

AEI Center on Housing Markets and Finance Announces Ten Best and Worst Metro Areas to Be a First Time Homebuyer

Edward Pinto and Tobias Peter

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New AEI study ranks 50 metros by home price to income ratio for first time buyers, with Pittsburgh being the most and San Jose being the least affordable.

When AEI set out to rank 50 large metros by home price to income ratio for first time buyers, it came as no surprise that it is easier in some areas of the country to become a first time buyer (FTB) than others.

Using actual home prices and borrower incomes for 2017 FTB government guaranteed loan transactions, AEI calculated the median home price to income ratio for the 50 largest metro areas.¹ Across the 50 metros, this ratio was 3.3, that is the median FTB spent 3.3 times household income to purchase a house. The ten most affordable had a ratio of 2.6 while the ten least affordable had a ratio of 4.3.

Of the ten most affordable, seven were in the Midwest, two in the South, and one in the Northeast. Of the ten least affordable, all were in the West. Other key metrics examined include: averages for square feet of living area and price per square foot of living area.

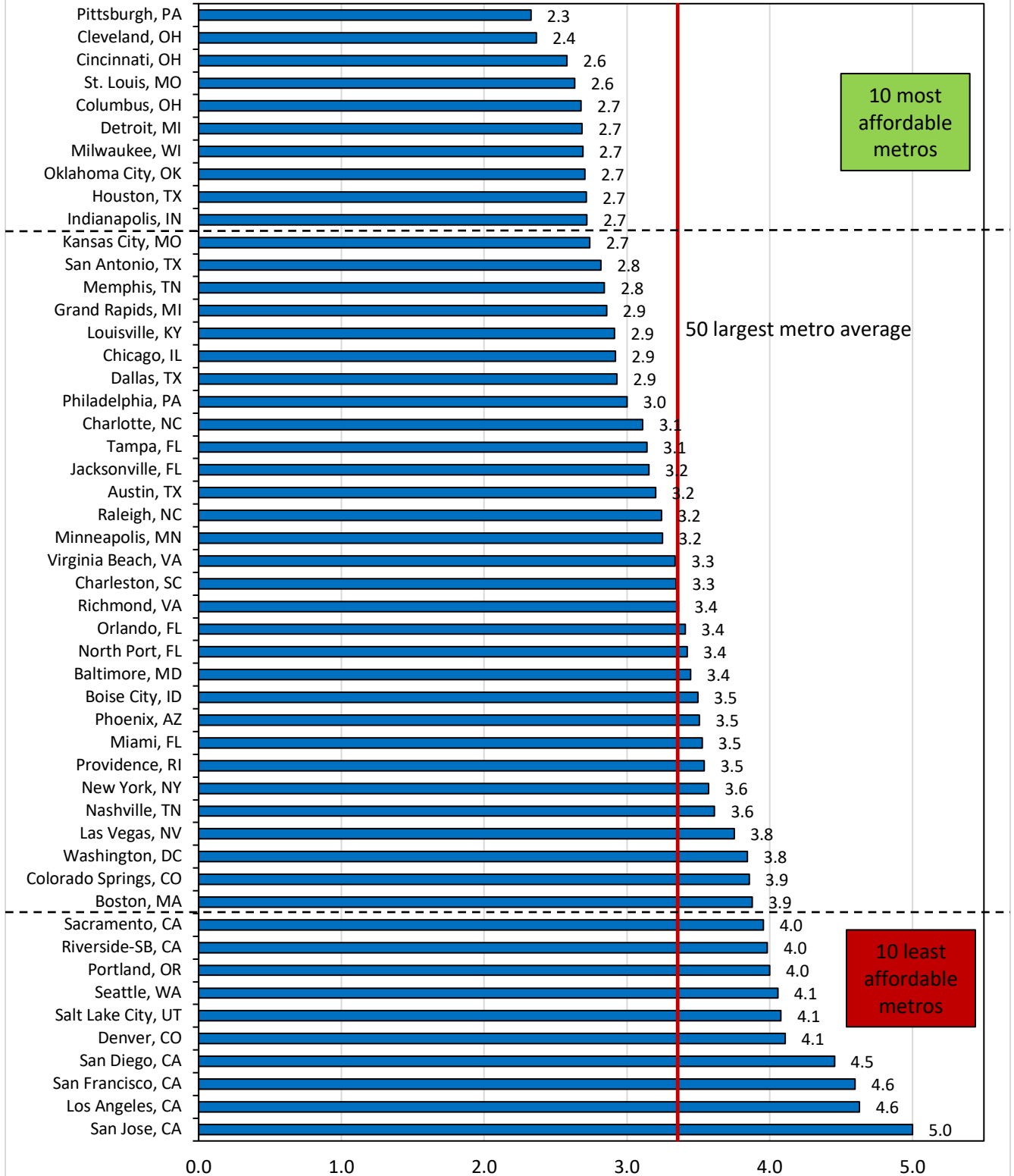
The most affordable metro was Pittsburgh with a 2.3 median ratio of home cost compared to income. The least affordable metro was San Jose with a 5.0 median ratio—more than 2 times the ratio for Pittsburgh. In San Jose, FTBs purchased a home at a median cost of \$650,000, 4 ½ times the median cost of \$143,000 in Pittsburgh.

