

# *PHILADELPHIA HOUSE PRICE INDICES*

**October 28, 2016**



DREXEL UNIVERSITY  
**Lindy Institute**  
for Urban Innovation

**KEVIN C. GILLEN, Ph.D.**

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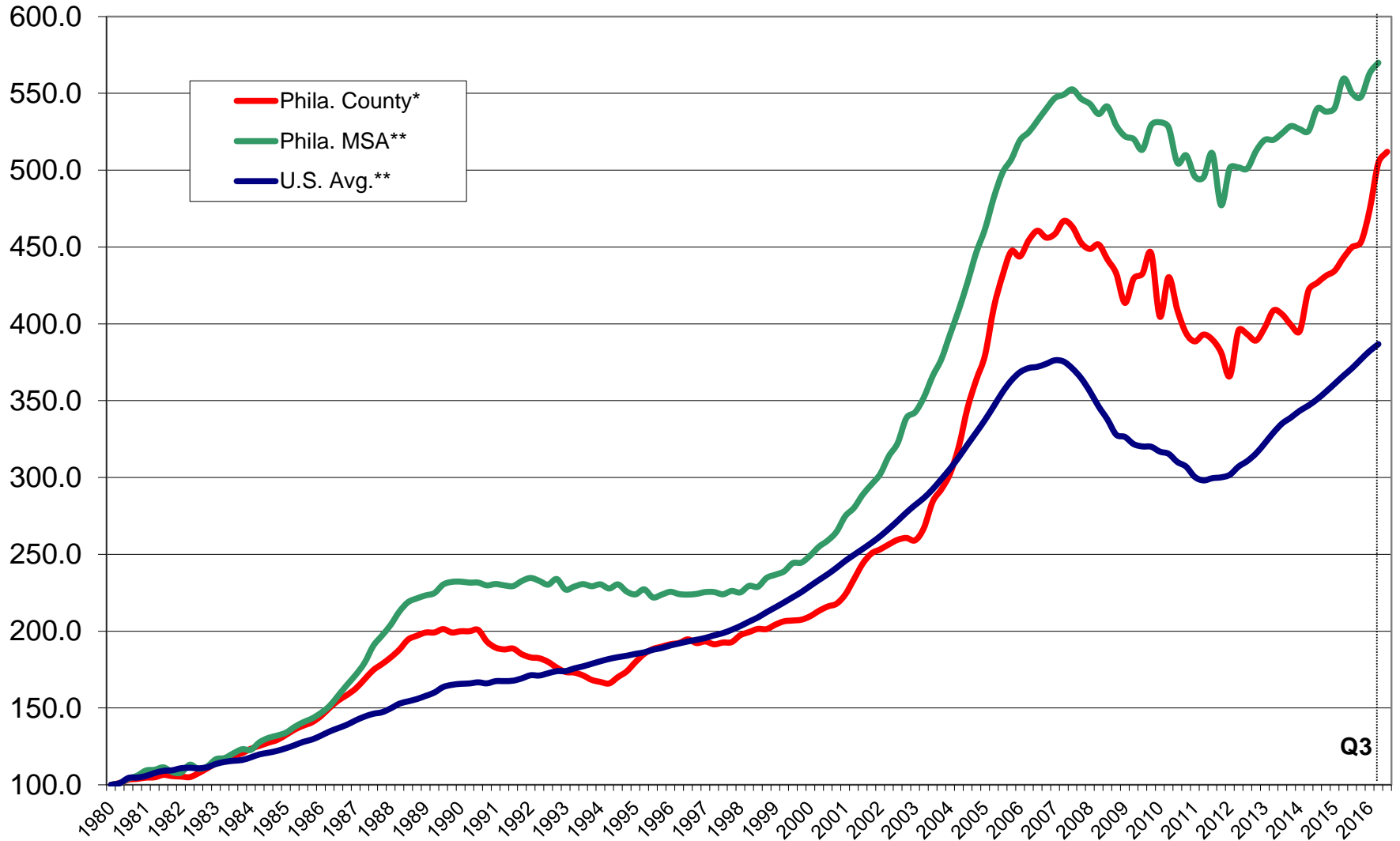
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***Disclaimers and Acknowledgments:** The Lindy Institute for Urban Innovation at Drexel University provides this report free of charge to the public. The report is produced by Kevin C. Gillen Ph.D.. The author thanks Azavea.com, the Philadelphia Office of Property Assessment, the Federal Housing Finance Agency, Case-Shiller MacroMarkets LLC, RealtyTrac, Zillow.com, Trulia.com and the NAHB for making their data publicly available. © 2016, Drexel University, All Rights Reserved.*



