

ZILLOW RESEARCH: USING AND CREATING OPEN DATA

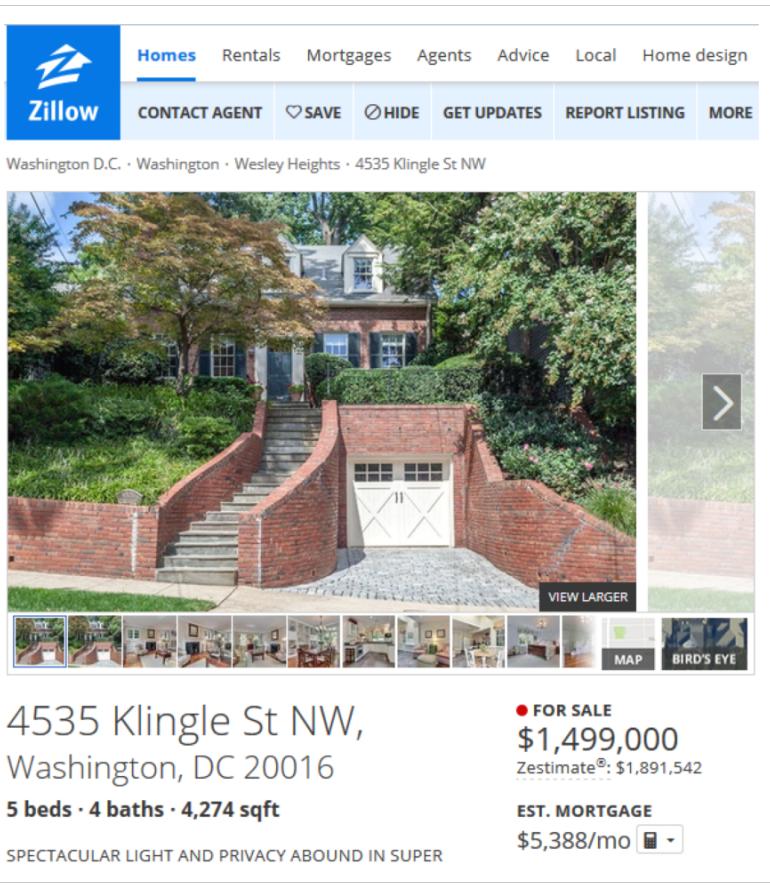
Stan Humphries, Chief Analytics Officer
@StanHumphries

ZILLOW'S DATA USE

Zillow uses a variety of data from public and government sources

- U.S. Census Bureau
 - 1-year American Community Survey
 - 3-year American Community Survey
 - 5-year American Community Survey
 - Current Population Survey, March Supplement
 - Housing Vacancy Survey
 - American Housing Survey
 - Decennial Census
 - Survey of Construction
- Other sources
 - County records of sales, tax assessments
 - Bureau of Labor Statistics Employment Cost Index
 - Federal Housing Finance Agency Home Price Index
 - And many more....

Sales data and tax records appear on a home's page



Washington D.C. · Washington · Wesley Heights · 4535 Klingle St NW

4535 Klingle St NW, Washington, DC 20016

5 beds · 4 baths · 4,274 sqft

SPECTACULAR LIGHT AND PRIVACY ABOUND IN SUPER

● FOR SALE
\$1,499,000
Zestimate®: \$1,891,542

EST. MORTGAGE
\$5,388/mo 

VIEW LARGER  **BIRD'S EYE** 

Homes Rentals Mortgages Agents Advice Local Home design

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Washington D.C. · Washington · Wesley Heights · 4535 Klingle St NW

VIEW LARGER  **BIRD'S EYE** 

Price History

DATE	EVENT	PRICE	\$/SQFT	SOURCE
10/09/14	Price change	\$1,499,000 -6.3%	\$350	--
09/04/14	Listed for sale	\$1,599,000 +22.1%	\$374	Washington Fin...
04/29/05	Sold	\$1,310,000 +26.0%	\$306	Public Record

[More ▾](#)

Tax History

Find assessor information on the [county website](#)

YEAR	PROPERTY TAXES	CHANGE	TAX ASSESSMENT	CHANGE
2014	\$10,170	-0.8%	\$1,267,390	+0.1%
2013	\$10,251	-2.0%	\$1,265,620	-0.6%
2012	\$10,459	--	\$1,273,500	-1.9%

[More ▾](#)

About Zillow Research www.zillow.com/research

In-depth housing and economic research, forecasts and data

 **Market Overview: Real Estate**

FEBRUARY 2015

National Home Values

Current:	\$178,700
Monthly Change:	0.3%
Quarterly Change:	0.8%
Annual Change:	4.9%
Negative Equity*:	16.9%

San Francisco Home Values

Current:	\$715,800
Monthly Change:	0.9%
Quarterly Change:	2.9%
Annual Change:	8.3%
Negative Equity*:	6.6%