AEI's new merged property and mortgage financing dataset consisting of 2.7 million first-time buyer loan transactions now makes it possible to rank of the best and worst metropolitan areas in terms of ease in becoming a first time buyer. To make these calculations, we calculated the price to income ratios, along with the square footage of living area and the price per square foot of living area for homes purchased by FTBs. We show results for the 50 largest metros in the country.²

¹ An estimated 90 percent of all FTB loan purchase transactions are guaranteed by a federal agency (FHA, VA, or the Rural Housing Service) or an enterprise (Fannie Mae or Freddie Mac).

² Results for the Atlanta metro are currently unavailable.

Median First-time Buyer House Price to Annual Income Ratio: 50 Largest Metros



Note: Calculated as the median of each first-time buyer's house price to annual gross income ratio. Atlanta metro is not available.
Source: AEI Center on Housing Markets and Finance, www.AEI.org/housing.

Key findings

- **Both house prices *and* incomes are higher in the ten least affordable metros compared to the 10 most affordable metros.** Incomes were 51 percent higher in the 10 least affordable than in the 10 most affordable (\$92,000 versus \$61,000). But higher home prices more than cancelled out this extra income. The median priced home in the 10 least affordable metros was more than two-and-a-half times that in the 10 most affordable (\$409,000 versus \$159,000).³
- **When it comes to ease of buying your first home, it's not how much you make, but where you buy.** While FTBs in both Houston and Portland had similar median incomes, buyers in Portland paid 52 percent more than in Houston. On a price per square foot basis the median FTBs in Portland paid twice as much as the median FTBs in Houston (\$207/sq. ft. versus. \$100 sq. ft.).
- **First time buyer homes are similar in size across locations.** Just because it is more expensive doesn't mean the home is any bigger. The median finished square footages of FTB homes were similar for the 10 least affordable and for the 10 most affordable (1363 sq. ft. versus 1428 sq. ft.).
- **Affordability has remained relatively constant in the most affordable metros, but it has worsened in the least affordable ones.** The FTB affordability ratio in the ten most affordable metros increased from 2.5 in 2013 to 2.6 in 2017. This small increase is the result of a modest increase in the median price of homes purchased (+7 percent over 5 years) combined with a modest increase in median income (+4 percent over 5 years). While the FTB affordability ratio in the ten least affordable metros had a larger increase (from 4.0 in 2013 to 4.3 in 2017), the ratio would have increased even more if the substantial increase in the median price of homes purchased (+24 percent over 5 years) had not been largely offset by a substantial increase in median incomes (+16 percent over 5 years). FTBs in Denver lost the most ground, as its FTB affordability ratio increased from 3.5 in 2013 to 4.1 in 2017. This is due to the fact that Denver had very strong home price gains (+48 percent over 5 years) which greatly outstripped the increase in income (+20 percent over 5 years).