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## House Price Indices 1980-2016: 1980Q1=100 Philadelphia County v. Philadelphia MSA and U.S. Average



\* Empirically estimated by Kevin C. Gillen, Ph.D.

\*\*Courtesy of the Federal Housing Finance Agency (FHFA).

HPIs are available through 2016Q2 only.

“MSA”=Metropolitan Statistical Area, which is the entire 9-county region.



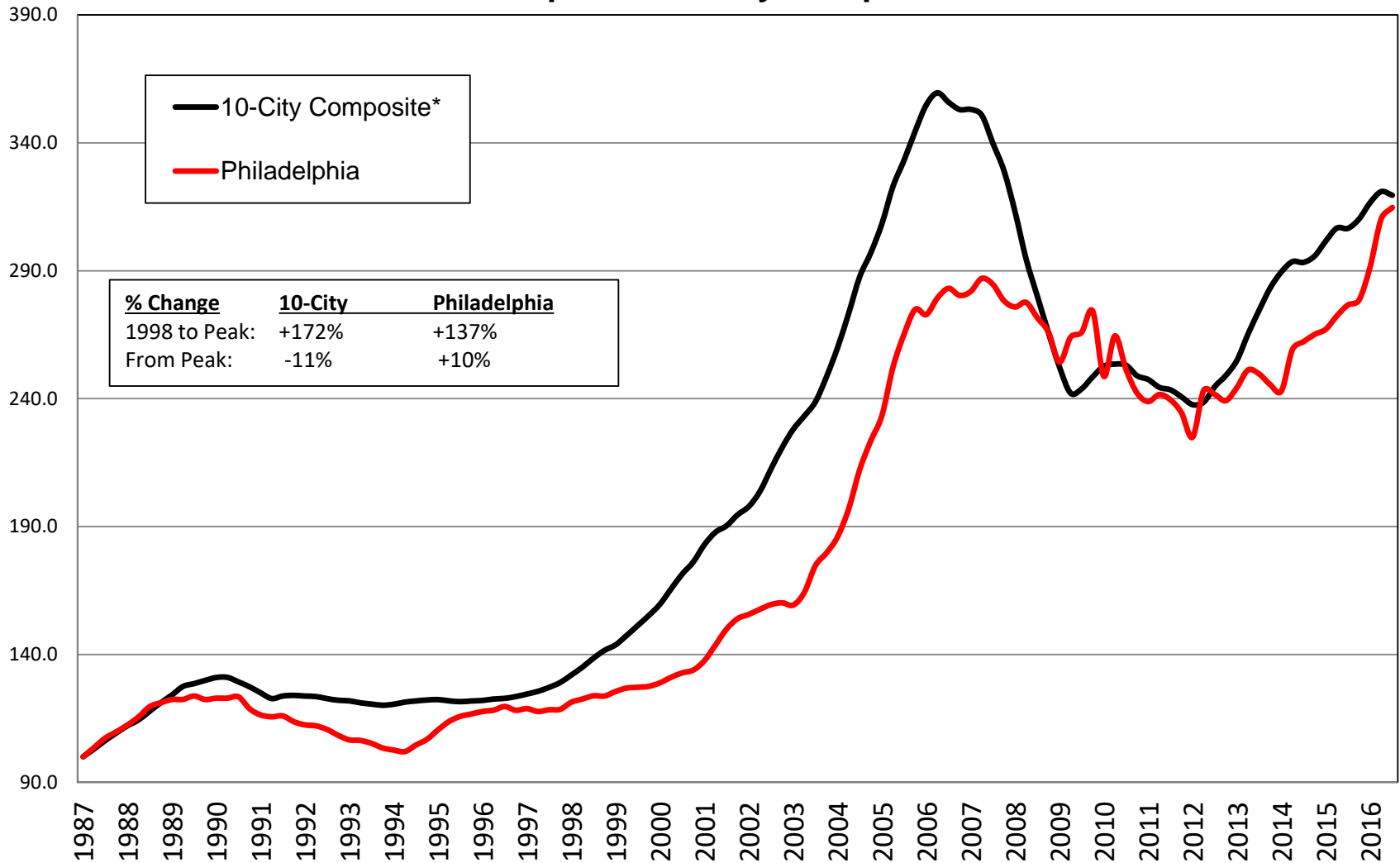
## Total House Price Appreciation Rates by Geographic Market

