

# 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




[Homes](#) [Rentals](#) [Mortgages](#) [Agents](#) [Advice](#) [Local](#) [Home design](#)

[CONTACT AGENT](#) [SAVE](#) [HIDE](#) [GET UPDATES](#) [REPORT LISTING](#) [MORE](#)

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



[VIEW LARGER](#)


[MAP](#) [BIRD'S EYE](#)

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** 

## 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](http://www.zillow.com/research)

In-depth housing and economic research, forecasts and data



Market Overview: **Real Estate**

**FEBRUARY 2015**

**San Francisco Metro**

## National Home Values

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

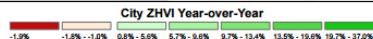
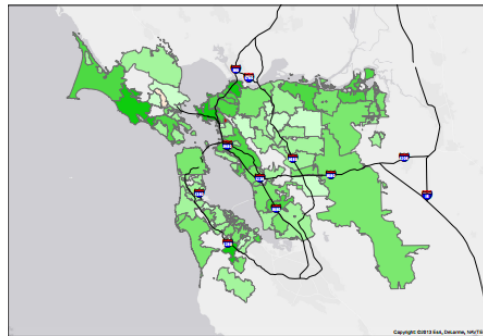
## San Francisco Home Values

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%

## Home Values (ZHVI)

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

## 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%

## Foreclosures

Homes Foreclosed: 1.52/10,000  
Monthly Change: -0.2  
Annual Change: -0.5  
Foreclosure Resales: 6.7%  
Monthly Change: 0.4pp  
Annual Change: -0.8pp

## 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

## 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%

**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.

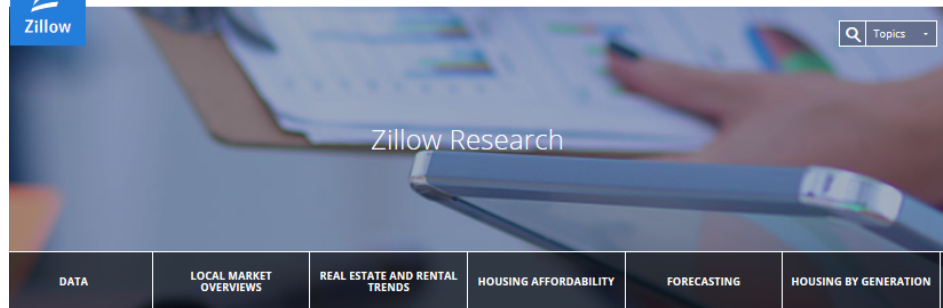
\* Negative equity data is from 2014Q4.

Zillow Real Estate Research

[www.zillow.com/research/](http://www.zillow.com/research/)



Buy Rent Sell Mortgages Agent Finder Advice Home design



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



The Evolving First-Time Homebuyer



Q3 Real Estate Market Reports: Condos are Back

All Articles

Filter by topic

Author

## Rising Rents Impact Rental Affordability & Pose Challenges to Homeownership, Too

Comparatively low monthly mortgage payments, coupled with increasingly expensive rents, continue to make homeownership a relative bargain to millennials and other potential home buyers. But there's a catch.