³ Land values largely drive the differences in affordability. The price of land reflects the demand and supply forces across cities as well as within cities. Land is much more expensive in the least affordable metros. While construction costs across metros vary, these differences pale in comparison to the differences in land cost across metros. According to BuildZoom data, average land cost for all homes is nearly 8 times more expensive in the ten least affordable metros than for nine of the most affordable (Milwaukee data was missing), while the average improvement cost was only 25 percent more expensive in the ten least affordable metros than for nine of the most affordable (again Milwaukee data was missing). <https://www.buildzoom.com/blog/paying-for-dirt-where-have-home-values-detached-from-construction-costs>

The relative restrictiveness of land use regulation in the 10 most and 10 least affordable metros also helps explain differences in land values and affordability. In its 2018 Housing Affordability Survey, Demographia ranked metro areas as having less or more restrictive land use regulation. Seven of the ten most affordable metros had a ranking and all seven were ranked "less restrictive". Eight of the ten least affordable metros had a ranking and all eight were ranked "more restrictive". [14th Annual Demographia International Housing Affordability Survey: 92 Major Markets, 2017: 3rd Quarter](#)

Key first-time buyer (FTB) indicators: largest 50 metros, ranked by FTB affordability* (1 = most affordable, 50 = least affordable)

Rank	Metro	2017					2013				
		median price to income ratio	median price (in \$1,000)	median income (in \$1,000)	median living area (in ft ²)	median price/living area (in \$)	median price to income ratio	median price (in \$1,000)	median income (in \$1,000)	median living area (in ft ²)	median price/living area (in \$)
1	Pittsburgh, PA	2.3	143	60	1,276	108	2.3	137	59	1,304	100
2	Cleveland, OH	2.4	134	56	1,429	91	2.3	129	53	1,562	84
3	Cincinnati, OH	2.6	143	55	1,404	100	2.5	137	52	1,524	89
4	St. Louis, MO	2.6	153	58	1,248	117	2.6	147	54	1,364	105
5	Columbus, OH	2.7	169	61	1,398	113	2.5	155	59	1,598	95
6	Detroit, MI	2.7	164	61	1,216	119	2.4	140	58	1,387	94
7	Milwaukee, WI	2.7	170	64	1,173	123	2.5	156	59	1,190	108
8	Oklahoma City, OK	2.7	152	56	1,570	96	2.6	146	53	1,662	90
9	Houston, TX	2.7	210	78	1,955	100	2.5	187	78	2,233	83
10	Indianapolis, IN	2.7	155	58	1,612	91	2.6	153	58	1,936	80
11	Kansas City, MO	2.7	172	62	1,344	121	2.6	154	58	1,463	104
12	San Antonio, TX	2.8	192	68	1,704	103	2.6	165	64	1,952	86
13	Memphis, TN	2.8	176	62	1,767	90	2.7	160	60	2,013	81
14	Grand Rapids, MI	2.9	155	53	1,020	124	2.6	123	46	1,090	93
15	Louisville, KY	2.9	155	52	1,248	117	2.9	139	49	1,383	101
16	Chicago, IL	2.9	207	70	1,148	139	2.8	185	66	1,176	122
17	Dallas, TX	2.9	240	81	1,979	117	2.6	183	73	2,054	88
18	Philadelphia, PA	3.0	217	70	1,499	135	3.0	210	68	1,552	130
19	Charlotte, NC	3.1	196	62	1,450	108	3.0	172	57	1,861	91
20	Tampa, FL	3.1	192	60	1,392	120	2.8	165	57	1,683	95
21	Jacksonville, FL	3.2	188	60	1,620	111	2.9	171	58	1,822	92
22	Austin, TX	3.2	266	86	1,739	138	2.9	214	77	1,886	111
23	Raleigh, NC	3.2	234	71	1,799	123	3.1	198	64	1,870	104
24	Minneapolis, MN	3.2	220	66	1,169	178	3.0	186	61	1,236	145
25	Virginia Beach, VA	3.3	213	62	1,622	128	3.3	205	61	1,686	120