Period	Philadelphia County*	Philadelphia MSA**	U.S.A.**
37-Year	<b>163.3%</b>	<b>174.0%</b>	<b>135.3%</b>
10-Year	<b>10.6%</b>	<b>8.3%</b>	<b>4.1%</b>
1-Year	<b>12.9%</b>	<b>1.8%</b>	<b>5.5%</b>
1-Quarter	<b>1.4%</b>	<b>1.2%</b>	<b>1.2%</b>

\*Empirically estimated by Kevin C. Gillen Ph.D.

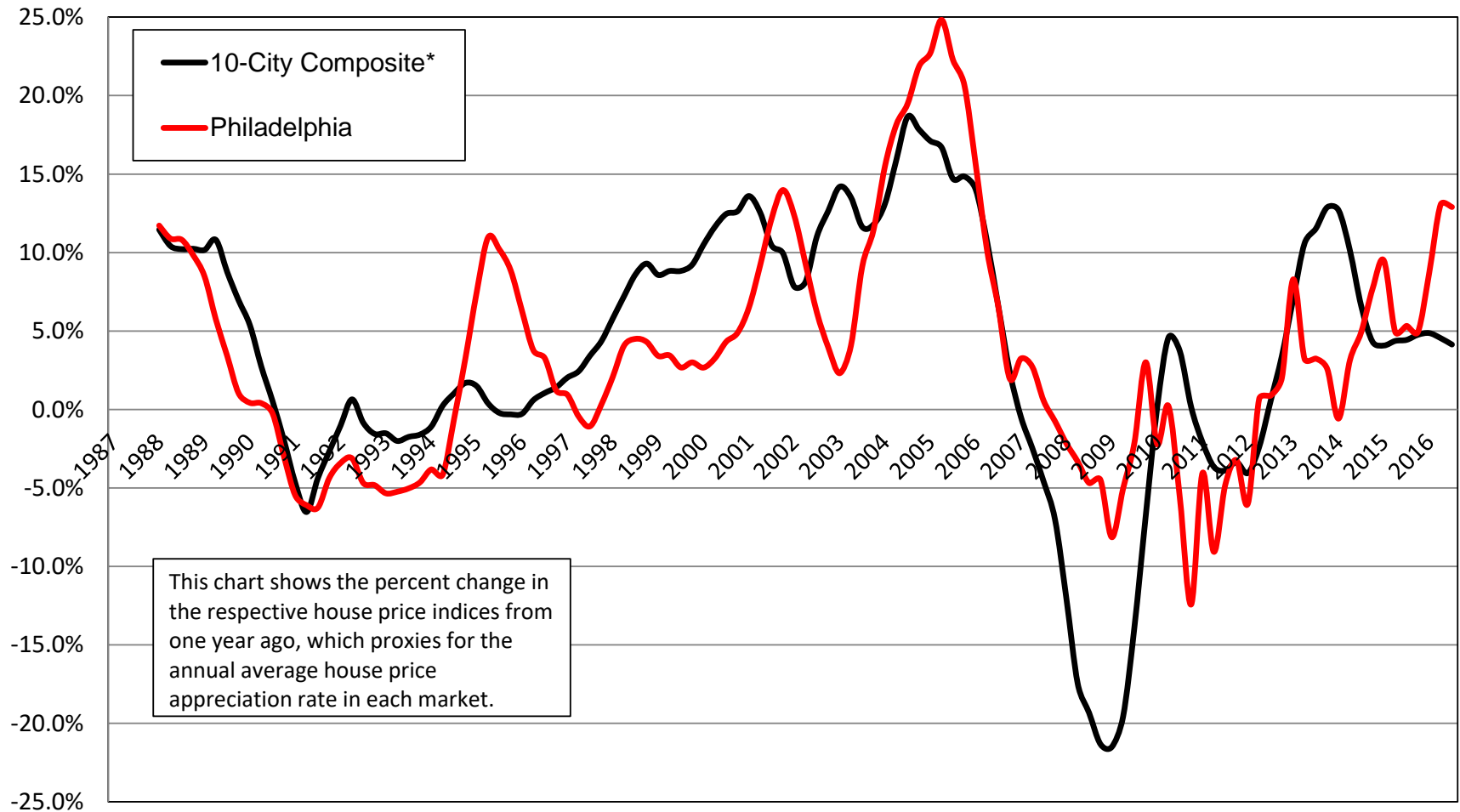
\*\*Source: U.S. Federal Housing Finance Agency (FHFA). These numbers are through 2016Q2 only. “MSA”=“Metropolitan Statistical Area”, which is the entire 10-county region.