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

## QUICK ACCESS

Presentations

About Us

Contact Us

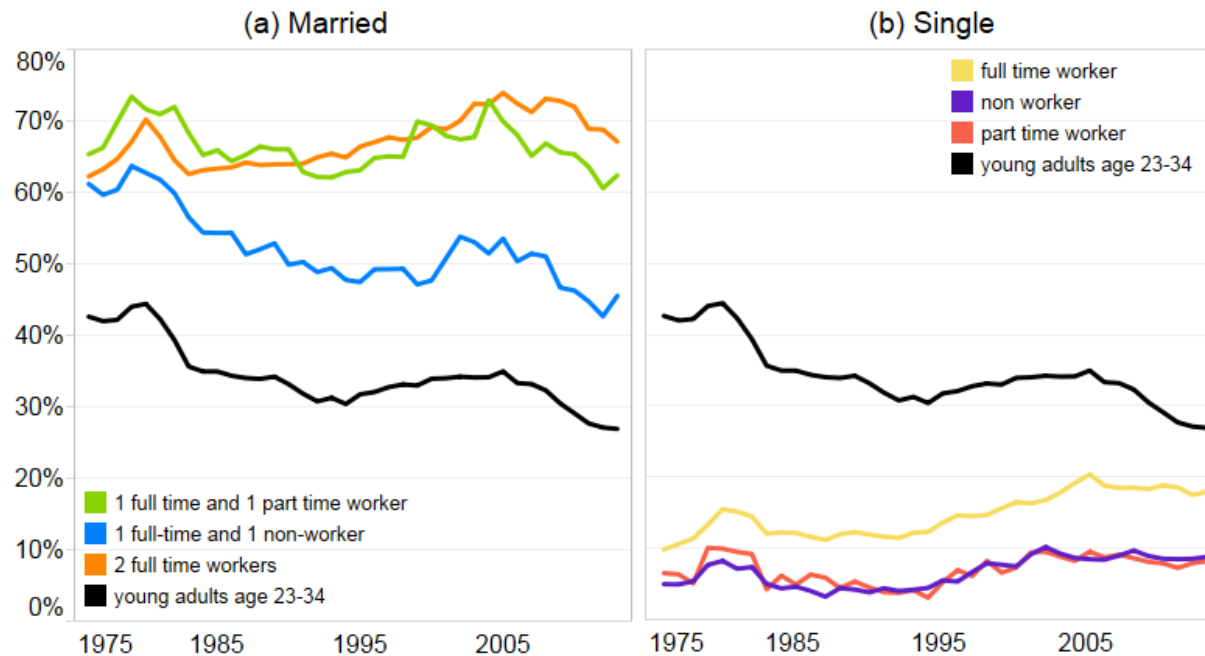
## MOST VIEWED

[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)

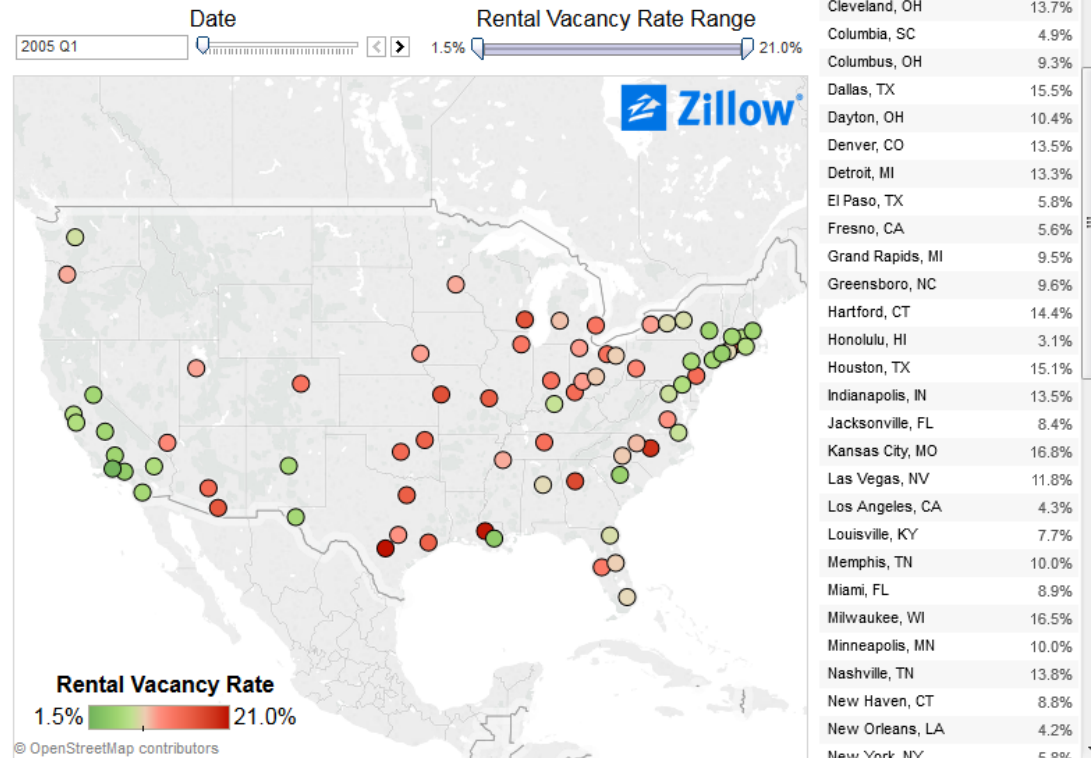
# Examples of Zillow Research using U.S. Census Data

