Exploring the Interest Rate Relationship with Home Ownership

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Abstract

According to "Twelve of the Top 25 Highest Cost U.S. Cities Are in California" by CBS News from October of 2023, San Diego was listed as the #1 most expensive city in the United States[1]. This high cost of living is greatly impacted by interest rates - with higher interest rates, it costs more to borrow and spend money. Studies have shown that interest rates have an inverse relationship with housing prices[2]. However, more work is needed to study the relationship between interest rates and home ownership, specifically in the U.S. real estate market. Understanding the U.S. housing market is important because it comprises a significant portion of the U.S. economy[3]. Any changes in governmental policy relating to the housing and mortgage markets could have wide ranging effects and thus should be well understood. Predictive modeling may help inform future policy changes by providing a data-informed approach to estimating possible outcomes. We will leverage the following datasets to study this relationship and ultimately aim to produce a model that can predict home ownership percentage for a given interest rate.

1 Datasets

- US Real Estate & Interest Rates (Census & FRED)[4]
  - 1575 Records
  - 16 Columns, Columns of interest include 30-year mortgage rate, Region, consumer price index, and the average sales price
  - Data types for said columns are decimal, string, integer, and integer
- California Housing Prices[5]
  - 20640 Records
  - 10 Columns, Columns of interest include median income and median house value
  - Data types for said columns are decimal and integer

References

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[5] R. K. Pace and R. Barry, "Sparse spatial autoregressions," *Statistics & Probability Letters*, vol. 33, no. 3, pp. 291–297, 1997, Accessed on 30 October 2024.