

A Reprint from *Tierra Grande*

By Ali Anari

In free market economies, the prices of goods and services are determined by peoples' willingness and ability to pay for them. In the short run, home prices are determined by supply and demand conditions in local housing markets, credit availability and mortgage rates. But in the long-run, family income is the single most fundamental factor in determining home prices.

As past home price boom-bust cycles in many regions of the United States and other countries have shown, changes in credit availability and short-run market conditions can generate home price booms, but whether the booms end in bust depends on whether homeowners' incomes can cover the costs of homeownership. Prices can deviate from their long-run values because of market conditions and the availability and costs of

credit, but eventually prices revert to their fundamental values as determined by family incomes.

An analysis of the relationships between home prices and family incomes in regional residential markets can help determine whether home prices reflect their fundamental values and the extent to which they may deviate from those values.

Real Estate Center researchers studied the relationships between home price distribution and income distribution in Texas real estate markets and found that home price distributions in the state and its major metropolitan areas are closely aligned with income distributions. The alignment is especially strong for homes priced from \$100,000 to \$300,000 and family incomes more than \$50,000 but less than \$200,000.

Table 1. 2009 Home Price Distribution in Texas, Austin, Dallas and Houston

Home Price	Number of Owner-Occupied Residential Units				Percent of Total			
	Texas	Austin	Dallas	Houston	Texas	Austin	Dallas	Houston
Less than \$100,000	2,023,535	45,852	353,427	359,821	37.3	12.7	25.8	28.8
\$100,000 to \$199,999	2,061,552	147,324	588,832	533,621	38.0	40.9	43.0	42.8
\$200,000 to \$299,999	719,083	78,731	224,913	180,976	13.2	21.9	16.4	14.5
\$300,000 to \$399,999	287,031	37,703	93,707	75,439	5.3	10.5	6.8	6.0
More than \$400,000	339,499	50,588	108,322	98,168	6.3	14.0	7.9	7.9
Total	5,430,700	360,198	1,369,201	1,248,025	100.0	100.0	100.0	100.0

Austin = Austin-Round Rock; Dallas = Dallas-Fort Worth-Arlington; Houston = Houston-Sugar Land-Baytown
Sources: U.S. Census Bureau and Real Estate Center at Texas A&M University.

Determining Home Price Distribution

To compare home price distribution and income distribution in Texas, the project divided 2009 U.S. Census Bureau home price data and family income data into five parts, or quintiles (Tables 1 and 2).

There were 2,023,535 housing units priced less than \$100,000 in Texas in 2009, accounting for 37.3 percent of housing units. Austin-Round Rock had the smallest percentage of housing units in this quintile (12.7 percent) followed by Dallas-Fort Worth-Arlington (25.8 percent) and Houston-Sugar Land-Baytown (28.8 percent; Table 1).

Housing units valued from \$100,000 to \$199,999 accounted for 38 percent of total residential units in Texas, 40.9 percent in Austin, 43 percent in Dallas and 42.8 percent in Houston. The homes in this category are more evenly distributed among the three regional markets.

About 13.2 percent of total housing units in Texas were in the third quintile, with values from \$200,000 to \$299,999. Austin had the largest share of homes in this bracket (21.9 percent), followed by Dallas (16.4 percent) and Houston (14.5 percent).

Roughly 5.3 percent of the state's homes were priced between \$300,000 and \$399,999. This price range accounted for 10.5 percent of housing units in Austin, 6 percent in Houston and 6.8 percent in Dallas.

Only 6.3 percent of Texas' owner-occupied housing units were priced higher than \$400,000 in 2009. Again, Austin had the largest share of these expensive homes, 14 percent, compared with 7.9 percent for Dallas and Houston (Table 1).

Texas Income Distribution

In 2009, 2,647,123 families in Texas had annual incomes less than \$50,000, accounting for 44.4 percent of all state families (Table 2). Austin had the smallest percentage of families in this quintile (35.7 percent), followed by Dallas (38.3 percent) and Houston (40.5 percent; Table 2).

Texas families with annual incomes from \$50,000 to \$99,999 accounted for 32 percent of total Texas families with 33.8 percent in Austin, 32.7 percent in Dallas and 30.7 percent in Houston. The numbers of families in this income bracket are more evenly distributed among the three regional markets.