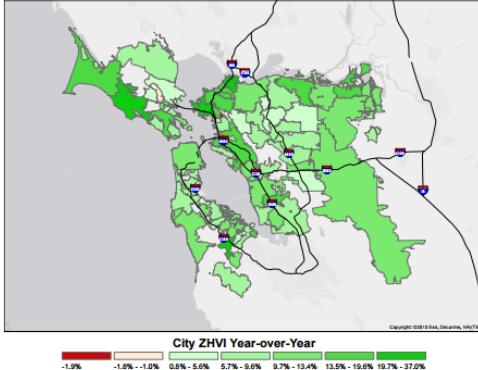
Home Values Forecast
(next 12 months)

National:	2.6%
San Francisco Metro:	3.9%

Major Cities - Home Values

San Francisco	Current: \$1,003,200
Monthly Change:	0.7%
Annual Change:	10.1%
Oakland	Current: \$507,000
Monthly Change:	1%
Annual Change:	14%
Fremont	Current: \$769,500
Monthly Change:	1.1%
Annual Change:	9.3%
Hayward	Current: \$454,200
Monthly Change:	0.4%
Annual Change:	11.8%
Concord	Current: \$459,800
Monthly Change:	0.8%
Annual Change:	8.4%

City ZHVI Year-over-Year



Home Values (ZHVI)

Increasing Values:	84.3%
Decreasing Values:	11.4%
Fall From Peak:	0%
Peak ZHVI Date:	2015-02
Peak ZHVI:	\$715,800

Rent

Zillow Rent Index:	\$3,088
Monthly Change:	1.1%
Annual Change:	14.7%
Rent List Price:	\$2,820
Rent List/Sq. Ft.:	\$2.7

Sales

Median Sale Price:	\$595,000
Monthly Change:	-3.3%
Annual Change:	0.7%
Sale Price/Sq. Ft.:	\$398
Sale-to-list Price Ratio:	1.01
Sold for a Loss/Gain:	11.8%/88.2%

Listings

Median List Price:	\$665,000
Monthly Change:	8.3%
Annual Change:	4.8%
List Price/Sq. Ft.:	\$412
Listings with Price Cut:	5.3%
Amount of Price Cut:	4.8%

Foreclosures

Homes Foreclosed:	1,52/10,000
Monthly Change:	-0.2
Annual Change:	-0.5

How do we track home values? To track home values, we use the Zillow Home Value Index (ZHVI). The ZHVI is the mid-point of estimated home values for the area. Half the estimated home values are above this number and half are below.

* Negative equity data is from 2014Q4.

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Buy Rent Sell Mortgages Agent Finder Advice Home design

Zillow Research

DATA **LOCAL MARKET OVERVIEWS** **REAL ESTATE AND RENTAL TRENDS** **HOUSING AFFORDABILITY** **FORECASTING** **HOUSING BY GENERATION**

U.S. Zillow Home Value Index **\$182,500** **September 2015** **Monthly Change in U.S. Home Values** **0.3%** **September 2015** **Annual Change in U.S. Home Values** **3.7%** **September 2015** **U.S. Zillow Home Value Forecast** **2.4%** **September 2016**

FEATURED ARTICLES

 **Rising Rents Impact Rental Affordability & Pose Challenges to Homeownership, Too**
By [Meredith Miller](#) on 11/10/2015 / [Housing Affordability](#)

 **The Evolving First-Time Homebuyer**
The role of first-time homebuyers in the real estate market has remained remarkably constant – and hugely important – over the years. But while the role of first-time buyers hasn't changed, the defining characteristics of first-time buyers, and what they're