## House Price Appreciation 1987-2016: Philadelphia v. 10-City Composite



\*Source: S&P/Case-Shiller. The 10-City Composite index includes Boston, Chicago, Denver, Las Vegas, Los Angeles, Miami, New York, San Diego, San Francisco, and Washington, DC. It does not include Philadelphia.

## YoY House Price Change (%) 1987-2016: Philadelphia v. 10-City Composite

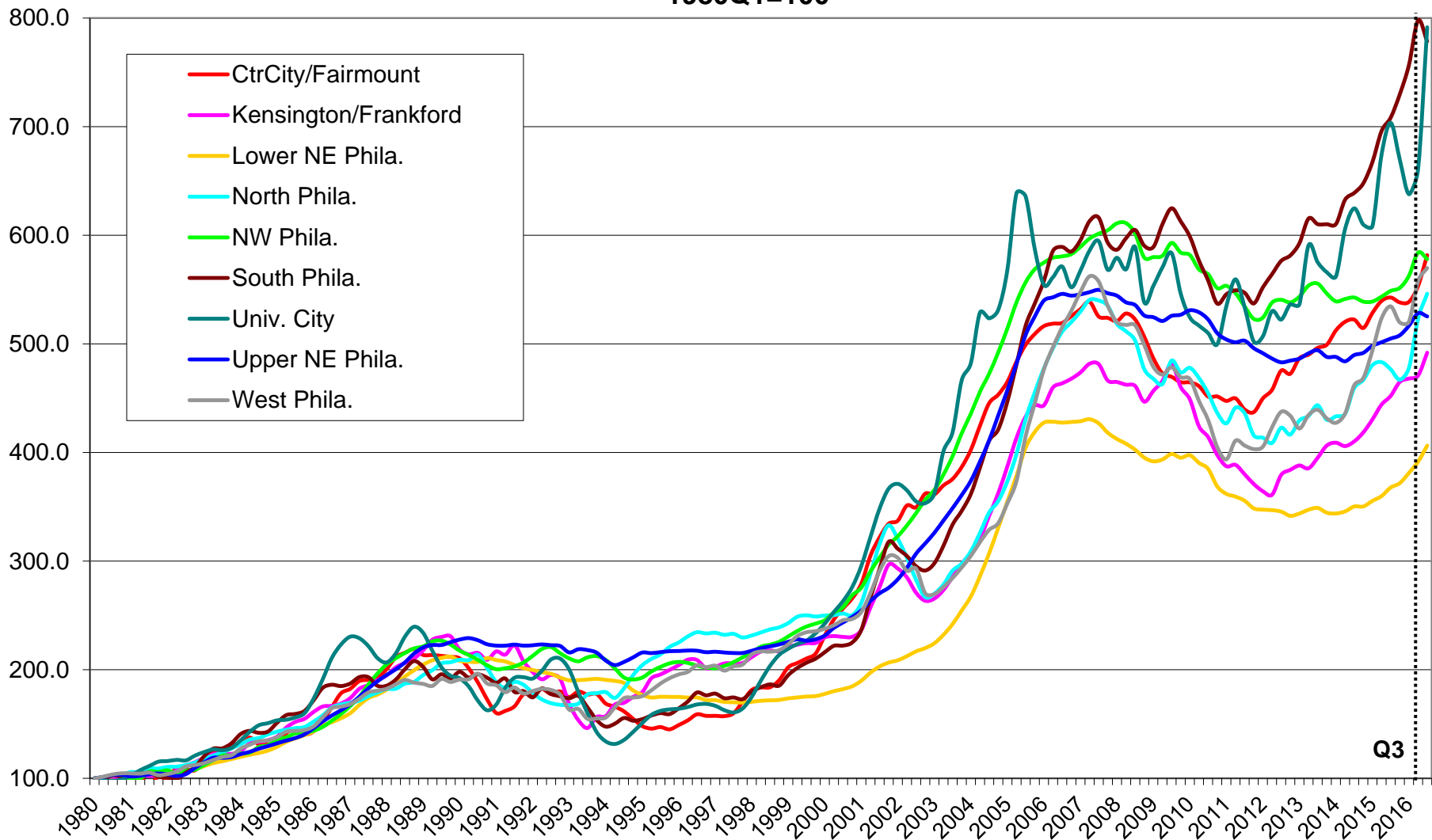


This chart shows the percent change in the respective house price indices from one year ago, which proxies for the annual average house price appreciation rate in each market.

\*Source: S&P/Case-Shiller. The 10-City Composite index includes Boston, Chicago, Denver, Las Vegas, Los Angeles, Miami, New York, San Diego, San Francisco, and Washington, DC. It does not include Philadelphia.

