[GCHP Logo logo only](http://www.gchp.net/)**Gulf Coast Housing Partnership**

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July 2018

***GCHP Housing Market Index Methodology***

**Purpose:**

The GCHP Housing Market Index is designed to offer a preliminary estimation of the strength of the housing market in a particular location by US Census Tract. The index considers 24 economic and social indicators and aggregates them to score the area of interest. This document will outline the data sources and methods used to develop this index.

**Data Sources**:

Data is drawn from the American Community Survey 5-Year Estimates, which are released annually by the US Census Bureau. To capture change overtime, the index considers both the most recent vintage and the most recent non-overlapping vintage. For example, at the time this document was written, the index used the 2012-2016 ACS 5 Year Estimates and the 2007-2011 5 Year Estimates. The indicators chosen to measure housing market strength appear below, along with the particular US Census data table they were chosen from, and their field identifier.

|  |  |  |
| --- | --- | --- |
| Name | Table | Field ID |
| Percentage of Housing Units Occupied by Renters | Data Profile | DP04\_0047PE (2016),  DP04\_0046PE (2011) |
| Rental Vacancy Rate | Data Profile | DP04\_0005E |
| Percent Vacant Units | Data Profile | DP04\_0003PE |
| Poverty Rate (Families) | Data Profile | DP03\_0119PE |
| Poverty Rate (Individuals) | Data Profile | DP03\_0128PE |
| Median Household Income | Data Profile | DP03\_0062E |
| Percentage of Individuals with a Bachelor’s Degree or Higher | Data Profile | DP02\_0067PE |
| Unemployment Rate | Data Profile | DP03\_0009PE |
| Total Population | Data Profile | DP02\_0086E |
| Median Gross Rent | Detail | B25064\_001E |
| Median Property Value | Detail | B25097\_001E |

*\* Note: Field names occasionally change between vintages (as was the case for the Percentage of Housing Units Occupied by Renters).*

A further indicator was computed using raw ACS data: Percentage of Rents Offered that Exceed 30% of Area Household Income. This indicator was assembled using six fields in the ACS 5 Year estimates.

|  |  |  |
| --- | --- | --- |
| Name | Table | Field ID (2012-2016) |
| Total Number of Rents Offered | Detail | B25070\_001E |
| Number of Rents between 30% and 34.9% of HI | Detail | B25070\_007E |
| Number of Rents between 35% and 39.9% of HI | Detail | B25070\_008E |
| Number of Rents between 40% and 49.9% of HI | Detail | B25070\_009E |
| Number of Rents 50% of HI or Higher | Detail | B25070\_010E |
| Number of Rents % of HI not Computed | Detail | B25070\_011E |

The calculation to determine Percent of Rents Offered that Exceed 30% of Area Household Income is as follows:

These indicators are collected for both the most current vintage and the older, comparison vintage. In total, the GCHP Housing Market Index considers 24 indicators: the 12 indicators detailed above, as well as the percentage change for each between the comparison and current vintage. This index considered census tracts in six states: Louisiana, Georgia, Florida, Mississippi, Texas, and Alabama.

**Methodology**

*Preprocessing*

* All Indicators measured in currency (such as median rent, median household income, and median property value) in the comparison vintage are inflation-adjusted so that they may be compared to values in the current vintage. From the 2011 5-Year Estimates to the 2012 5-Year Estimates, the inflation multiplier was 1.06686838.[[1]](#footnote-1)

*Standardization*

* Each value for each indicator was converted to a z-score, the formula for which is given as follows:

Where is the raw value, is the mean of all values for this particular indicator, and is the standard deviation of all values for a particular indicator.

A z-score places the datapoint in context within the set of all values, and answers the question “how much does this datapoint deviate from the mean?”

*Negative Factors*

* While this index makes no assumptions about the relative importance of its composite indicators, it does distinguish between indicators with plausible positive or negative effects on housing market strength.

|  |  |
| --- | --- |
| Positive Indicators (+) | Negative Indicators (-) |
| Percentage of Housing Units Occupied by Renters | Rental Vacancy Rate |
| Median Household Income | Percent Vacant Units |
| Percentage of Individuals with a Bachelor’s Degree or Higher | Poverty Rate (Families) |
| Total Population | Poverty Rate (Individuals) |
| Median Gross Rent | Unemployment Rate |
| Median Property Value | Percent of Rents Offered that Exceed 30% of Area Household Income |

For negative indicators, each value (now standardized to z-scores) is multiplied by negative one to ensure that the direction of the effect is considered in the overall score of a Census Tract.

*Averaging*

* For each Census Tract, its z-scores for all indicators are combined in an unweighted average, according to the following formula.

Where is the number of indicators and is the standardized value. Note that the number of indicators is variable, for a couple of reasons.

Some statistics are missing from the raw dataset released by the US Census Bureau for particular Census Tracts. There is also the possibility that a statistic receives a value of zero in the comparison vintage, which means that calculating a percent change is impossible.

Census tracts missing 4 or more datapoints ( less than or equal to 20) were not included in the standardization described in the previous step, or in the final index. This decision was made to prevent tracts with insufficient data from skewing the overall score distribution.

*Rescaling*

* The scores for each Census Tract are rescaled to fit the 0-100 range according to the following formula.

This effectively converts the scores to percentiles to increase interpretability. For instance, if a particular Census Tract receives a score of 70, according to this index, the housing market is stronger than 70% of Census Tracts and weaker than 30% of Census Tracts in the six-state GCHP area of operation.

*Multiple Levels of Scoring*

* Four scores were derived for each tract using this methodology to reflect its ranking in different geographic groupings: the six-state area (LA, AL, MS, TX, FL, GA), three state area (LA, AL, MS), single state, and county.

1. For the 2011 and 2016 vintages of the ACS 5-year Estimates, the comparisons were relatively straightforward. Comparing future vintages of the ACS may be more complex. See the ACS Comparison Guides for more information at <https://www.census.gov/programs-surveys/acs/guidance/comparing-acs-data.html> [↑](#footnote-ref-1)