 **Q3 Real Estate Market Reports: Condos are Back**

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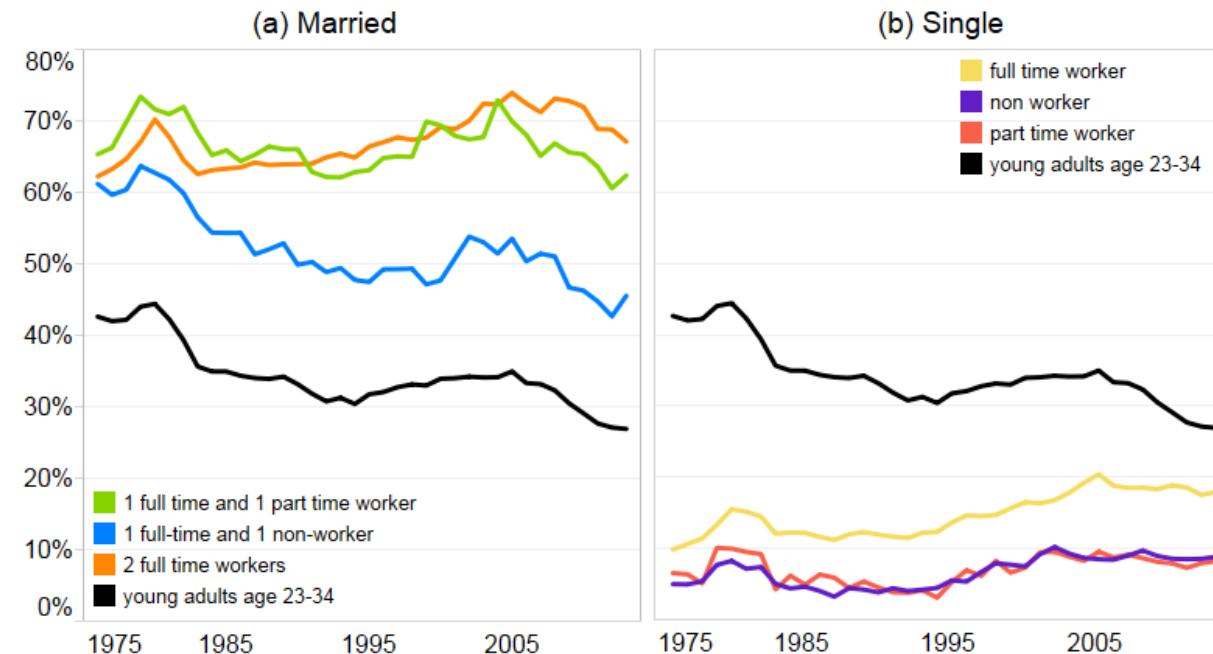
MOST VIEWED

[Rising Mortgage Rates Will Begin to Impact Home Sales by Mid-2016](#)

Zillow research using U.S. Census Bureau data

Stop Saying Millennials Don't Want to Own a Home

Figure 1: Homeownership Rate of Young Adults Age 23-34 by Marital Status and Labor Force Status



Zillow analysis of data from the U.S. Census Bureau's March Current Population Survey (CPS)

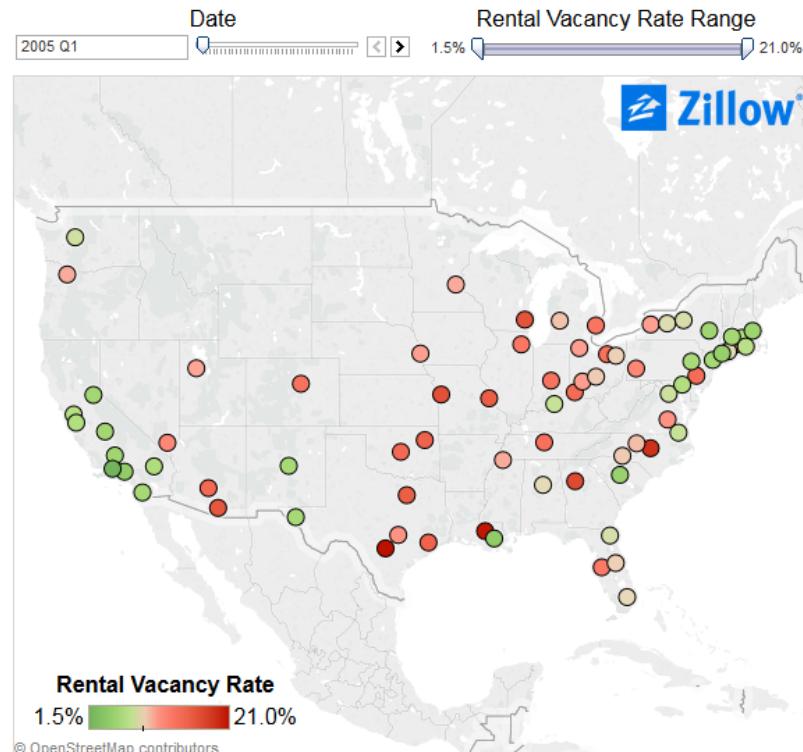
Examples of Zillow Research using U.S. Census Data

Rental Vacancy: No Rooms for Rent

Rental Vacancy Rates Over Time

Use the date slider to see rental vacancy rates over time for metro areas nationwide.

The rental vacancy range tool can be used to filter the map by vacancy rate. For example, set it to a max of 5 percent to see areas with low vacancies, or above 15 percent to see places where rent vacancies are more common.



