

# Determinants of Housing Prices in Antelope Valley, California

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## **Introduction**

The real estate market has been a topic of debate for several years when the price of homes appreciated sharply, then as the market stabilized, and now as home sales and prices have fallen. In looking at some of the factors that tend to affect housing prices, I will examine which factors have the strongest influence in initiating a change in the price of homes sold in the Antelope Valley.

Published empirical research studied the determinants of housing prices, for which researchers concluded that, “real housing prices are estimated to decline with increases in real after-tax interest rates, and rise with both cyclical and more prominent income increases.”<sup>2</sup> These findings with regard to interest rates and income give me reasons to include these variables in my model.

Additional research studied the effects of income, wealth, the stock of housing, and interest rates on the price of homes. The study concluded that the “main determinants of house prices seem to be nominal interest, household income, and the supply of new dwellings.”<sup>3</sup> These findings strengthen my decision to include interest rates, household income, and the inventory (supply) of homes in my model.

Another empirical study looked at several traditional housing characteristics to explain housing prices. Included in this study was a review of 125 previous empirical studies which summarized how many times a specific variable was present, how many times it was positive, negative, and most importantly, not significant.<sup>4</sup> These findings showed that (among other variables) lot size, square feet, and the age of the home were significant in estimating housing prices. The number of days homes stay “for sale” in the market was found to be inconsistent in this study. However, I believe it does influence the price of homes in Antelope Valley; therefore it will be included in my model.

## **Model and Results**

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<sup>2</sup> Peek, Joe and James A. Wilcox. “The Measurement and Determinants of Single Family House Prices.” Federal Reserve Bank of Boston. Working Papers No. 91-7. December 1991.

<sup>3</sup> Berglund, Jonas. “Determinants and Forecasting of Housing Prices.” Thesis, Department of Economics. Uppsala University. 2007.

<sup>4</sup> Zietz, Joachim, Emily Zietz, and Stacy Sirmans. “Determinants of House Prices: A Quantile Regression Approach.”

In this study, I analyzed the determinants of housing prices in the Antelope Valley (an area bordering northern Los Angeles and southern Kern Counties in Southern California). Data for housing prices and characteristics from 2006 were gathered from the Greater Antelope Valley Association of Realtors.<sup>5</sup> Interest rates for conventional thirty-year fixed mortgages were obtained from the Federal Reserve Board, and the data for the average household income for each zip code was obtained from the Greater Antelope Valley Economic Alliance. A simple random sample of 92 records from 2006 sold data was used in this empirical analysis.

In my empirical study, the dependent variable was the sales price of residential units in dollars and the independent variables were:

- Average household income in the zip code where the house was listed for sale
- The thirty-year fixed conventional mortgage rate at the time the home went into escrow
- The number of homes on the market throughout the duration of the listing
- The house area measured in square feet
- The lot size measured in square feet
- The number of days the home was on the market before it went into escrow

I experimented with various specifications of the model, which led me to arrive at the following conclusion. The average household income and the house area (in square feet) had the greatest and most significant impacts on sales prices in the Antelope Valley residential housing market for the year 2006. My findings are supported by economic theory. As household income increases, spending generally will increase. Therefore, high-income households are willing and able to spend more on their home purchases. In addition, as the house area gets larger, the costs associated with building the additional space would increase, thus raising the sales price. Households would value the extra space and pay more for larger homes.

I still believe that interest rates have a profound influence on the selling price of homes although my study did not prove that to be the case. This inconsistency may be due to the fact that my sample covered only one year, during which the mortgage interest rate was fairly stable. Further research could analyze the impact that interest rates have on homes in Antelope Valley through several methods such as expanding the sample, looking back to the home sales from five to ten years prior, or using a lag model. Many other variables in this study may become more significant if the sample size were larger, taken from several years rather than one year, or from a wider area, possibly expanding to all of Los Angeles or Kern County.

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<sup>5</sup> Courtesy of Century 21 Yarrow & Associates, Lancaster, CA.