## 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.

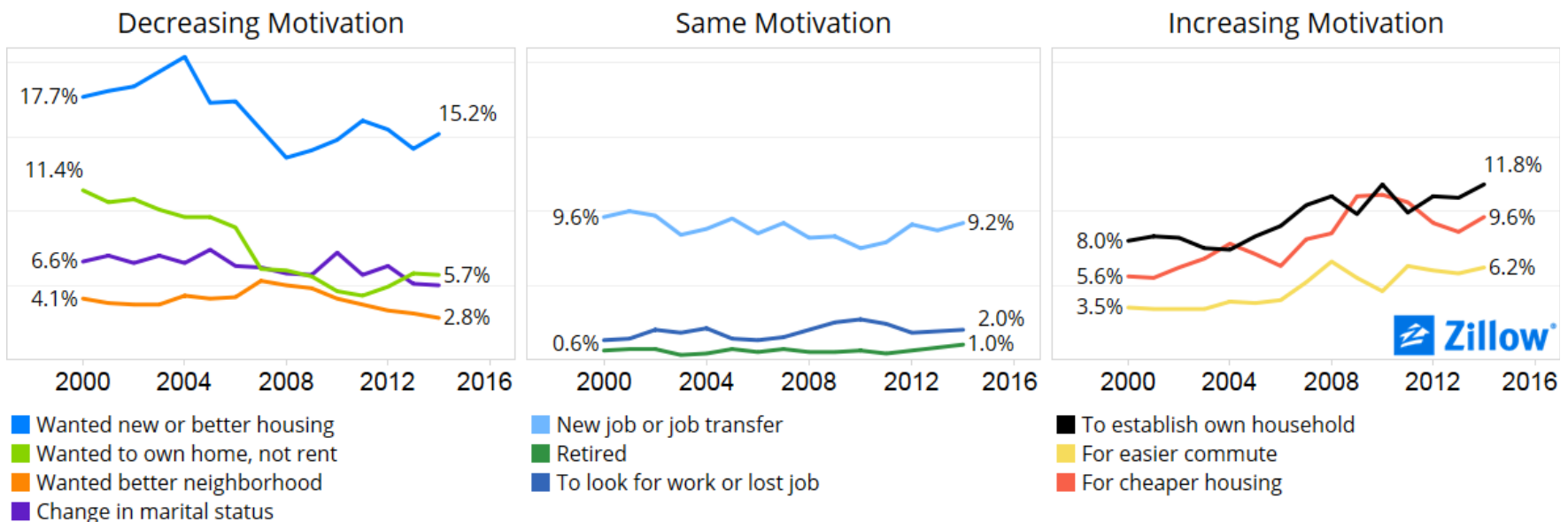


Source: U.S. Census Bureau CPS/HVS

# 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](http://www.ipums.org).

# ZILLOW'S DATA PRODUCTS

[www.zillow.com/data](http://www.zillow.com/data)



# Aggregated real estate data freely available at [www.zillow.com/data](http://www.zillow.com/data)

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

[Home / Data](#)

## Zillow Data

**ON THIS PAGE**  
[Home Value Data](#) [Rental Data](#) [Other Metrics](#) [Forecasts, Negative Equity and Affordability](#)