## Philadelphia House Price Indices by Neighborhood: 1980-2016

1980Q1=100



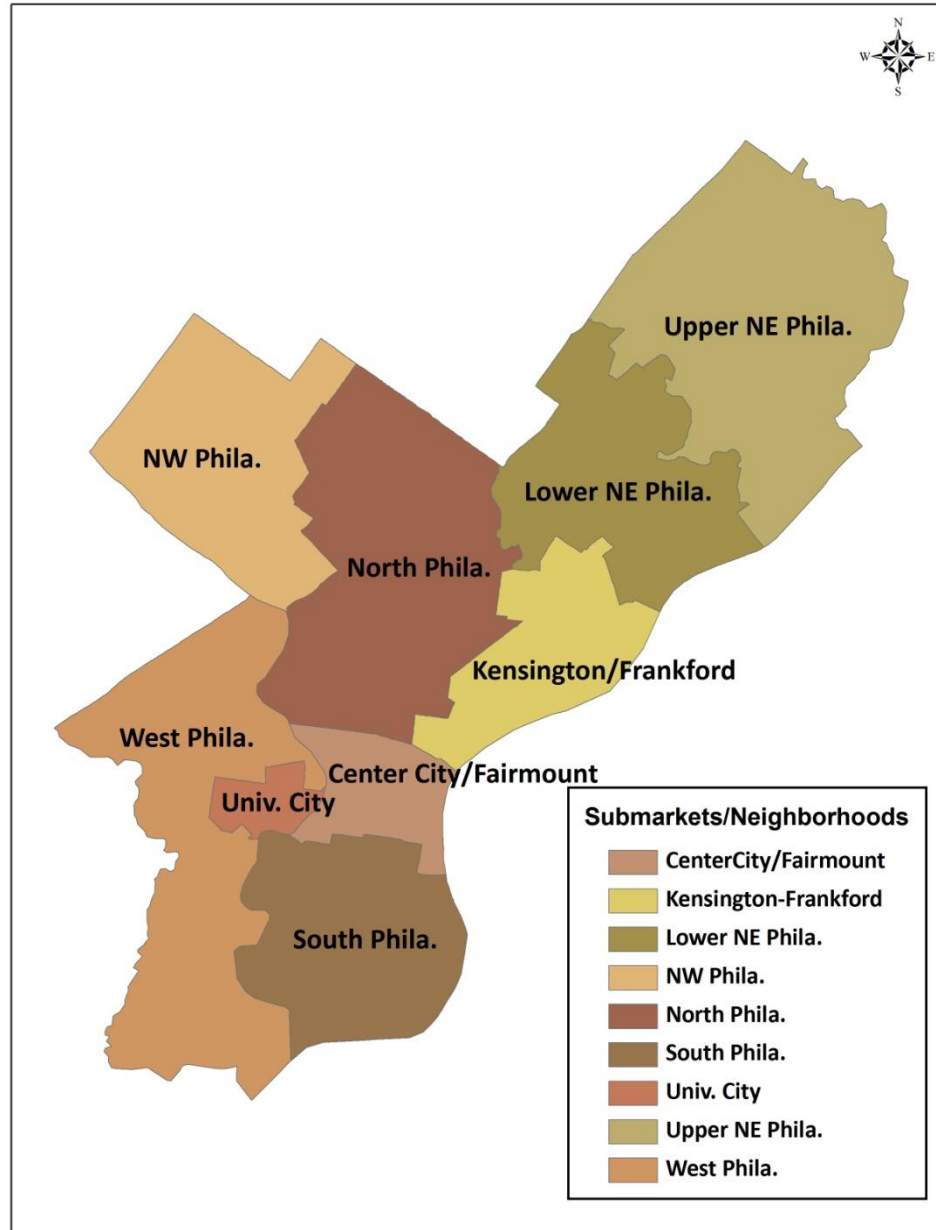
\* All indices empirically estimated by Kevin C. Gillen, Ph.D.

## Philadelphia House Price Appreciation Rates by Neighborhood

Period	Center City/ Fairmount	Kensington /Frankford	Lower NE Phila.	North Phila.	NW Phila.	South Phila.	Univ. City	Upper NE Phila.	West Phila.
<b>37-year</b>	<b>176.1%</b>	<b>159.3%</b>	<b>140.2%</b>	<b>169.8%</b>	<b>175.4%</b>	<b>205.2%</b>	<b>206.9%</b>	<b>165.9%</b>	<b>174.0%</b>
<b>10-year</b>	<b>11.4%</b>	<b>5.9%</b>	<b>-5.1%</b>	<b>6.6%</b>	<b>-0.4%</b>	<b>27.9%</b>	<b>32.6%</b>	<b>-3.9%</b>	<b>10.1%</b>
<b>1-Year</b>	<b>7.0%</b>	<b>8.4%</b>	<b>10.0%</b>	<b>13.6%</b>	<b>5.2%</b>	<b>9.5%</b>	<b>11.8%</b>	<b>4.0%</b>	<b>6.4%</b>
<b>1-Quarter</b>	<b>5.0%</b>	<b>4.4%</b>	<b>3.7%</b>	<b>4.3%</b>	<b>-1.0%</b>	<b>-2.4%</b>	<b>18.0%</b>	<b>-0.6%</b>	<b>2.1%</b>

