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Tracking Affordability

By Jack C. Harris

Housing markets need two things to perform well: prosperity and affordability. When job security is strong and incomes are rising, more people have the financial confidence to purchase a first home or move up to a better home.

A strong economy means more people are moving into an area than are leaving, and the higher demand for housing supports rising property values.

When homes are affordable, more people enter the market because they can qualify for the financing needed to purchase a home. How affordable homes are depends on interest rates and the relationship between housing prices and income. All of these factors are taken into account in the Texas Housing Affordability Index (THAI) compiled by the Real Estate Center.

What the Index Means

The THAI tracks the ability of the typical Texas household (a household earning the median Texas income) to buy a house selling for the median home price. The index is not like the consumer price index, which is pegged to a specific point in time. Instead, the THAI is a ratio arrived at by dividing the median household income for a market area by the income needed to buy a home selling at the area's current median sales price.

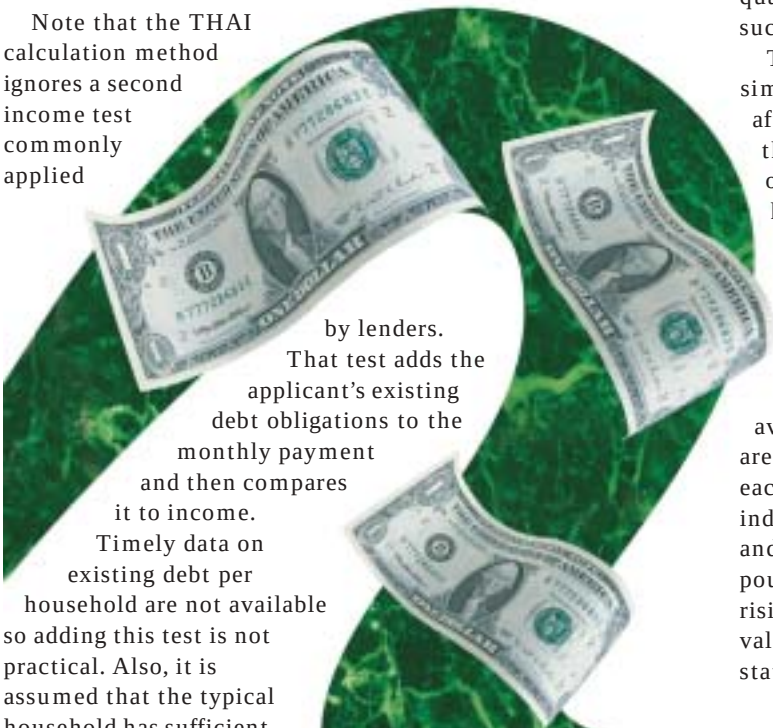
The THAI for each market area estimates the percentage of area households that can afford the median-priced home. If household income and income needed to buy the median-priced home are the same, the index has a value of 1.00. This means the median income for the area is enough to afford the median-priced home, and half (50 percent) of all households can afford the median priced home. If household income is higher than that needed, the index is greater than 1.00, more than half the households can afford the home and the market is considered affordable. For example, a THAI of 1.34

indicates that the median area household has 34 percent more income than needed to buy the area's median-priced home. Conversely, an index less than 1.00 means that household income is insufficient to purchase the median-priced home and the market is unaffordable. The index value indicates how much more or less household income there is compared to what is required.

Several assumptions are made to arrive at the amount of income needed to buy the median-priced home. The THAI uses a method similar to that used by lenders to qualify loan applicants. First, the mortgage amount is calculated by multiplying the median house price by the standard loan-to-value ratio of 80 percent (see "Sample THAI Calculation"). Second, the monthly payment is estimated based on the current mortgage interest rate, a 30-year term and an average increment added for the insurance and tax escrow payment. Third, the minimum monthly income is calculated by applying the payment-to-income ratio required by most conventional lenders. Finally, the monthly income is converted into an annual figure.

Existing Debt Not Considered

Note that the THAI calculation method ignores a second income test commonly applied by lenders. That test adds the applicant's existing debt obligations to the monthly payment and then compares it to income. Timely data on existing debt per household are not available so adding this test is not practical. Also, it is assumed that the typical household has sufficient cash to make a 20 percent down payment. Again, data are not available for determining how realistic this assumption is for each area. A 20 percent down payment is used because that is the minimum down payment required to avoid paying for private mortgage insurance.



The THAI is estimated for most local areas that report home sales data to the Real Estate Center. Areas not reporting median sales price are excluded. A quarterly estimate is made for each area. These estimates are reported approximately six weeks following the end of the quarter, the earliest that mortgage interest rate data are available. This lag time results in a more complete reporting of sales during the quarter. Values are available for most Texas metro markets on a quarterly basis on the Center's website (see http://recenter.tamu.edu/data/dataaffd.html for the latest figures).

Quarterly estimates are based on projected household income numbers. When better data become available later in the year, a final annual estimate is made for the preceding year. These annual estimates indicate past trends in affordability. A table of annual values for each local market is included in the THAI annual report.