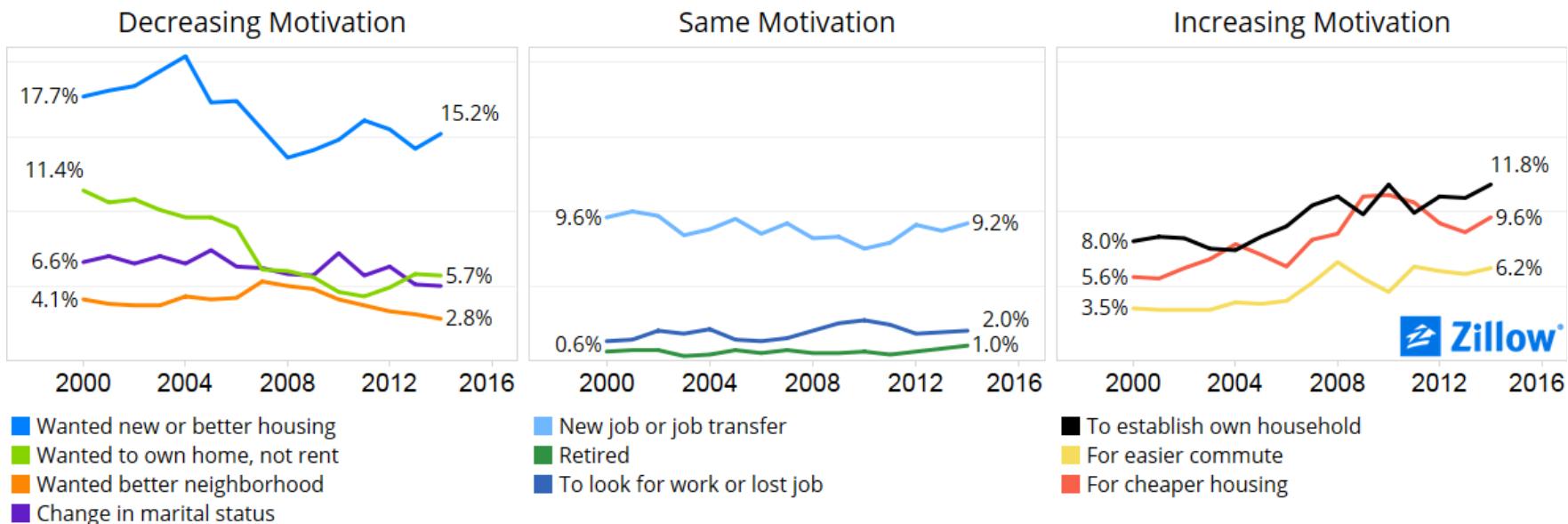
Region Name	Rental Vacancy
Charlotte, NC	9.3%
Chicago, IL	13.2%
Cincinnati, OH	14.2%
Cleveland, OH	13.7%
Columbia, SC	4.9%
Columbus, OH	9.3%
Dallas, TX	15.5%
Dayton, OH	10.4%
Denver, CO	13.5%
Detroit, MI	13.3%
El Paso, TX	5.8%
Fresno, CA	5.6%
Grand Rapids, MI	9.5%
Greensboro, NC	9.6%
Hartford, CT	14.4%
Honolulu, HI	3.1%
Houston, TX	15.1%
Indianapolis, IN	13.5%
Jacksonville, FL	8.4%
Kansas City, MO	16.8%
Las Vegas, NV	11.8%
Los Angeles, CA	4.3%
Louisville, KY	7.7%
Memphis, TN	10.0%
Miami, FL	8.9%
Milwaukee, WI	16.5%
Minneapolis, MN	10.0%
Nashville, TN	13.8%
New Haven, CT	8.8%
New Orleans, LA	4.2%
New York, NY	5.8%

