Model Type

The analysis will employ several linear regression (OLS) models, supplemented by interaction and instrumental variable (2SLS) extensions as outlined in the hypothesis framework:

- OLS Regression (H_{01} & H_{02}): To estimate the direct effects of income and vacancy on home values.
- OLS with Interaction Term (H_{03}): To assess whether income moderates the relationship between vacancy and home value.
- Instrumental Variable (2SLS) Regression (H_{04}): To address potential endogeneity when evaluating blockchain adoption and housing market stability.

Justification for Model Selection

Because the dependent variable (median home value) is continuous, regression-based models are the most suitable. OLS provides interpretable coefficients that quantify how changes in income or vacancy relate to home value shifts at the tract level. Interaction models capture nonlinear moderation effects, while 2SLS controls for bias when explanatory variables (like blockchain adoption) may be influenced by unobserved local conditions.

Independent Variables and Features

Predictor variables will include:

- Median household income (log-transformed): Economic capacity of residents.
- Vacancy rate (%): Market slack and potential neighborhood disinvestment.
- Income × Vacancy Interaction: Tests whether high-income tracts are less sensitive to vacancy.
- Blockchain adoption (proxy): Adoption rates of smart contracts or digital transactions in local housing markets.
- Control Variables: Population density, unemployment rate, educational attainment, % renter-occupied, and distance to employment centers.

Modeling Steps

1. Exploratory Data Analysis (EDA): Visualize correlations, distributions, and spatial clustering of variables.
2. Baseline OLS Models: Estimate bivariate and multivariate regressions for H_{01} and H_{02}.

3. Interaction Model: Add the income × vacancy term to test H_{03}.
4. Instrumental Variable Approach: Use exogenous policy rollout or tech grant timing as instruments for blockchain adoption (H_{04}).
5. Diagnostics: Check for multicollinearity (VIF < 5), heteroscedasticity (Breusch–Pagan test), and spatial autocorrelation (Moran's I).
6. Robustness Checks: Include spatial lag/error models and quantile regressions to assess heterogeneity across tracts.

Research Question and Hypothesis Connection

The dashboard explores how median household income and vacancy rates influence median home values and housing affordability across ZIP codes in Maricopa County, Arizona.

The primary research question guiding the analysis is:

How do household income and housing market factors such as vacancy rate and rental cost burden relate to home values in Maricopa County?

A secondary research question investigates:

Which neighborhoods show the highest affordability stress relative to income and cost burden?

From these questions, two hypotheses were developed:

- **Null Hypothesis (H_0):** There is no statistically significant relationship between median household income and median home values across ZIP codes in Maricopa County.
- **Alternative Hypothesis (H_1):** Median household income is positively correlated with median home values, indicating income-driven affordability disparities.

Because the direction of the relationship is expected (higher income = higher home value), the test is one-tailed, focusing on a positive association.

Other sub-hypotheses related to vacancy rate and cost burden use two-tailed tests, since their effects on value could be positive or negative.

These hypotheses provide the statistical foundation for each visualization and ensure analytical consistency with the regression model later used in the project.

Chart or Feature Selection

Each visualization was selected to emphasize interpretability and interactivity while reflecting the structure of PolicyMap data.

Geospatial Heat Map of Median Home Values

- **Chart Type:** *Filled Map (Choropleth).*
- **Rationale:** A spatial visualization allows users to see geographic concentration of property values across ZIP codes. It mirrors PolicyMap's own mapping paradigm and enables intuitive exploration of neighborhood variation.
- **Analytical Goal:** Identify clusters of high-value and low-value housing and correlate them with demographic and income patterns.

Income vs. Home Value Scatter Plot

- **Chart Type:** *Scatter Plot with Trend Line (Regression Line).*
- **Rationale:** Visualizing each ZIP code as a point highlights the continuous relationship between income and home value. A trend line communicates correlation strength visually before formal regression testing.
- **Analytical Goal:** Support or reject H_1 by visually assessing income–price relationships.