Historically, increases in the THAI have corresponded with increased sales and THAI decreases with decreased sales growth. The THAI is one indicator of market vitality. At times, a market can appear strong because prices are rising and buyer motivation is strong. But such markets may actually be weakening from a lack of affordability. Sales may be thinning as prices rise until the upward price spiral collapses from a lack of qualified buyers. The THAI may provide an early warning of such developments by expressing affordability trends.

The National Association of Realtors (NAR) compiles a similar measure. In fact, the THAI originally was patterned after the NAR index. The main difference between the two is that NAR uses family income, defined as the income of two or more related persons, and the THAI is based on median household income. Household income is lower because it includes single-person households. Nonfamily households do buy homes, and their ability to do so should be reflected in the index.

The NAR index is compiled only for the nation. By contrast, a separate THAI value is calculated for every local Texas market for which median sales price data are available. Most of these areas cover an entire metropolitan area, but some are county or city specific. The coverage for each area is described in the THAI report. Having localized indexes allows more detailed monitoring of affordability trends and shows how a run-up in home prices can counter or compound the effects of interest rate changes. For example, rapidly rising prices in Austin during the late 1990s caused THAI values for that area to fall more drastically than they did statewide.

First-Time Buyer's Index

Affordability has special meaning for first-time buyers, particularly when high prices and high interest rates prevent them from entering the market. First-time buyers generally have lower incomes

Sample THAI Calculation

Here is a sample THAI calculation using statewide data for first quarter 2002.

Median home price = $121,500

× 80 percent = $ 97,200

At 6.92 percent interest, a 30-year loan has a monthly principal and interest (P&I) payment of $641.46.

An escrow payment is added equal to 17 percent of the P&I, or:

$641.46 + .17 (641.46) = $750.51 = monthly payment

Conventional loans generally require monthly payments to be no more than 28 percent of monthly income:

Minimum monthly income = $750.51 / 0.28 = $2,680.39

This equates to an annual income of: 12 x $2,680.39 = $32,164.68

Median household income for Texas during the period is estimated to be $42,960

Therefore, the THAI for the period is $42,960 / $32,165 = 1.34.

than those who already own a home, and they rarely are able to make substantial down payments.

To monitor the buying power of first-time buyers, the Center has the First-Time Homebuyer Affordability Index (FTHAI). This index is similar to the THAI, but is calculated using different assumptions. The household income figure is the median renter household income because most first-time buyers are currently renting.

The median home price is an estimate of what a typical "starter" home would sell for locally. The financing used is a 95 percent loan-to-value FHA loan requiring an up-front mortgage insurance premium that is financed into the loan and a monthly insurance premium. The minimum income needed to purchase a home is based on FHA's requirement for a 29 percent payment-to-income ratio.

Can Local THAIs be Compared?

Because each market has its own THAI value, it is tempting to use the data to compare affordability among areas. Such comparisons can be misleading. For example, Denton's THAI of 1.45 in first quarter 2002 appears to make housing in that area a bargain compared to Brownsville, with a THAI of 1.06. But the median Denton house price was $149,700, while in Brownsville it was only $79,600. Anyone moving from Brownsville to Denton to get more affordable housing would be disappointed. Denton's housing is more affordable for Denton residents, who have a median income of $57,700 compared to Brownsville's median income of $22,400.

Although homes are more expensive in Denton compared with Brownsville, the difference in their THAI values indicates that Denton residents have less difficulty buying a home because their income more than makes up for the higher home prices. Thus, relative THAI values express something about local housing market conditions. For example, affordability might be expected to lead to higher rates of homeownership. Yet, when THAI and homeownership rates are compared statistically, the correlation is not high.

Minority, Student Distortions

There are two reasons for this. First, homeownership rates are determined more by demographic factors — age and family makeup — than economics. People decide to become homeowners because doing so fits their situation; then they follow through if they can afford it. Affordability is only part of the equation. Second, the data used to calculate THAI may lead to distortion in some cases.

The main problem is that median household income covers the entire population of the area. If a sizable portion of the population rarely buys homes, it has little effect on home prices. For example, a large portion of the Bryan-College Station population consists of students. Students have low incomes that depress the overall median income. College students, by and large, do not buy homes. Consequently, the median sales price reflects the homes purchased by more affluent residents, and the THAI formula makes the market look much less affordable than it is (0.97 in first quarter 2002).

Such distortion may also be caused by concentrations of ethnic minorities. Hispanic and African-American families, as a group, tend to have lower incomes and homeownership rates. Thus they affect THAI much like the college students — lowering the overall median income without having much effect on prices. Consequently, a high inverse correlation exists between THAI and the percentage of Hispanic and African-American households.

Aside from these aberrations, the THAI does indicate some things about relative affordability. For example, a high correlation exists between THAI and the percentage of middle-income households in the area. It is possible that these households insist on better value when buying a home. Also, THAI tends to be lower in areas experiencing rapid growth, as in the case of Austin. The increase in housing demand caused by growth often outstrips supply and pushes home prices up, resulting in less affordability.

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