

# Curtain Up

## Unveiling a New Tool for Homebuyers and Sellers

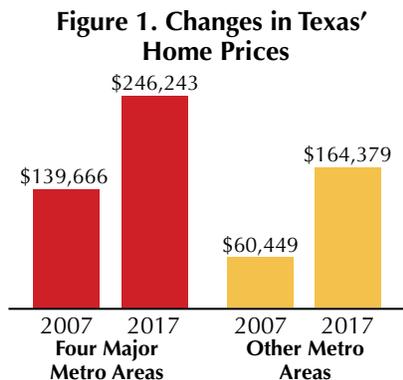
Joshua G. Roberson  
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It doesn't take a real estate expert to recognize that Texas' home prices keep increasing. At the end of 2017, the median residential home price in Texas was \$224,000, but there was a large disparity between the four major metro areas and the rest of the state. The average median price in Dallas-Fort Worth, Houston, Austin, and San Antonio was \$246,243 while in all other Texas metros the average median price was \$164,379.

Roll back just ten years to see how much has changed. At that time, the overall state median price was \$146,105, or 65 percent of the 2017 amount. In the major metros, the price was \$139,666, and for all other metros the price was just \$60,449—significant differences over a ten-year period, even after accounting for inflation (Figure 1).



Source: Real Estate Center at Texas A&M University

### The Takeaway

With an improved and expanded database through the Data Relevance Program with the Texas Association of Realtors, the Real Estate Center is now able to generate a repeat sales home price index for Texas' four major metros as well as for several smaller metros.

To help shed some light on home price changes, the Real Estate Center has rolled out its online, quarterly Texas Home Price Index (HPI) at [www.recenter.tamu.edu/data/home-price-index/](http://www.recenter.tamu.edu/data/home-price-index/). The index, which is made possible through a research agreement with the Texas Association of Realtors, covers the state's four big metros and a handful of mid-sized ones. In addition, it provides indexes by price tier for some of the larger Texas markets. But more on that later.

### How Prices Got There

Part of the reason for the massive swing is the difference in economic climates. In 2007, the United States' financial system was feeling the pain brought on by the

housing market collapse. Even though Texas wasn't as directly exposed to the housing bubble as other states were, its economy nonetheless stalled along with the national economy.

The U.S economy is still seeking full recovery, but Texas' resilient growth has bolstered home values. However, this only explains why overall Texas home prices have grown so rapidly. What is the best way to measure and compare price changes from market to market?

## **The Trouble with Home Sale Price Statistics**

Home price statistics, such as average or median price, are familiar and commonly used metrics to follow pricing trends from market to market. They are typically generated by aggregating home sales data within a specific area during a set period. For example, all sales within Dallas County are summed up in one aggregated figure, and an average (or median) is computed.

Data for these statistics normally come from either public records, proprietary data collection processes, or through the Multiple Listing Service (MLS). Because Texas is a non-disclosure state, final pricing data more often come through the MLS. The Real Estate Center publishes a variety of pricing metrics on its website under "Housing Activity."

When using these metrics to analyze a market's pricing trends, keep in mind only a small percentage of a market's housing stock is sold at any given time. This is normally not a big deal, but sometimes short-term swings in market trends can lead to exaggerated pricing analytics. These swings can be due to changing consumer demands or sudden scarcity in certain market segments. In either case, these causes can be hard to see on paper when aggregating pricing data.

Because of constant changes in market mix, using general home sales statistics alone may not be the best way to follow price growth. Due to these shortcomings, other methods have been developed to measure housing price appreciation more accurately.

## **Mini-Case Study: The Woodlands**

In mid-2014, the price of oil per barrel began falling sharply after riding through several boom years. Oil prices bottomed out in early 2016 and have gradually risen since. To no one's surprise, this fall in oil had an impact on Texas' economy and housing markets.

Housing statistics for The Woodlands between 2015 and 2016 include what may look like a big fallout in prices following the oil bust. At the end of 2015, the median

price of homes sold was \$360,000, while at the end of 2016 it was \$327,750, a whopping 8 percent year-over-year fall. While it would be easy to generalize this as a decrease in market home prices due to oil, further analysis reveals a little more behind the scenes.

During those two years, The Woodlands' housing market had a temporary market shift. Overall sales volume dropped between one year and the next. In addition, sales of larger homes (around 4,000 square feet or more) stalled in 2016, which then increased the proportion of smaller homes. While falling oil prices most likely had an overall dampening effect on this housing market as they did on many others, changes in market mix may have also played a hand in exaggerating the price change.

Given how different one house is from another within a market, big changes in market mix make it that much harder to follow overall price trends. This is especially the case if the stock of one type of home is temporarily disproportional compared with the overall stock. Changes in market mix, like those that occurred in The Woodlands, raise a question: are the same types of houses being compared from one period to another?

## **Advantages of Repeat Sales Analysis**

One of the more popular methods of identifying market price appreciation is through the repeat sales analysis. That is, measuring the change in sales price from multiple sales of the same house.

Repeat sales analysis has a few advantages over other types of analysis. First, home sales are screened to identify properties that have sold at least twice. This helps with the issue of changing market mix from period to period because the analysis focuses on the same property over time instead of different mixes of properties. Second, looking at properties that have sold multiple times shifts the focus to the change in price since the last sale of a specific property. This helps capture appreciation.