Source: U.S. Census Bureau CPS/HVS

Examples of Zillow Research using U.S. Census Data

Motivated to Move

Figure 2: The Most Common Motivations for Moving Have Changed

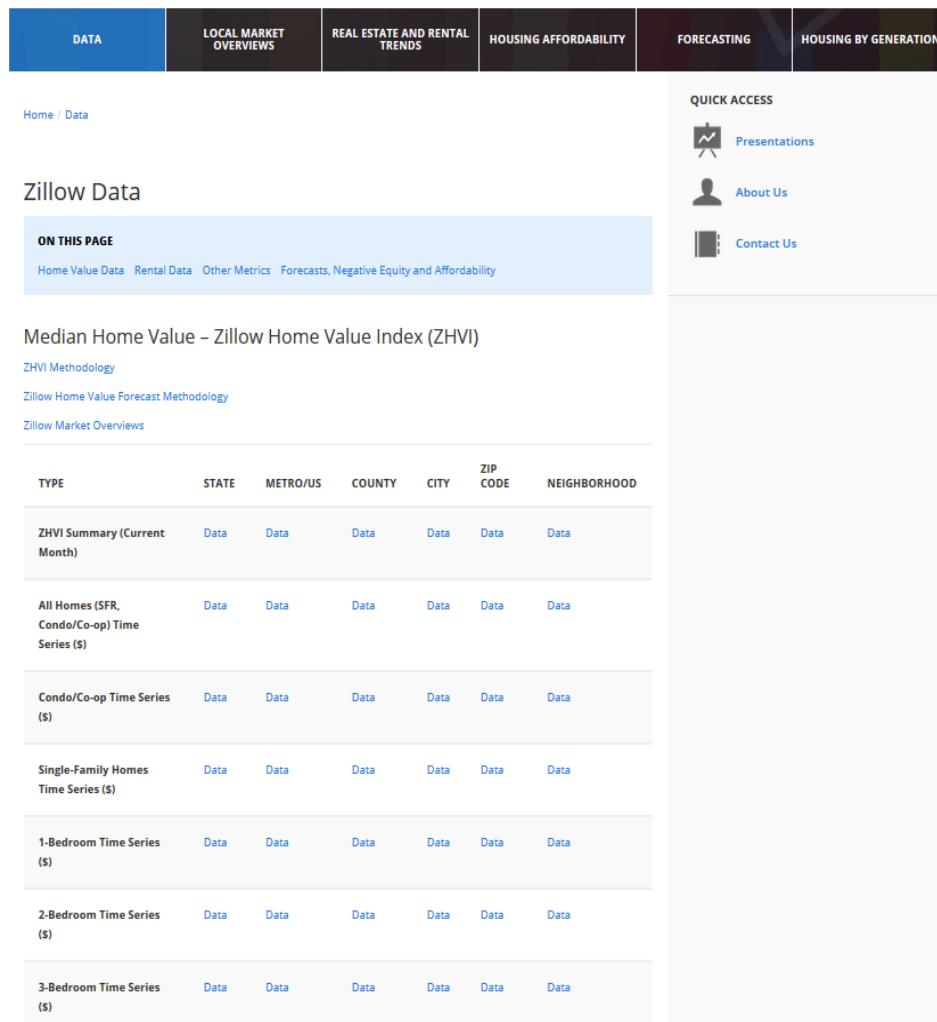


Share of movers aged 16+ citing a specific reason for moving. Source: Zillow analysis of US Census Bureau, Current Population Survey, March Supplement, 1999 - 2014, made available by IPUMS-USA, University of Minnesota, www.ipums.org.

ZILLOW'S DATA PRODUCTS

www.zillow.com/data

Aggregated real estate data freely available at www.zillow.com/data



The screenshot shows the Zillow Data homepage. At the top, there is a navigation bar with tabs: DATA, LOCAL MARKET OVERVIEWS, REAL ESTATE AND RENTAL TRENDS, HOUSING AFFORDABILITY, FORECASTING, and HOUSING BY GENERATION. Below the navigation bar, there is a breadcrumb trail: Home > Data. The main content area is titled "Zillow Data" and includes a "ON THIS PAGE" section with links to Home Value Data, Rental Data, Other Metrics, Forecasts, Negative Equity and Affordability. The main content area displays a grid of data series, each with a "TYPE" column and columns for STATE, METRO/US, COUNTY, CITY, ZIP CODE, and NEIGHBORHOOD. Each series has a "Data" button in the first column. The series include: ZHVI Summary (Current Month), All Homes (SFR, Condo/Co-op) Time Series (\$), Condo/Co-op Time Series (\$), Single-Family Homes Time Series (\$), 1-Bedroom Time Series (\$), 2-Bedroom Time Series (\$), and 3-Bedroom Time Series (\$). To the right of the main content area is a sidebar titled "QUICK ACCESS" with links to Presentations, About Us, and Contact Us.

Metrics

- Zillow Home Value Index
- Zillow Rent Index
- Zillow Home Value Forecast
- Negative equity
- List prices
- Sale prices
- Rental prices
- Home sales
- \$ value/square foot
- \$ price/square foot
- % listings with price cuts
- % amount of listing price cuts
- % homes sold for loss/gain
- % homes foreclosed
- % sales that are foreclosure re-sales
- % homes increasing/decreasing in value
- % homes sold in the past year
- Price-to-rent ratios
- Price-to-income ratios
- Median rental listing prices by bedrooms
- For-sale inventory

Zillow Home Value Index

Since bottoming, however, condo values have been on a tear.

Nationwide, condo values^[1] grew 5.1 percent year-over-year as of the end of the third quarter, compared to 3.7 percent year-over-year growth for single-family homes, according to Zillow's Q3 2015 Real Estate Market Report (figure 1). The typical U.S. condo is worth \$191,300 as of September, compared to \$181,500 for a single-family home. Overall, the median U.S. home value (condos, co-ops and single-family) rose 3.7 percent year-over-year, to a Zillow Home Value Index of \$182,500.