Rank	Metro
26	Charleston, SC
27	Richmond, VA
28	Orlando, FL
29	North Port, FL
30	Baltimore, MD
31	Boise City, ID
32	Phoenix, AZ
33	Miami, FL
34	Providence, RI
35	New York, NY
36	Nashville, TN
37	Las Vegas, NV
38	Washington, DC
39	Colorado Springs, CO
40	Boston, MA
41	Sacramento, CA
42	Riverside-SB, CA
43	Portland, OR
44	Seattle, WA
45	Salt Lake City, UT
46	Denver, CO
47	San Diego, CA
48	San Francisco, CA
49	Los Angeles, CA
50	San Jose, CA

2017				
median price to income ratio	median price (in \$1,000)	median income (in \$1,000)	median living area (in ft ²)	median price/living area (in \$)
3.3	215	65	1,434	124
3.4	218	63	1,600	128
3.4	220	62	1,598	125
3.4	221	63	1,484	139
3.4	260	75	1,396	175
3.5	199	59	1,595	124
3.5	224	63	1,552	133
3.5	263	72	1,469	166
3.5	232	67	1,381	170
3.6	365	97	1,402	228
3.6	230	62	1,620	133
3.8	240	62	1,524	134
3.8	355	91	1,434	221
3.9	244	62	1,451	165
3.9	355	89	1,455	230
4.0	343	85	1,529	212
4.0	313	76	1,629	180
4.0	320	79	1,481	207
4.1	362	90	1,440	233
4.1	255	63	1,192	199
4.1	334	78	1,210	235
4.5	460	101	1,330	326
4.6	560	119	1,293	411
4.6	495	103	1,319	366
5.0	650	126	1,203	506

2013				
median price to income ratio	median price (in \$1,000)	median income (in \$1,000)	median living area (in ft ²)	median price/living area (in \$)
3.0	178	57	1,665	100
3.2	193	61	1,736	112
3.1	177	57	1,827	96
2.9	176	59	1,664	103
3.4	265	77	1,470	169
3.2	164	54	1,655	100
3.2	182	57	1,765	104
3.1	205	65	1,608	123
3.3	200	62	1,386	146
3.6	355	94	1,436	221
3.2	170	53	1,697	101
3.4	189	56	1,877	101
3.8	341	90	1,451	208
3.4	200	59	1,508	132
3.6	316	84	1,429	210
3.7	260	69	1,591	155
3.8	239	63	1,732	133
3.6	235	66	1,595	145
3.7	282	75	1,608	170
3.7	205	55	1,300	155
3.5	233	65	1,288	162
4.2	374	88	1,422	254
4.5	493	106	1,393	342
4.5	400	86	1,398	288
4.7	567	117	1,385	395