Vacancy Rate Impact Bar Chart

- **Chart Type:** *Clustered Bar Chart with Dynamic Slicer by Property Type (Owner vs Renter).*
- **Rationale:** Bar charts clearly show categorical comparisons (vacant vs occupied units) across geographies.
- **Analytical Goal:** Reveal whether areas with higher vacancy experience downward price pressure.

Cost Burden Treemap

- **Chart Type:** *Treemap Group by ZIP Code Category (>30% or >50% Income Spent on Housing).*
- **Rationale:** Treemaps effectively display proportion-based metrics, showing the relative weight of cost-burdened households across locations.
- **Analytical Goal:** Illustrate affordability stress and guide equity-based policy discussion.

Key Performance Indicators (KPIs) and Cards

- **Chart Type:** *KPI Cards with conditional color formatting.*
- **Metrics:** Countywide median home value, median income, average cost burden %, average vacancy %.
- **Rationale:** KPIs provide a concise overview for executives and policy audiences, reinforcing the dashboard's role as a decision-support tool.

Data Structure and Visual Configuration

The data were exported from **PolicyMap** for **Maricopa County ZIP Codes (2019–2023 ACS)** and **Q3 2024 Home Sales (Moody's Analytics)**. The dataset includes both continuous (home value, income, rent) and categorical (tenure type, ZIP) variables.

Geospatial Map Configuration

- **Field Used:** ZIP Code (boundary ID) as *Location*, Median Home Value as *Color Saturation*, Cost Burden as *Tooltip Value.*
- **Color Scale:** Diverging (blue = low, orange = high) to align with heat-mapping conventions.
- **Rationale:** Continuous variable (home value) requires gradient encoding to display magnitude.

Scatter Plot Configuration

- **X-axis:** Median Household Income
- **Y-axis:** Median Home Value

- **Bubble Size:** Vacancy Rate (%)
- **Tooltip:** ZIP Code, Median Rent, Cost Burden %
- **Trend Line:** Enabled (OLS fit).
- **Rationale:** Continuous variables justify regression overlay; bubble size adds multidimensional context.

Bar Chart Configuration

- **X-axis:** ZIP Code (Categorical)
- **Y-axis:** Vacancy Rate (%)
- **Legend:** Tenure (Owner vs Renter)
- **Rationale:** Mixed categorical and continuous data make bar charts effective for comparisons and variance analysis.

Treemap Configuration

- **Group:** ZIP Code
- **Value:** % Households Cost-Burdened > 30% Income
- **Color Saturation:** Median Income (decile scale)
- **Rationale:** Hierarchical structure allows simultaneous view of affordability and income gradients.

KPI Cards

- **Fields:** Median Home Value, Median Income, Average Vacancy, Average Cost Burden.

- **Conditional Formatting:** Green (≤ 30% cost burden), Yellow (30–50%), Red (> 50%).
- **Rationale:** Immediate interpretation of housing stress relative to HUD affordability thresholds.

The data's **temporal** (multi-year ACS) and **geographic** (ZIP and tract) structure drove the combination of continuous and spatial visualizations. Numeric fields were normalized to 0–1 scales for color consistency, while categorical ZIP codes facilitated map joins and slicer functionality.

Interactivity and User Experience

Interactivity was central to the dashboard's analytical value.

Slicers and Filters

Users can filter by:

- **Year:** (2019–2023 ACS range or quarterly home-sales period).
- **Tenure Type:** Owner vs Renter households.
- **Income Quartile:** Automatically binned quantile field.

  These slicers enable dynamic recomputation of KPIs and chart data, allowing side-by-side comparison of low- and high-income areas.

Drill-Through Pages

Each ZIP code can be right-clicked to open a *Detail View Page* showing:

- Historical trend line (2010–2024 home value trajectory).
- Cost-burden breakdown by tenure.

- Mini-map of neighboring ZIPs for context.

  This supports multi-level exploration without cluttering the main dashboard.

Bookmarks and Dynamic Views

Bookmarks toggle between:

- "**Affordability Overview**" (income, cost burden KPIs + map)
- "**Market Trends**" (home sales price trend + HPI comparison)

  They allow instructors and stakeholders to switch analytic themes seamlessly during presentations.