### Median Home Value – Zillow Home Value Index (ZHVI)

[ZHVI Methodology](#)  
[Zillow Home Value Forecast Methodology](#)  
[Zillow Market Overviews](#)

TYPE	STATE	METRO/US	COUNTY	CITY	ZIP CODE	NEIGHBORHOOD
ZHVI Summary (Current Month)	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>
All Homes (SFR, Condo/Co-op) Time Series (\$)	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>
Condo/Co-op Time Series (\$)	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>
Single-Family Homes Time Series (\$)	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>
1-Bedroom Time Series (\$)	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>
2-Bedroom Time Series (\$)	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>
3-Bedroom Time Series (\$)	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>	<a href="#">Data</a>

**QUICK ACCESS**  
[Presentations](#)  
[About Us](#)  
[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

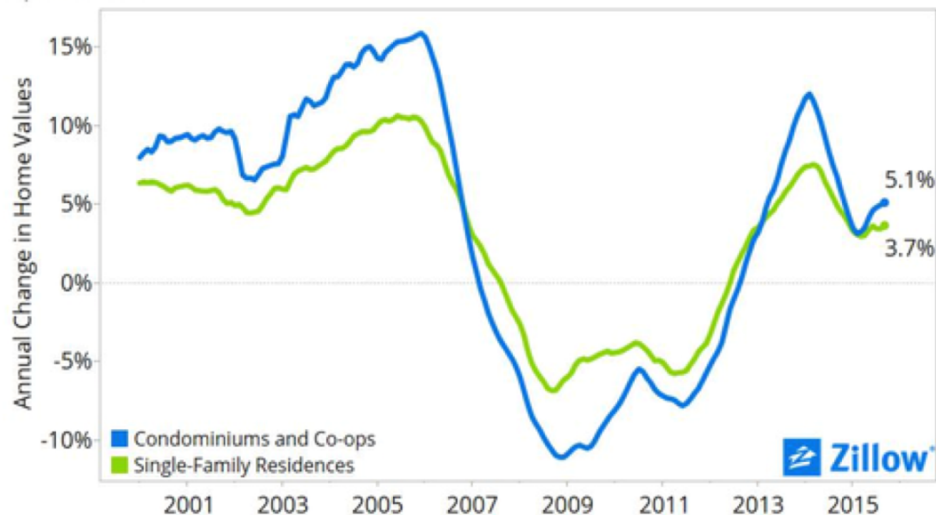
# Zillow Home Value Index

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

Nationwide, condo values<sup>[1]</sup> 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.