Repeat sales analysis takes another step to isolate true home price appreciation. Ideally, the analysis includes only homes that have had no or minimal physical changes to focus on market-driven price appreciation.

Take, for example, a home purchased ten years ago but that now has an additional bedroom and a pool. Both of these improvements are likely to add value to the home. Repeat sales analysis is interested only in market-driven price appreciation. This property would be eliminated from analysis because there would be no way to differentiate between price change from the homeowner's improvements and price change from general market forces.

## Home Price Indexes

With data now focused on price change, it's possible to re-examine market-driven price appreciation by aggregating these records into a home price index (HPI). Currently, a handful of repeat sales HPIs are publicly available. These include the Federal Housing Finance Agency (FHFA) HPI, the Freddie Mac HPI, and the S&P CoreLogic Case-Shiller HPI. Each is based on the same core methodology but differ mainly in their data sources and model tweaks.

Both the FHFA and Freddie Mac indexes are constructed using mortgage data through their mortgage pipelines. The FHFA index is actually a joint effort between Fannie Mae and Freddie Mac to maximize geographic coverage of home price index estimates. This data source helps both of these publishers provide Texans with a wide variety of home price metrics at the metropolitan and county levels. These indexes are limited by conventional conforming loans which, by nature, exclude higher-priced homes funded through jumbo loan financing.

The S&P CoreLogic Case-Shiller HPI is published through S&P Dow Jones Indices and is sourced by public housing records and various data partnerships. This index is renowned and commonly quoted through various news outlets. The index is available for the largest U.S. markets and may include additional indexes for condominiums and indexes by low-, middle-, and high-priced tiers. However, its coverage of Texas is limited to the Dallas-Fort Worth market.

### A Look at REC's New Index

A sample of the Center's HPI for Houston (Figure 2) shows the city's housing market has gone through a number of real estate cycles since the beginning of the series in 2003. A slowdown in price appreciation began in 2007 after a long period of year-over-year growth. Another price slowdown occurred shortly after 2014 when the oil boom ended.

The trends for the two indexes are similar. However, the repeat sales index falls below the median price series. This is partly because repeat sales indexes inherently include only existing homes because those are the homes most likely to have sold more than twice. This is actually a criticism of the repeat sales model since it excludes newer homes that tend to have higher prices. One way of looking at this, though, is that the repeat sales model follows the existing housing stock instead of the

Figure 2. Houston Home Price Index

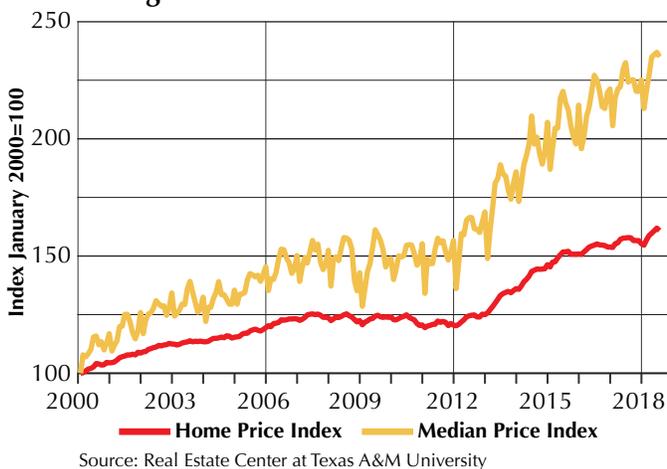
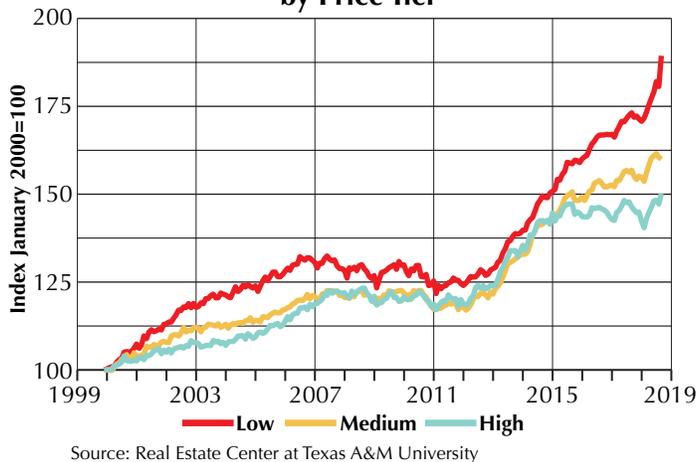


Figure 3. Houston Home Price Index by Price Tier



immediate housing market trends. It's a good example of how there is no one model to rule them all. Home price indexes are best at describing longer-term price growth while home sales statistics are best at describing the price of what has sold at that time.

Another way to use repeat sales indexes is by splitting the properties by price tiers (Figure 3). This is done by grouping properties against other home prices when the properties are first purchased. Following these properties across time in Houston revealed that, while each price tier grew year over year, Houston's lower-priced homes tended to ride the highs and lows with greater magnitude than homes in the higher-priced cohorts. Lower-priced homes began diverging from the pack in 2014, possibly due to the general rising scarcity in lower-priced homes. ➡

Roberson ([jroberson@mays.tamu.edu](mailto:jroberson@mays.tamu.edu)) is a senior data analyst with the Real Estate Center at Texas A&M University.