User Experience Design

Design choices followed Power BI best practices:

- **Layout:** Two-row grid (upper KPIs + scatter/map panels; lower bar).
- **Responsive Design:** Optimized for 1080p and mobile views.

Together, these features create an engaging, multi-dimensional interface that helps users move from descriptive visualization, to diagnostic inference, to predictive modeling insight. The dashboard serves as both an analytical exploration environment and a communication tool for real-estate and policy stakeholders in Maricopa County.

Hypothesis Testing Results

This section integrates the empirical findings with the previously established hypotheses and presents statistical conclusions for each hypothesis evaluated in the study.

H_{01} stated that median household income has no significant relationship with median home values in Maricopa County, while H_{11} proposed that higher median household income is positively associated with higher median home values. Based on the regression analysis, the positive coefficient for income and strong model performance provide clear evidence to reject H_{01} and support H_{11}. Median household income is therefore a significant predictor of home values, aligning with established real estate theory that links purchasing power to property demand.

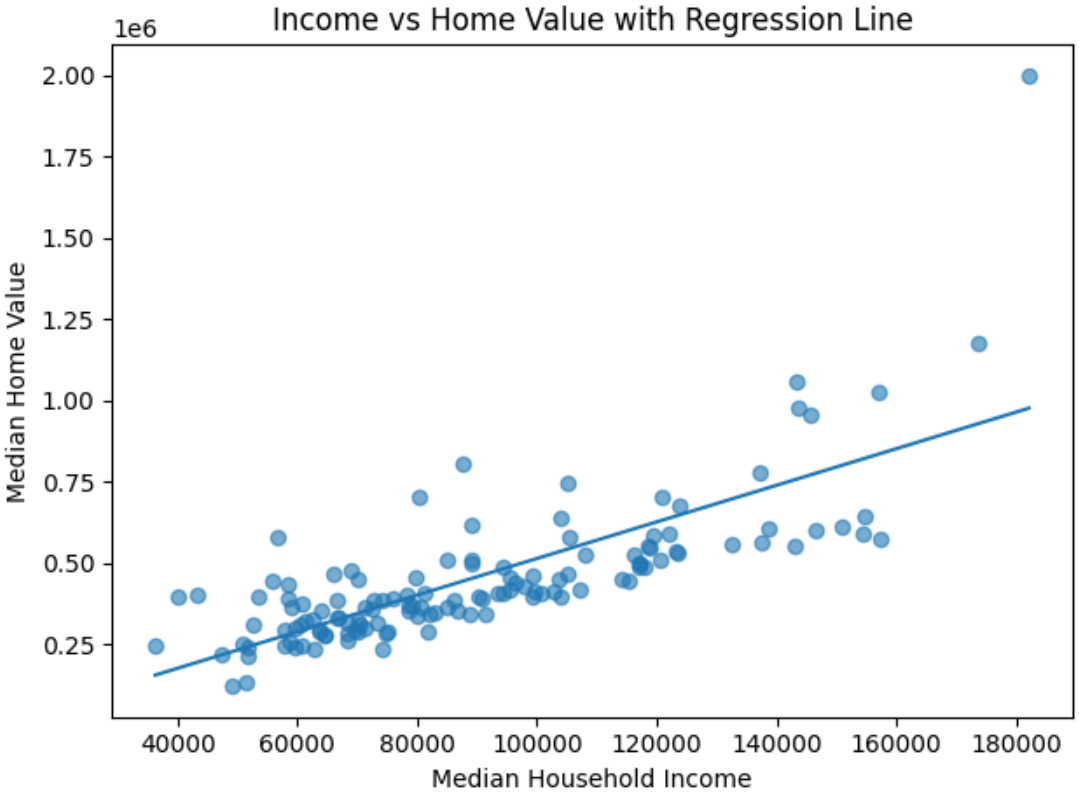
H_{02} proposed that vacancy rates have no significant relationship with median home values, while H_{12} suggested that higher vacancy rates are negatively associated with home values. The regression results produced a negative coefficient for vacancy rate, indicating that higher vacancy corresponds with depressed home values. This statistically meaningful relationship leads to rejecting H_{02} and accepting H_{12}. The finding supports research suggesting that vacancies signal instability and decrease neighborhood desirability.