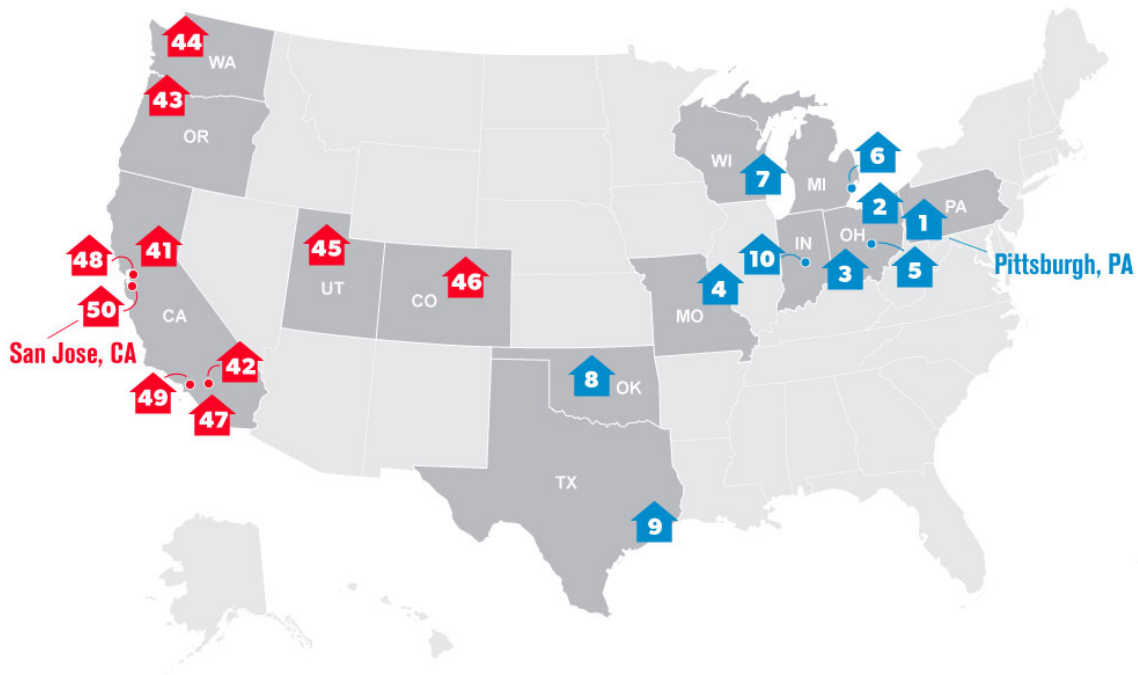
50 largest metro average

3.3	249	74	1,440	151
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3.2	225	70	1,547	132
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* Affordability is defined as the median ratio of each first-time buyer's house price to annual gross household income.

Best and Worst Metros for First-Time Homebuyers



10 Best Areas

- | | |
|-------------------------|----------------------------|
| 1 Pittsburgh, PA | 6 Detroit, MI |
| 2 Cleveland, OH | 7 Milwaukee, WI |
| 3 Cincinnati, OH | 8 Oklahoma City, OK |
| 4 St. Louis, MO | 9 Houston, TX |
| 5 Columbus, OH | 10 Indianapolis, IN |

10 Worst Areas

- | | |
|-----------------------------|------------------------------|
| 50 San Jose, CA | 45 Salt Lake City, UT |
| 49 Los Angeles, CA | 44 Seattle, WA |
| 48 San Francisco, CA | 43 Portland, OR |
| 47 San Diego, CA | 42 Riverside-SB, CA |
| 46 Denver, CO | 41 Sacramento, CA |

Source: AEI, Center on Housing Markets and Finance, www.AEI.org/housing.



Methodology:

Our main data source are public records data for the largest 74 CBSAs. The data span from 2012:Q4 to 2018:Q2 and were provided by First American Data Tree. We select the largest 50 metros based on Home Mortgage Disclosure Act database (HMDA) 2017 purchase loan counts.⁴

This study only uses FTB transactions guaranteed by FHA, Fannie, Freddie, the VA, and Rural Housing Services, since the FTB variable is only available for agency guaranteed loans and is missing on private portfolio loans. It is estimated that 90 percent of all financed FTB homes are guaranteed by a federal agency, helping make this a very robust analysis.

We start by anonymizing public records data by stripping out personal identifiers such as the buyers' names. We then eliminate cash sales, other financed transactions, or transactions with a missing sale amount, borrower income and other key variables. After removing duplicate observations, we only keep arms-length purchase transactions of 1-4 unit properties.

Next we match our data to HMDA. This match is performed using common variables such as origination year, loan purpose, census tract, loan amount (rounded to nearest 1,000), loan type, or lender name in both datasets. The match rate is 69 percent. All matches are unique one-to-one matches. This step adds all the HMDA variables including the borrower's gross annual income rounded to the nearest 1,000 or the type of purchaser of the loan (Fannie, Freddie, etc.) to our dataset.