About 13.8 percent of Texas families had annual family income between \$100,000 and \$149,999. Austin claimed the

largest share of families in this income bracket (17.3 percent), followed by Dallas (16.5 percent) and Houston (15.5 percent).

Roughly 5 percent of the state's families had annual incomes between \$150,000 and \$199,999. This income range accounted for 7.1 percent of families in Austin, 6.5 percent in Houston and 6.2 percent in Dallas.

Only 4.8 percent of Texas families had family income of more than \$200,000 in 2009. This income bracket accounted for 6.2, 6.4 and 6.7 percent of families in Austin, Dallas and Houston, respectively (Table 2).

Analysis of Home Price Distributions And Income Distributions

A visual inspection of home price and income distributions in Texas, Austin, Dallas and Houston (Figures 1-4) shows a close association between the two. However, more sophisticated statistical methods exist to investigate the strength of the association.

Pearson's correlation coefficient is one simple statistical measure of the strength and direction of a relationship between two variables. The values of this measure vary from minus one to plus one. Applying this to the pairs of home price distribution and family income distribution, positive (negative) values of the correlation coefficients indicate a relationship in which as income values increase (decrease), home prices also increase (decrease). If home price and family income have a strong positive linear correlation, the correlation is close to plus one.

This research found a positive correlation coefficient of 0.95 for income and home price distributions for Texas (Figure 1). The coefficient increases to 0.99 percent for family income brackets of more than \$50,000 and home price brackets of more than \$100,000 (Figure 1).

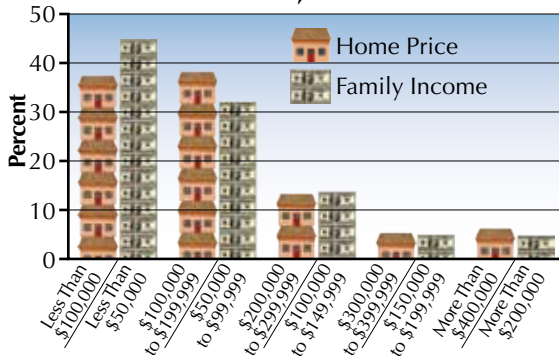
The correlation coefficient for the relationship between Austin home prices and incomes was 0.53, but for income brackets more than \$50,000 and home prices more than \$100,000, the coefficient rose to 0.98 (Figure 2). The Dallas metro area's correlation coefficient was 0.85, increasing to 0.99 for income brackets more than \$50,000 and home prices more than \$100,000 (Figure 3). The Houston metro area had a correlation coefficient of 0.85, which rose to 0.98 for income brackets of more than \$50,000 and home prices more than \$100,000 (Figure 4).

Table 2. 2009 Family Income Distribution in Texas, Austin, Dallas and Houston

Family Income	Number of Families				Percent of Total			
	Texas	Austin	Dallas	Houston	Texas	Austin	Dallas	Houston
Less than \$50,000	2,647,123	137,706	583,929	577,324	44.4	35.7	38.3	40.5
\$50,000 to \$99,999	1,905,820	130,390	498,137	438,222	32.0	33.8	32.7	30.7
\$100,000 to \$149,999	819,045	66,696	251,580	220,807	13.8	17.3	16.5	15.5
\$150,000 to \$199,999	295,835	27,393	95,039	92,985	5.0	7.1	6.2	6.5
More than \$200,000	288,544	23,800	96,989	95,947	4.8	6.2	6.4	6.7
Total	5,956,367	385,985	1,525,674	1,425,285	100.0	100.0	100.0	100.0

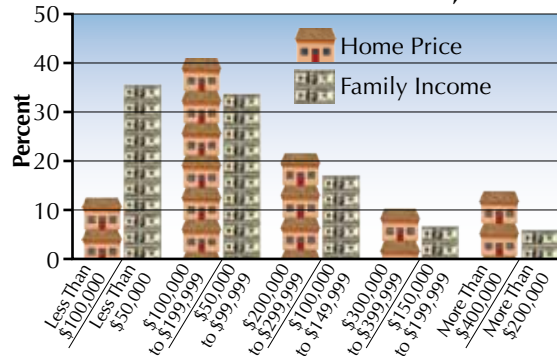
Austin = Austin-Round Rock; Dallas = Dallas-Fort Worth-Arlington; Houston = Houston-Sugar Land-Baytown
Sources: U.S. Census Bureau and Real Estate Center at Texas A&M University.