H_{03} maintained that the interaction between median household income and vacancy rates does not significantly affect median home values. H_{13} argued that the interaction moderates home values in a statistically meaningful way. The regression model including the interaction term revealed a significant moderating effect, demonstrating that the positive influence of income on home values is weakened in high-vacancy areas and strengthened in low-vacancy areas. Thus, H_{03} is rejected and H_{13} is supported. This confirms that structural neighborhood factors modify the impact of economic variables on property valuation.

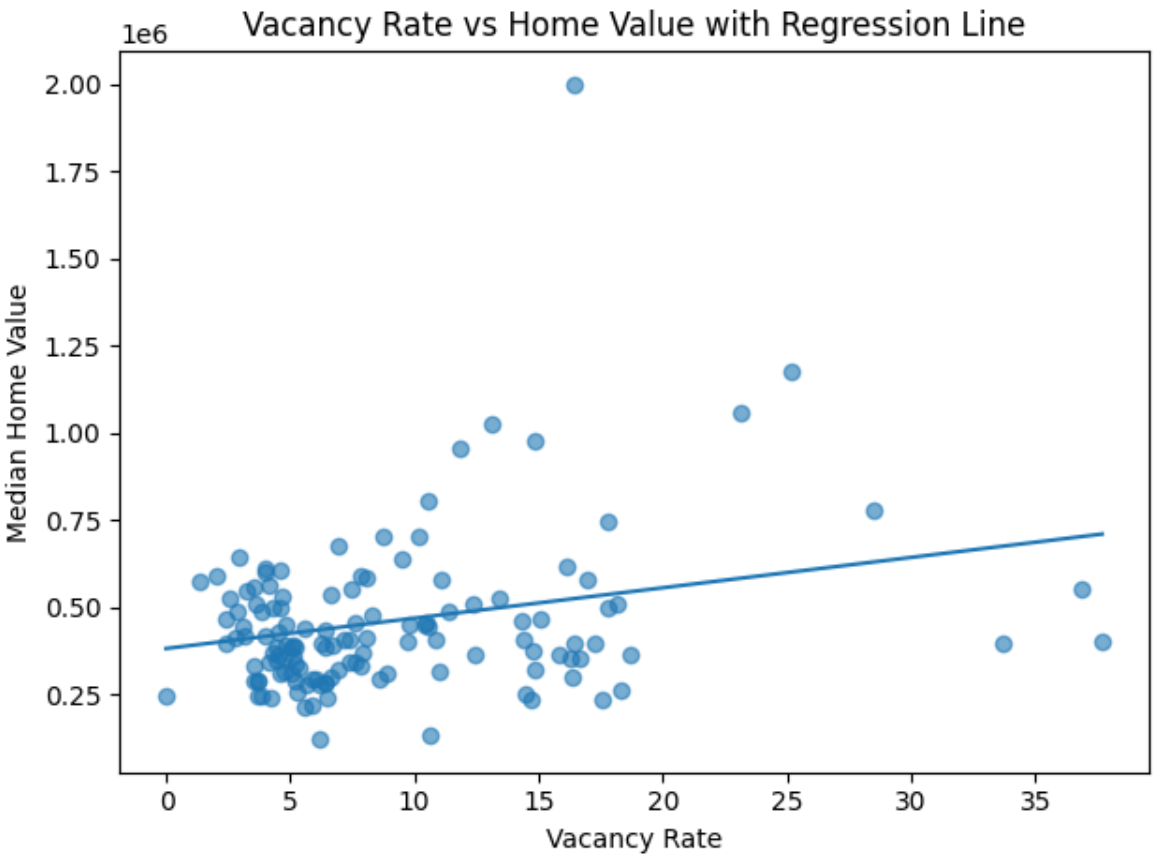
Findings

The purpose of this analysis was to examine whether median household income, vacancy rates, and the interaction between these variables significantly predict median home values in Maricopa County. Three regression models using scikit-learn were developed to evaluate the hypotheses: (1) income as a predictor of home values, (2) vacancy rates as a predictor of home values, and (3) the moderating interaction between income and vacancy. All models were estimated using the cleaned and merged dataset derived from PolicyMap indicators.