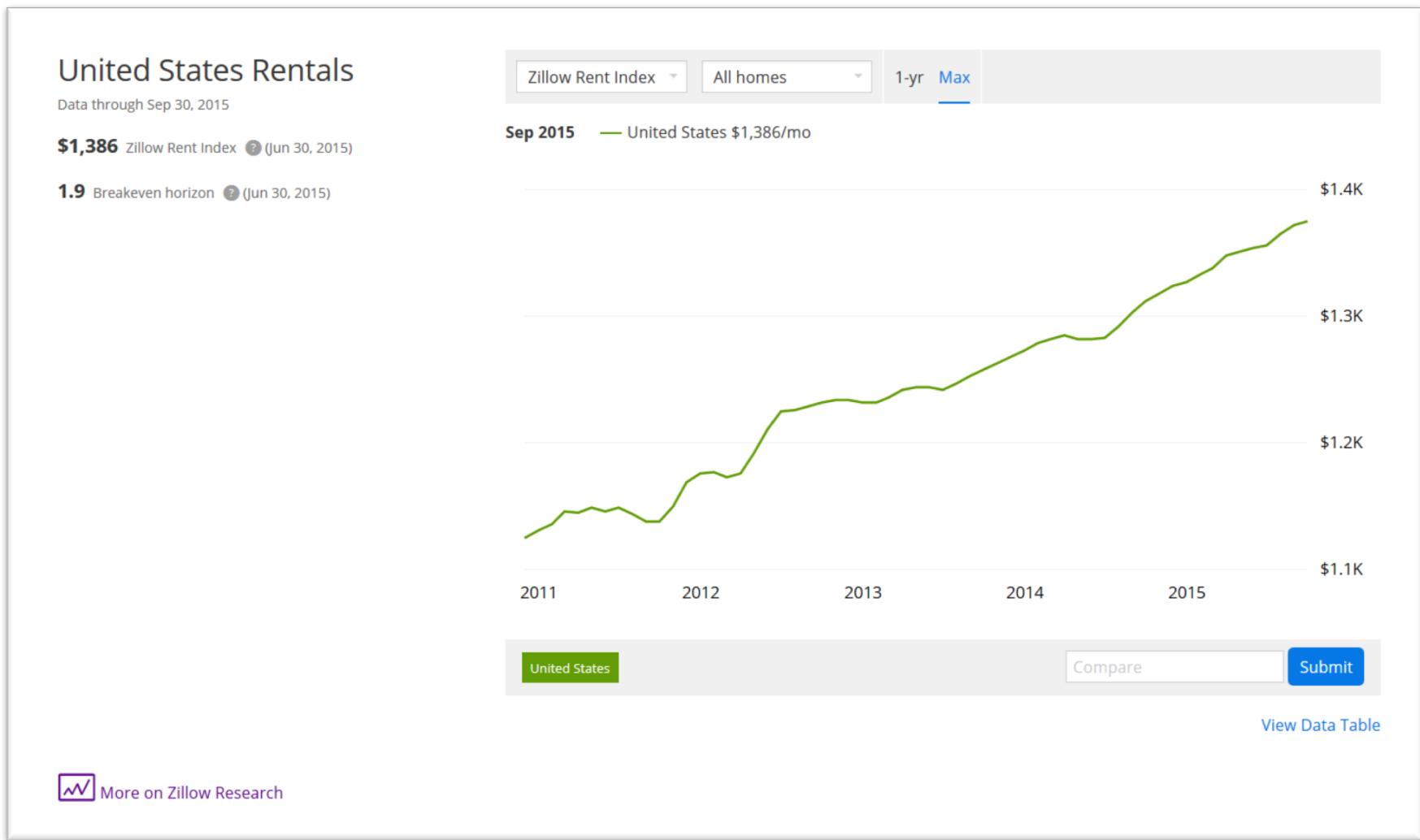
Annual growth in median condo values has equaled or exceeded growth in single-family home values for 32 straight months. The last time single-family home values grew more quickly year-over-year than condo values was in January 2013.

Figure 1: Annual Change in U.S. Condo and Single-Family Home Values
September 2015