We then match the anonymized public records dataset to the National Mortgage Risk Index (NMRI) data and Fannie Mae's Single Family Loan Performance Data and Freddie Mac's Single Family Loan-Level Dataset (GSE data).⁵ The matching variables are a combination of: loan purpose, loan type, loan amount (exact where available or rounded to nearest 1,000), geography (state, 3-digit zip code when using the GSE data, and 5-digit zip code in case of FHA), note rate (in the case of FHA), loan-to-value ratio (LTV), origination date (a range of +/- 1 month), lender name, type of purchaser (Fannie or Freddie), or occupancy.

The match rate is 66 percent, with all matches being unique one-to-one matches. This step adds a first-time buyer variable, as well as borrower risk characteristics such as credit score or debt-to-income ratio, which then allows us to risk rate individual loans as well as to create risk metrics for first-time buyer loans.⁶

Finally, we weight the data by county, origination quarter, and guarantor type using loan counts from the National Housing Market Indicators (NHMI).⁷

⁴ The Atlanta CBSA is missing in our public records data. We fill up the largest 50 CBSAs by including North Port-Sarasota-Bradenton, which is the next largest CBSA in our data.

⁵ We enhance the NMRI dataset by matching it to the FHA Single Family Snapshot Dataset, which adds 5-digit zip code for FHA loans. For more details on the FHA Snapshot data, see [here](#).

⁶ For more, see the NMRI methodology [here](#).

⁷ For more info, see the NHMI methodology [here](#). Since the NHMI data do not break out conventional loans into GSE and private at the county level, we estimate the GSE share of conventional loans by quarter and county using

House Price Indices (HPI)

We measure house price trends using new AEI HPIs. The data come from the public records data described above and are limited to non-duplicative, institutionally-financed arms-length transactions of 1-4 unit properties and manufactured homes.

We use a quasi-repeat sales index methodology to generate HPIs which are indexed to 0 in 2012:Q4, the first quarter the data are available. A standard repeat sales index relies on a pair of sale transactions of the same home between which a constant-quality house price appreciation is measured. In our case, we use the December 2017 AVM as the second transaction. The AVM represents the home's value at a given point in time.

We assess the accuracy of the December 2017 AVMs by comparing AVM values to reported sale prices for properties that sold in that month. Due to data reporting and collection lags, sales in December 2017 are not known until a subsequent month. Hence, the December 2017 AVM value is calculated independently of the actual December 2017 sale price.

For the roughly 124,000 homes in our final cleaned dataset that sold in December 2017, we find that the ratio of the home's sales price to its December 2017 AVM value falls within a narrow range that is centered around 1 with equal proportion of outliers to either side. On average, the sale price was equal to 101 percent of the AVM, and 66 percent of the sale prices fell within +/- 10 percent of the AVM. These results also hold with limited variation for the individual counties. We conclude that the AVM is on average accurate, which allows us to use it as if it were a sales transaction.

Unlike a true repeat sales index, which is limited to a small subset of homes that transacted at least twice, our quasi-repeat sales methodology allows us to use virtually every sale transaction in our HPIs. The only exclusions are outliers, which we define as the top and bottom 1 percent of sales in each month based on the ratio of price over AVM. We weight the data by county, origination quarter, and loan type using loan counts from the National Housing Market Indicators (NHMI).

We also compute a HPI for a lower price segment where FTBs primarily purchase a home. We designate a home with a purchase price below the 80th FHA price percentile in a given county and quarter as a starter home. This is confirmed by the data, which indicate that around two-thirds of government guaranteed loan transactions in that price range were made to FTBs.

HMDA data. We gross up the county total of loans acquired by the Fannie or Freddie by 15% to account for the end-of-year reporting lag, then we divide that number by the total conventional total for the GSE share. We assume that the GSE share is constant by quarter.