Figure 1. Home Price Distribution by Income Texas, 2009



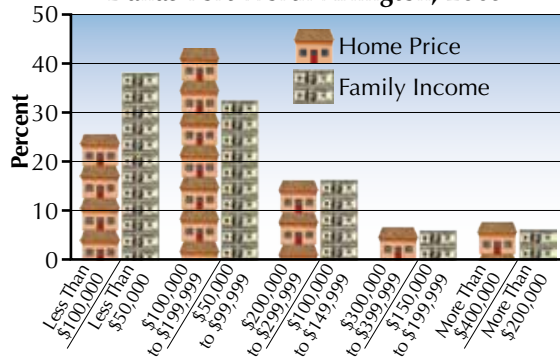
Source: Real Estate Center at Texas A&M University

Figure 2. Home Price Distribution by Income Austin-Round Rock-San Marcos, 2009



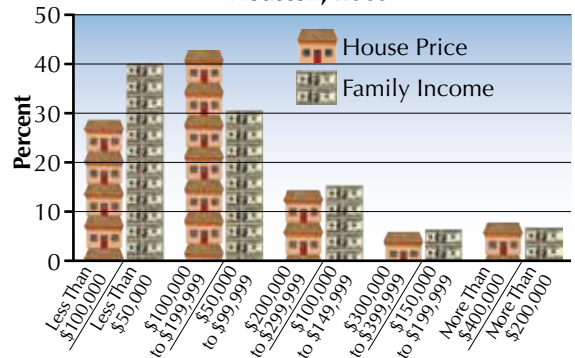
Source: Real Estate Center at Texas A&M University

Figure 3. Home Price Distribution by Income Dallas-Fort Worth-Arlington, 2009



Source: Real Estate Center at Texas A&M University

Figure 4. Home Price Distribution by Income Houston, 2009



Source: Real Estate Center at Texas A&M University

Market Segments Identified

Further analysis of these relationships reveals that the state's housing market is divided into three price and income brackets. The first bracket consists of annual family incomes less than \$50,000 and home prices less than \$100,000.

The second bracket comprises homes valued at more than \$100,000 but less than \$400,000, and family incomes of more than \$50,000 but less than \$200,000. Home prices and family incomes in this bracket were found to be highly correlated.

The third bracket includes homes valued at more than \$400,000 and annual family incomes above \$200,000.

The close alignments of home price distribution and family income distribution in Texas and in the state's major metropolitan areas confirm that the state's residential real estate

markets are driven mainly by family income, the fundamental economic variable in residential real estate markets. This means a major home price drop in Texas is unlikely given gradual, small changes in family income over time. 📌

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THE TAKEAWAY

Research shows that Texas homebuyers tend to trade up as their income rises, especially in the lower home price ranges. This trend lessens as family income goes up because, at some point, people decide they don't need a bigger house even if they get a pay raise.



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The oil and gas reviews are in!



Colossal!*

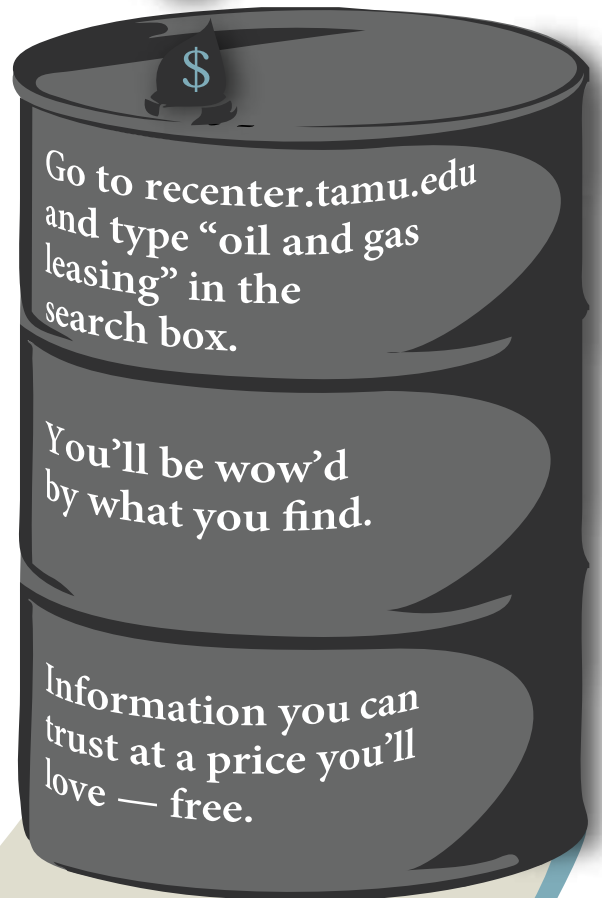
*Amount of oil and natural gas drilling in Texas.