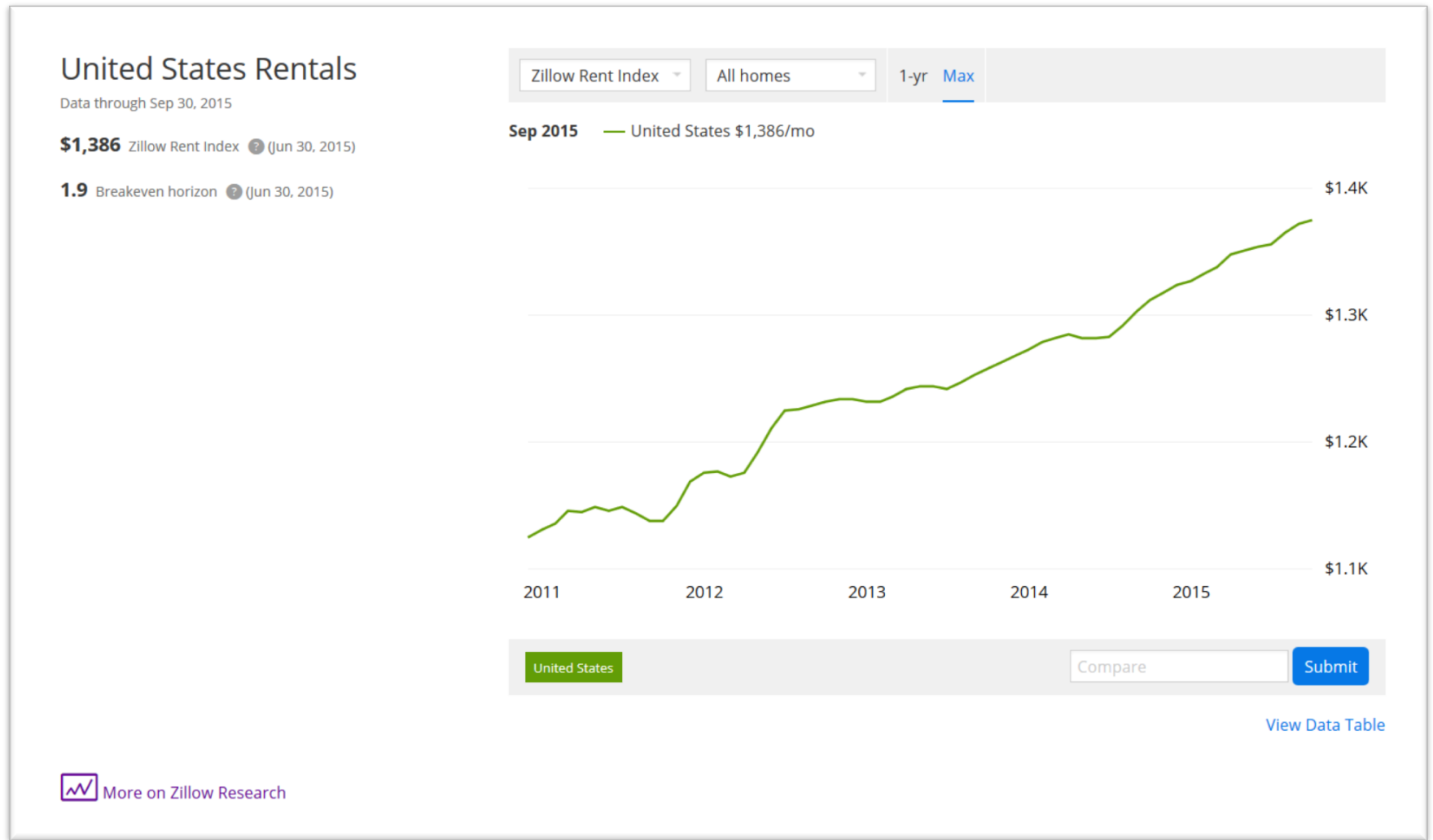
Annual growth in median condo values has equaled or exceeded growth in single-family home values for 32 straight months. The last time single-family home values grew more quickly year-over-year than condo values was in January 2013.