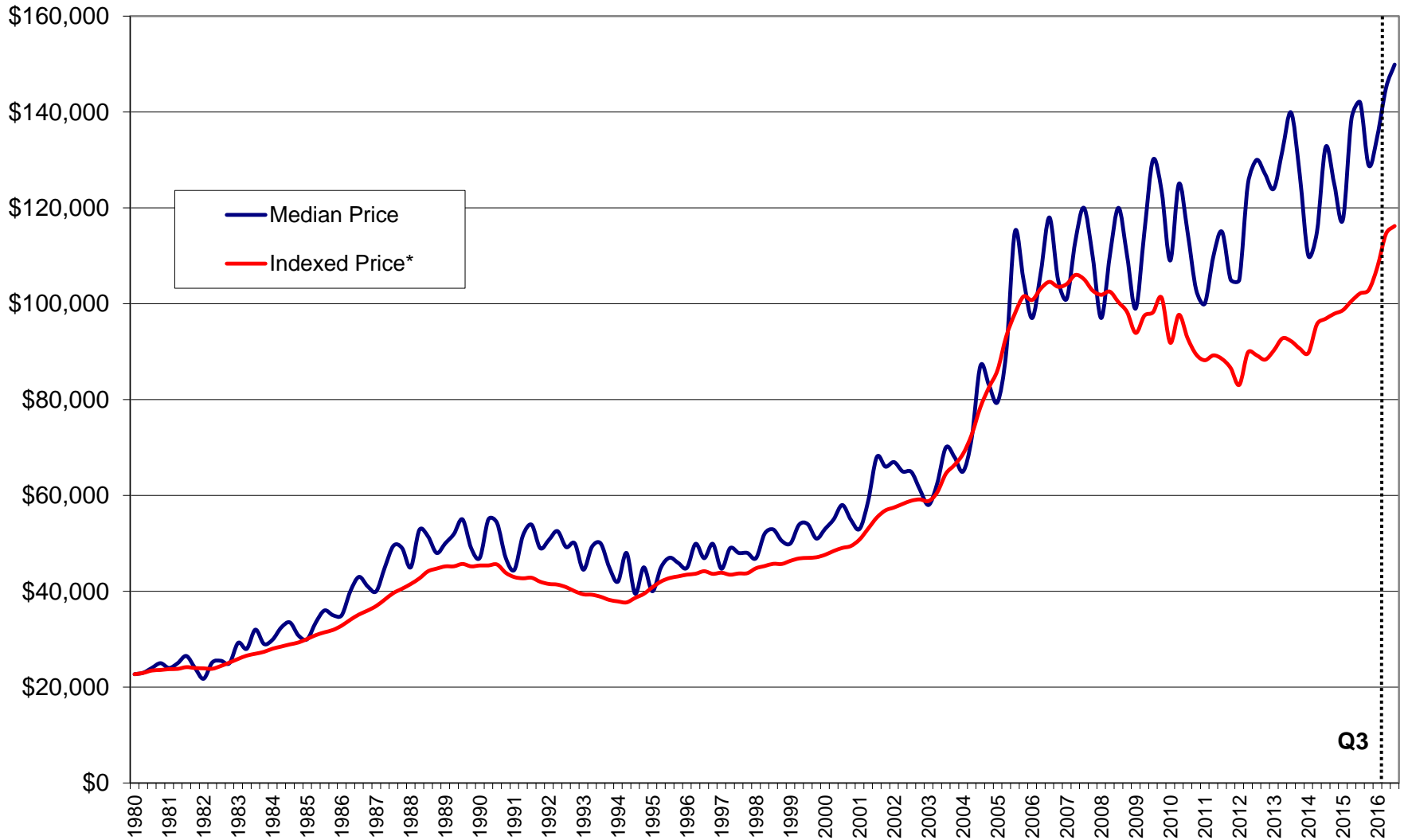
This table gives the total % change in average house prices by neighborhood, through 2016 Q3, from different starting points in time.