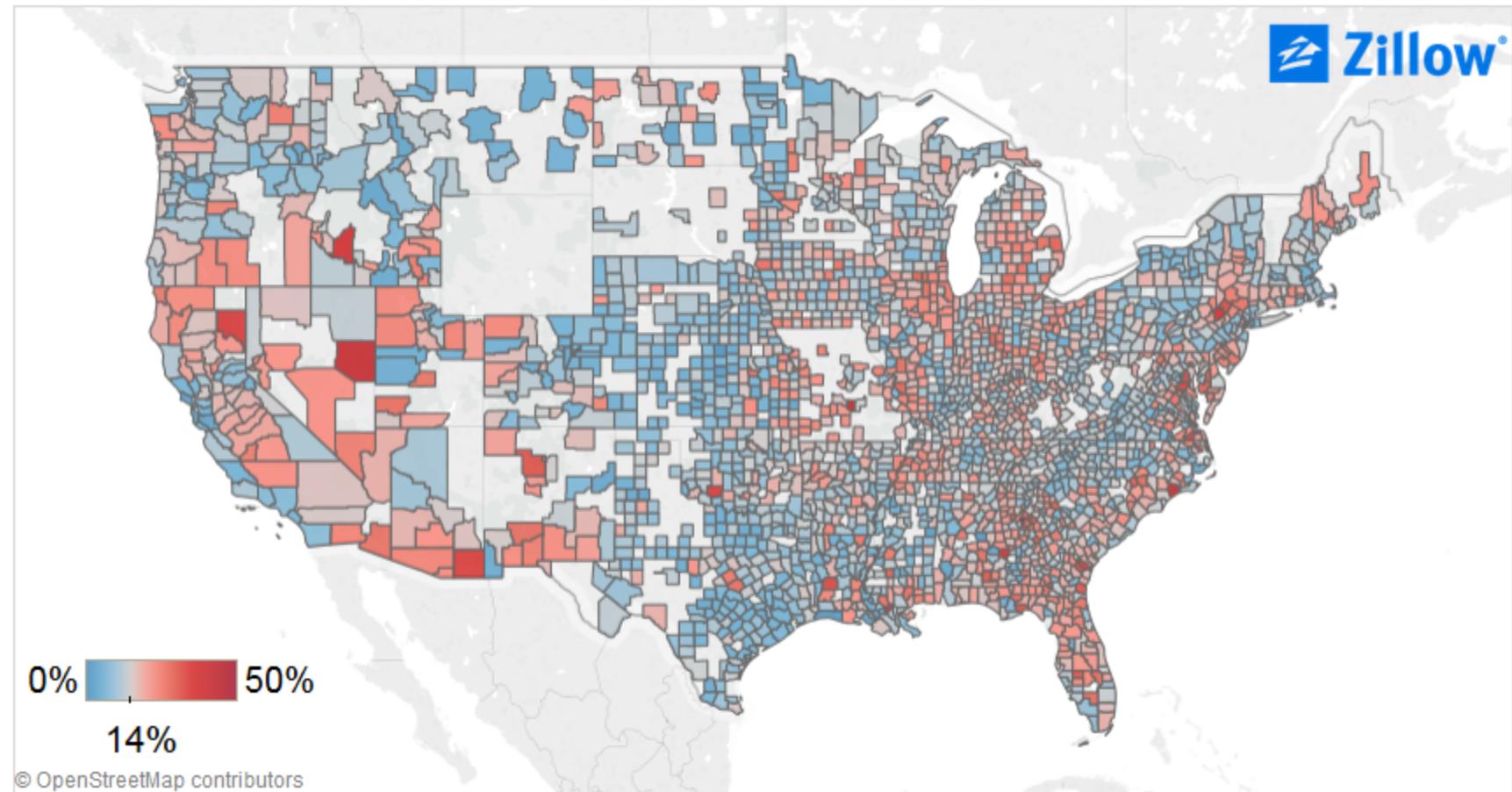
The Zillow Home Value index is available at a monthly frequency for the nation, states, metro areas, counties, cities, ZIP codes and neighborhoods.

Zillow Rent Index



Zillow Negative Equity

Figure 3: Percent of Homes With a Mortgage in Negative Equity



For-Sale Inventory Time Series

One reason home values are rising rapidly is that there aren't many homes for sale in the Denver metro

ZILLOW FOR-SALE
INVENTORY

Denver metro area

September 2015



#PremierAgentSummit

WHO IS USING ZILLOW DATA?

Academic researchers, government and industry use Zillow data



Economic Commentary from Atif Mian and Amir Sufi

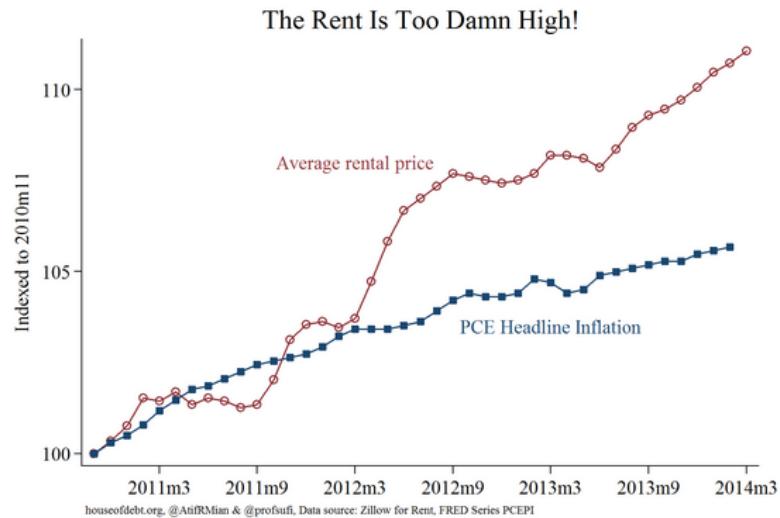
Where Is the Rent Too Damn High?