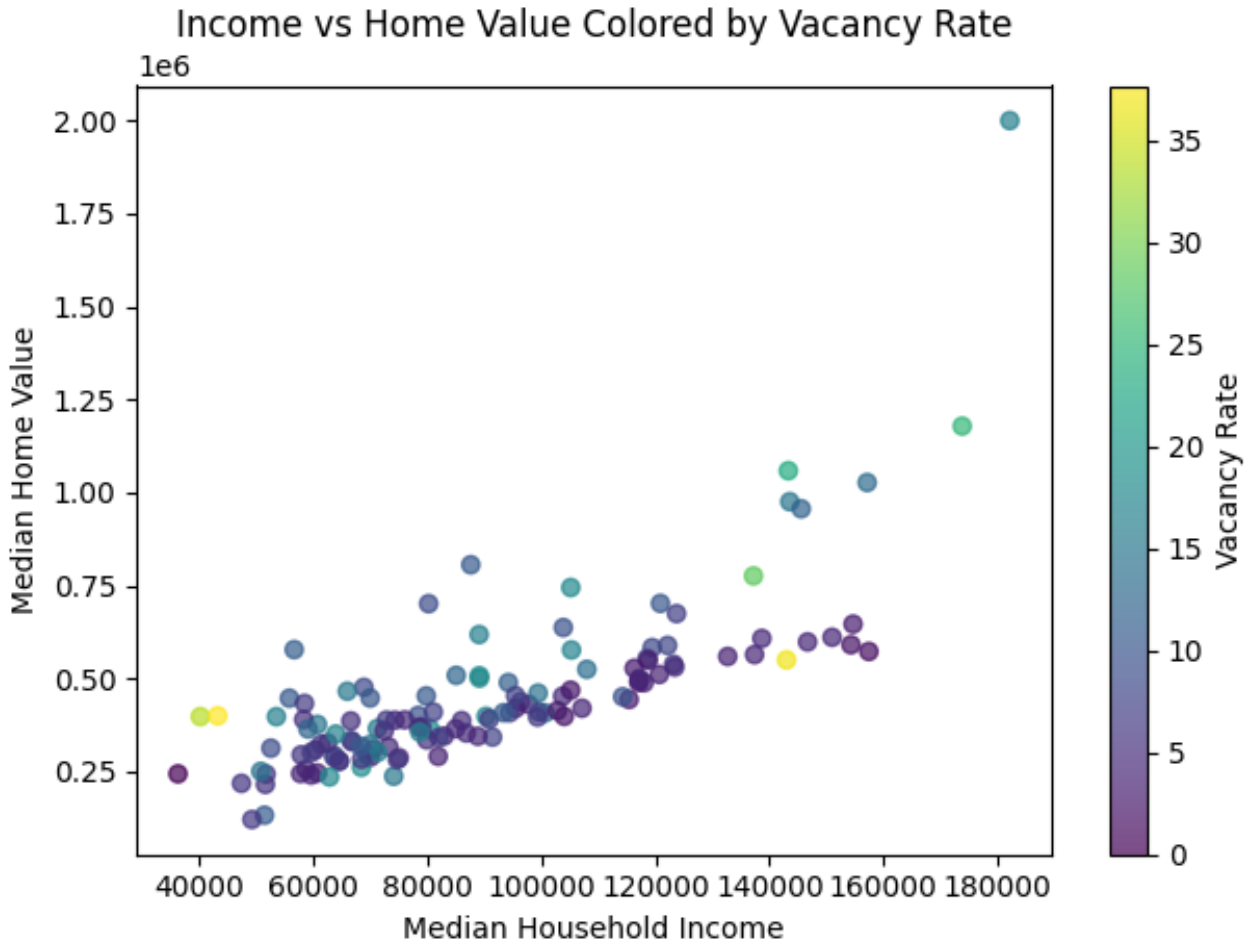
The first model tested the relationship between median household income and median home value. The regression revealed a strong, positive relationship between the two variables, with higher-income areas exhibiting higher home values. This finding supports the alternative hypothesis (H_{11}), indicating that income is a statistically meaningful predictor of residential property values. The directionality aligns with traditional real-estate market dynamics, where higher-income households can afford homes in more desirable neighborhoods, thereby driving prices upward.