Immense!**

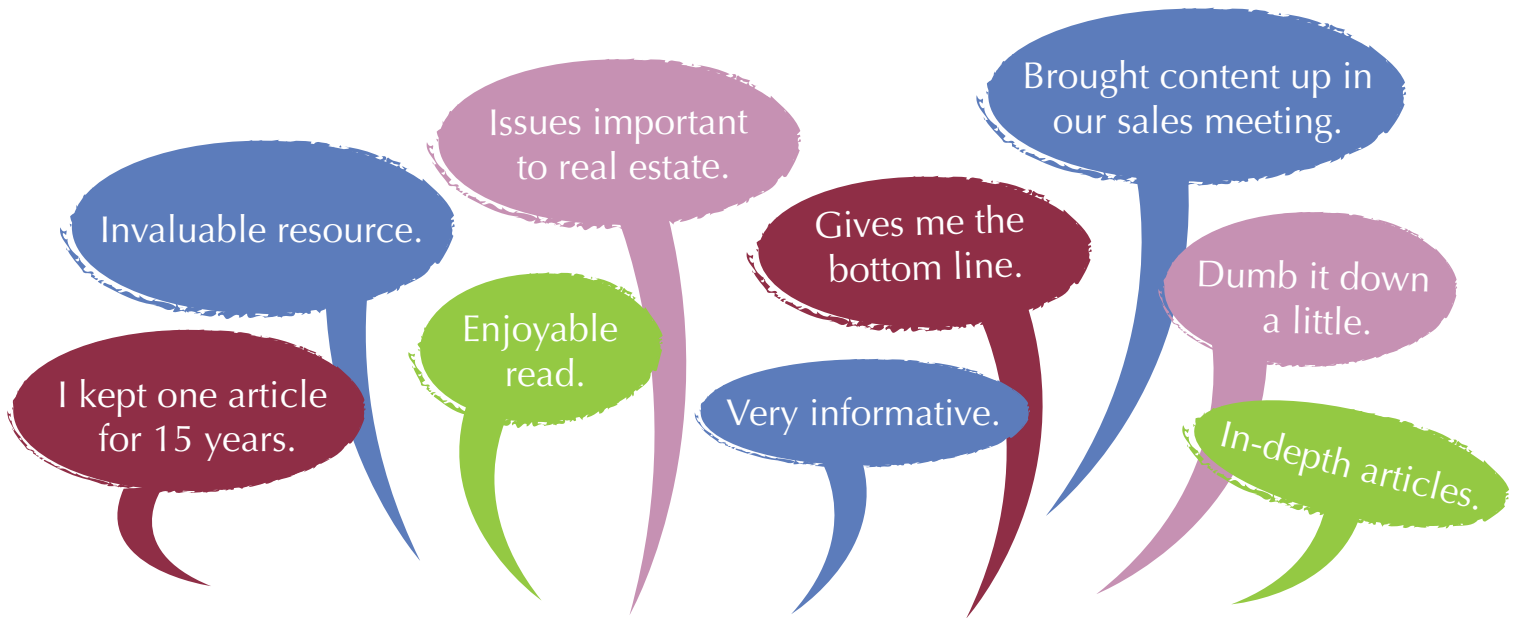
**Amount of knowledge landowners need to negotiate an oil and gas lease.

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