APRIL 29, 2014

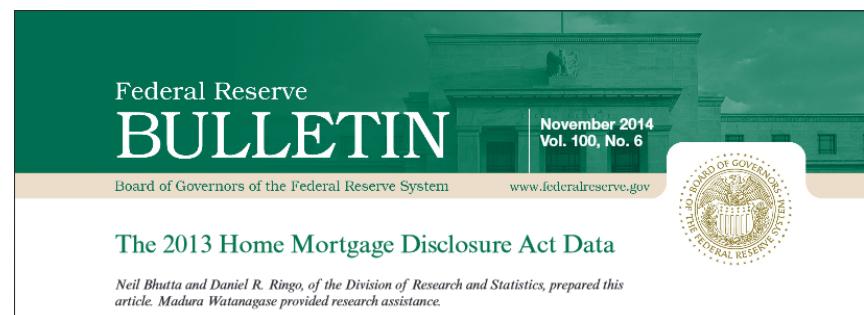
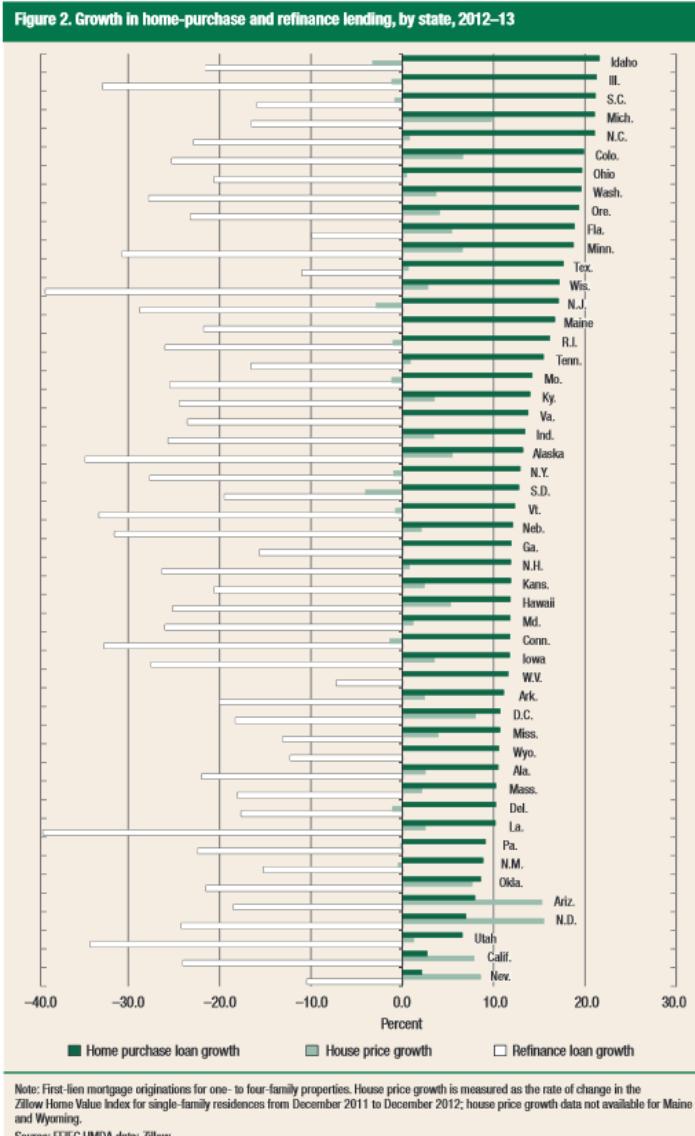
BY ATIF MIAN AND AMIR SUFI

Several recent articles have noted a sharp rise in the price of renting an apartment or house across the United States. Many have also argued that the rise in rents disproportionately affects lower and middle class renters. We decided to take a look by examining the great data available on rents from Zillow.

The chart below shows general inflation (measured with PCE headline inflation) versus the increase in rents. Both series are indexed to be 100 as of November 2010 (the first month the Zillow data are available). The pattern is undeniable: rents are rising much more rapidly than other consumer prices.



Academic researchers, government and industry use Zillow data



Hack Housing 2015

- Zillow and UW—in partnership with HUD, Commerce and other federal agencies—hosted a weekend hackathon that encouraged teams to use [public government data](#) to build solutions that help people find affordable and accessible places to live — specifically low-income renters and senior citizens.
- New open data: participants were given access to newly released [government data sets](#) from HUD and Commerce, as well as local data sets created by Socrata
- This was Seattle's largest open data hackathon ever with more than 300 participants.



Zillow Research's academic collaborations



Congressional Oversight Panel