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



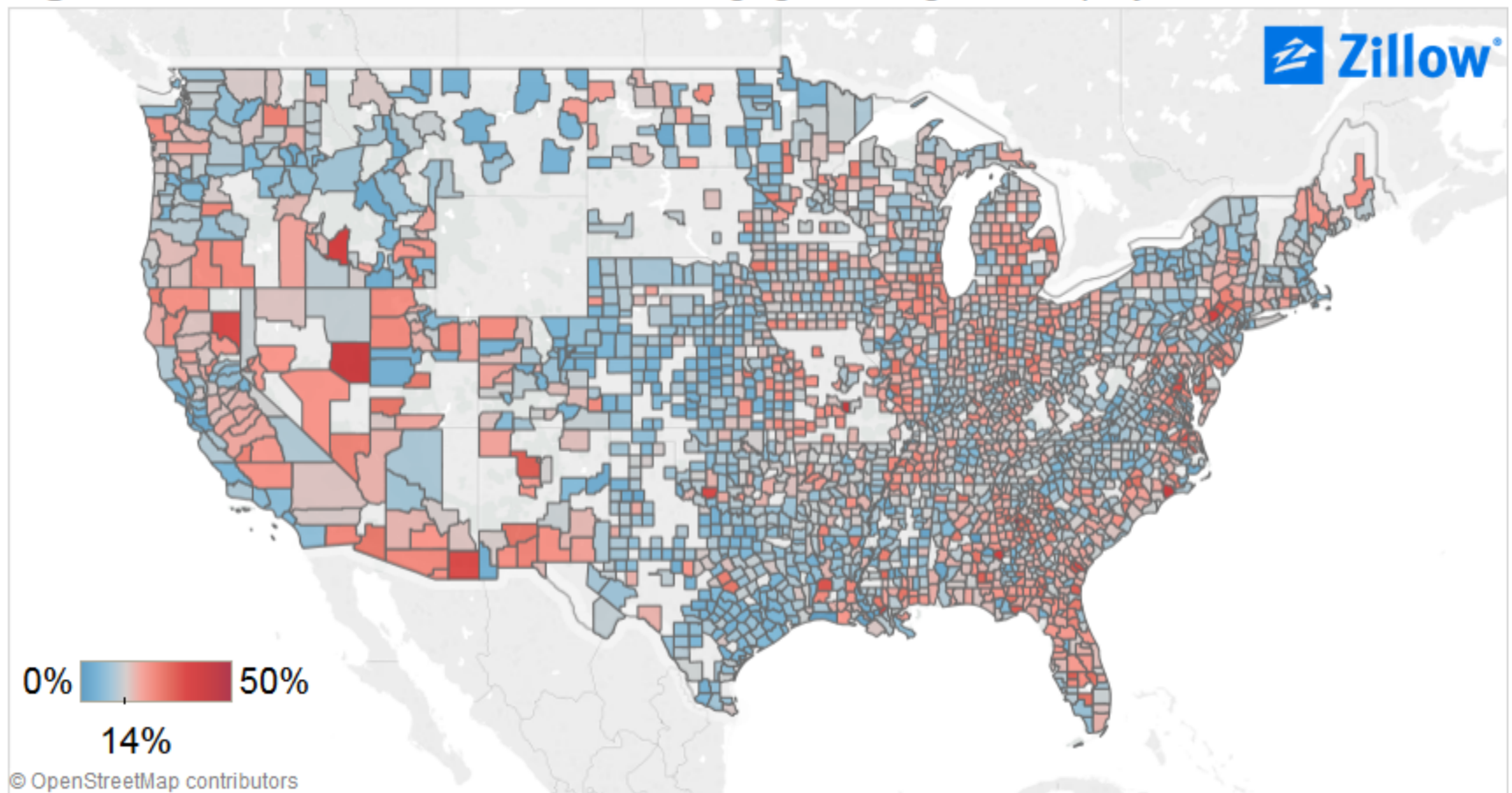
The Zillow Home Value index is available at a monthly frequency for the nation, states, metro areas, counties, cities, ZIP codes and neighborhoods.

# 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

## HOUSE OF DEBT

Economic Commentary from Atif Mian and Amir Sufi

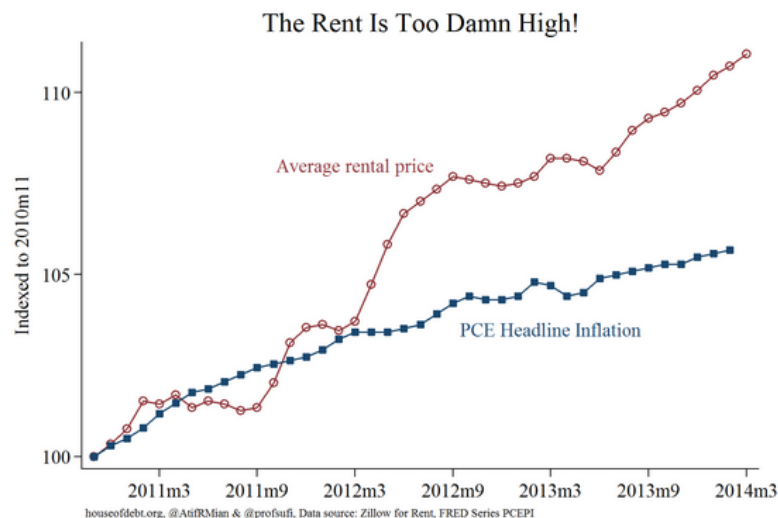
### Where Is the Rent Too Damn High?

