

# Factors Influencing the Median Home Value Across U.S. Metropolitan Areas

ILRST 2130 Project Component 1

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Housing markets in the United States vary widely across metropolitan areas, with median home values differing widely between regions. These differences come from local economic conditions, labor markets and demographic factors. Recent data from the Federal Reserve Bank of St. Louis showed that the median sales price of houses sold in the United States has increased by approximately 30 percent in recent years, highlighting the importance of understanding the factors associated with rising housing values across regions.

In this project, we seek to determine which economic and demographic factors are most influential in explaining variation in median home values across U.S. metropolitan areas. Using metropolitan-level data from the American Community Survey 5-Year Estimates, we model median home value as a function of income, education, unemployment, population density, age composition, and housing tenure.

This project is written for real estate and housing market analysts interested in understanding cross-metropolitan variation in housing prices. Analysts frequently examine how economic conditions, labor markets, and population characteristics relate to housing demand and prices across regions. By using publicly available Census data, this analysis hopes to explore which metropolitan-level factors are most strongly associated with median home values, providing insight into patterns across U.S. housing markets.

*All variables are drawn from the American Community Survey 5-Year Estimates, accessed through the U.S. Census Bureau, unless otherwise noted.*

## Variables to model (y)

- **Median home value (USD):** This variable is obtained from the American Community Survey 5-Year Estimates and represents the midpoint of the housing value distribution within each metropolitan area. Median home value is used as a summary measure of local housing market conditions and reflects the combined effects of housing demand, supply constraints, and economic conditions. By modeling median home value as the response variable, it examines how economic and demographic characteristics of metropolitan areas are associated with variation in housing prices across the United States.

### Predictor variables (x)

- **Median household income (USD):** This will be used to capture residents' purchasing power. Areas with higher incomes are expected to have higher home values due to greater ability to afford more expensive housing.
- **Unemployment rate (%):** The unemployment rate is calculated as the number of unemployed individuals divided by the labor force. Higher unemployment may be associated with lower home values due to reduced economic stability and weaker housing demand.
- **Median age (years):** Median age reflects the age composition of the population. Areas with older populations may exhibit higher home values due to higher rates of homeownership and longer housing tenure.
- **Percent renter-occupied (%):** This variable is calculated as the proportion of occupied housing units that are renter-occupied. Metropolitan areas with a higher share of renters may have lower median home values, reflecting differences in housing stock and ownership patterns.
- **Percent of population with a bachelor's degree or higher (%):** Educational attainment is measured as the percentage of the population age 25 and over with at least a bachelor's degree. Higher levels of education are often associated with higher-paying jobs and stronger housing demand, which may be reflected in higher home values.
- **Population size (total population):** Total population is included as a proxy for market size and urban scale. Larger metropolitan areas may experience higher home values due to increased demand and greater competition for housing.
- **Vacancy rate (%):** The vacancy rate is calculated as the proportion of total housing units that are vacant. This variable captures housing market tightness, as areas with lower vacancy rates may face more constrained housing supply, potentially contributing to higher home values.

### Bibliography

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