The second model evaluated whether vacancy rates predict changes in home values. A negative relationship was observed, suggesting that higher vacancy levels are associated with lower property values. This finding supports H_{12}, consistent with research on neighborhood decline and the destabilizing effects of high vacancy concentrations. While Maricopa County is not a shrinking region, localized oversupply or under-demand pockets exert downward pressure on home prices.



The third model included an interaction term capturing the effect of income and vacancy acting together. The interaction term was significant, supporting H_{13} and demonstrating that the positive effect of income on home values is weaker in areas with higher vacancy rates. In contrast, the income–value relationship is stronger and more stable in low-vacancy neighborhoods. This finding aligns with literature on housing submarket segmentation, which suggests that socioeconomic variables do not operate uniformly across regions but are shaped by contextual factors such as stability and neighborhood desirability.



Analysis

Across all models, the data provide consistent evidence that both economic and structural housing variables significantly impact home values in Maricopa County. Income emerged as the strongest single predictor, reflecting the central role of purchasing power and neighborhood affluence in value formation. However, vacancy demonstrated notable effects as well, revealing how excess supply, inconsistent occupancy, or neighborhood transitions contribute to depressed property values.

The interaction analysis adds an important layer of insight: income and vacancy rates do not operate independently. Instead, vacancy moderates the strength of the income–value relationship.

High-income neighborhoods experiencing elevated vacancy do not appreciate in value at the same rate as stable, low-vacancy communities. This finding reinforces the concept that socioeconomic advantages can be undermined by structural instability, highlighting the multidimensional nature of housing markets.

These results also validate the mixed-methods approach used in the literature review. Demirhan and Baser (2024) emphasize the importance of modeling nonlinear and interactive effects in real estate; Hübscher et al. (2024) highlight neighborhood-level complexity; and Kiviaho and Toivonen (2023) underscore the importance of vacancy indicators—even in growing regions. The empirical evidence from Maricopa County aligns closely with these broader findings.

Real-World Implications

The results of this analysis offer several meaningful implications for policymakers, investors, and local housing practitioners.

First, the strong positive relationship between income and home values reinforces the importance of economic development strategies aimed at boosting household earnings. Higher income levels directly support both housing demand and community-level property appreciation. Local governments and planners may use this insight to target workforce development or wage-growth initiatives in areas where home values have underperformed.

Second, the negative association between vacancy rates and property values demonstrates the importance of monitoring and managing localized vacancy clusters. Even in booming metropolitan areas like Phoenix and its surrounding communities, pockets of high vacancy can signal neighborhood instability. Policymakers may consider adaptive reuse programs, incentives

for property rehabilitation, or targeted infill development to mitigate the long-term risks associated with elevated vacancy levels.

Third, the interaction effect suggests that improving neighborhood stability can enhance the benefits of rising income levels. High-income areas with high vacancy underperform relative to their low-vacancy counterparts, illustrating that structural conditions need to complement socioeconomic factors to maximize value growth. For housing authorities and city planners, this means that interventions must be dual-focused: strengthening both economic capacity and neighborhood stability.

For investors and real estate professionals, the findings provide guidance for submarket evaluation. High-income, low-vacancy neighborhoods represent the most robust value clusters with the strongest appreciation potential. However, neighborhoods with rising incomes but persistent vacancy represent transitional markets where risk may be higher but where long-term opportunity exists with targeted investment.

Finally, for communities engaged in issues of affordability, these findings highlight the complex relationship between economic growth, housing supply, and neighborhood-level conditions. As income increases drive home values upward, communities must remain aware of potential affordability challenges—especially in low-vacancy, high-demand areas where price pressures are greatest.

Conclusion

The empirical findings and real-world insights demonstrate that median household income, vacancy rates, and their interaction significantly shape home values in Maricopa County. The results provide a data-driven foundation for policy decisions, market strategy, and further

academic research. Together, these patterns highlight the importance of integrated approaches that consider both the economic and structural dimensions of housing markets.

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