APRIL 29, 2014

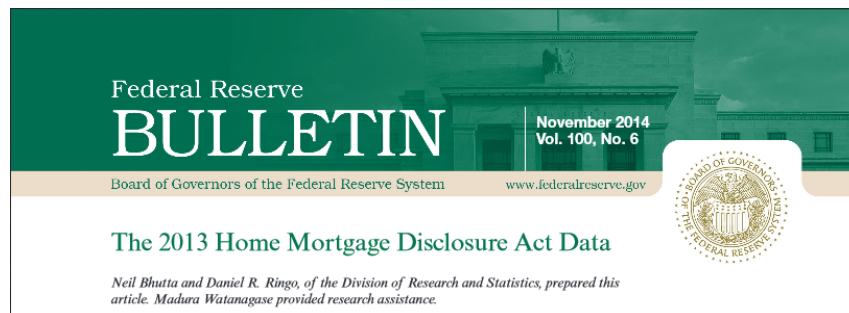
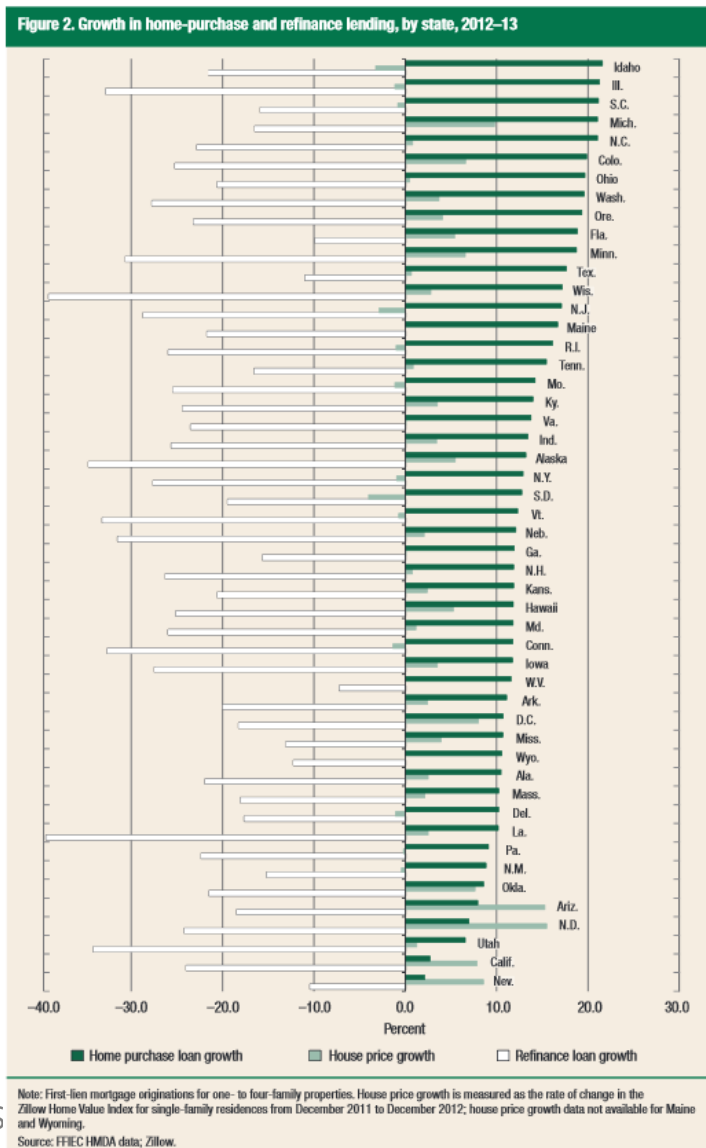
BY ATIF MIAN AND AMIR SUFI

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



Duke  
UNIVERSITY