# Philadelphia Submarket Boundaries



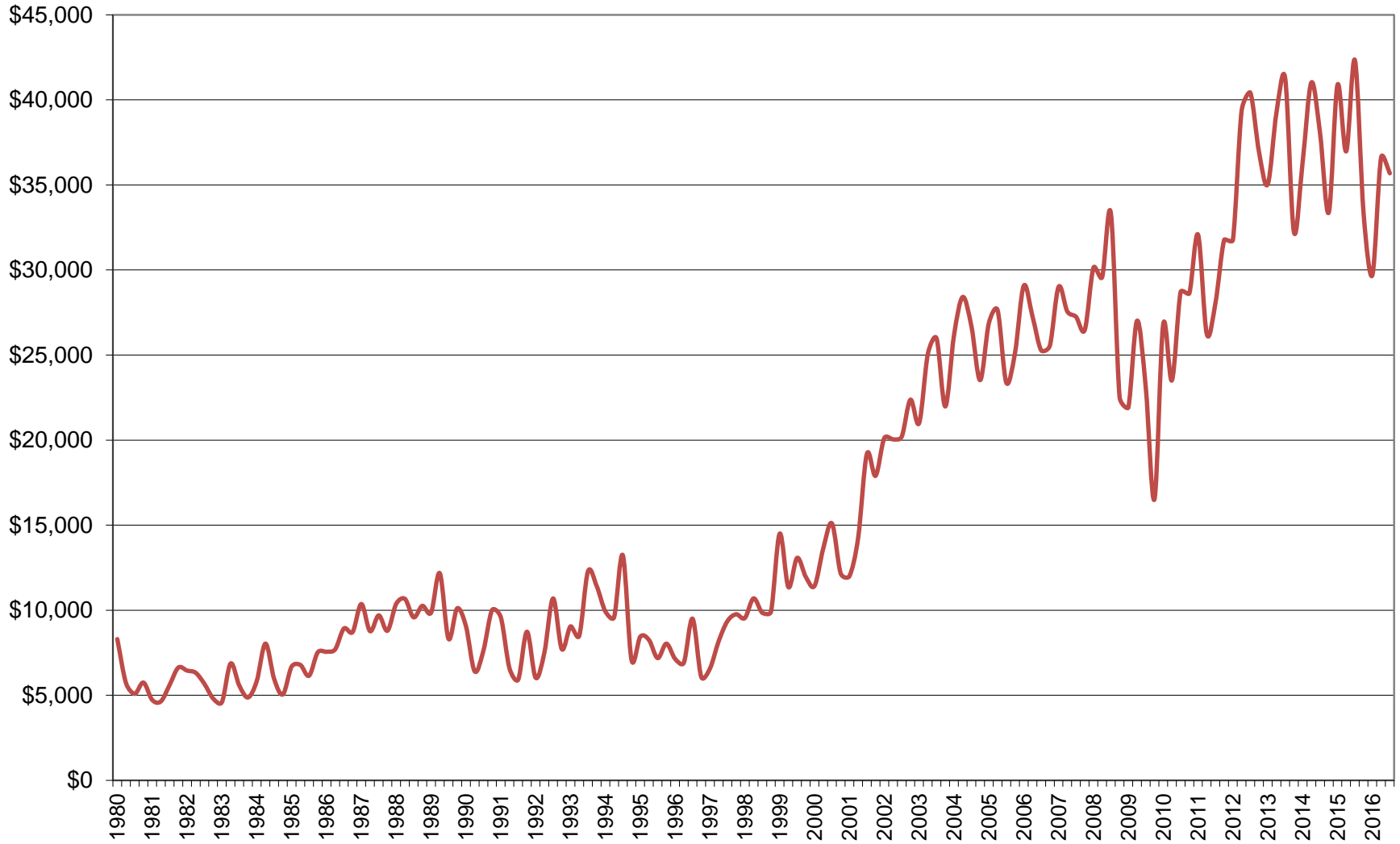


# Median Philadelphia House Price v. Indexed Philadelphia House Price 1980-2016

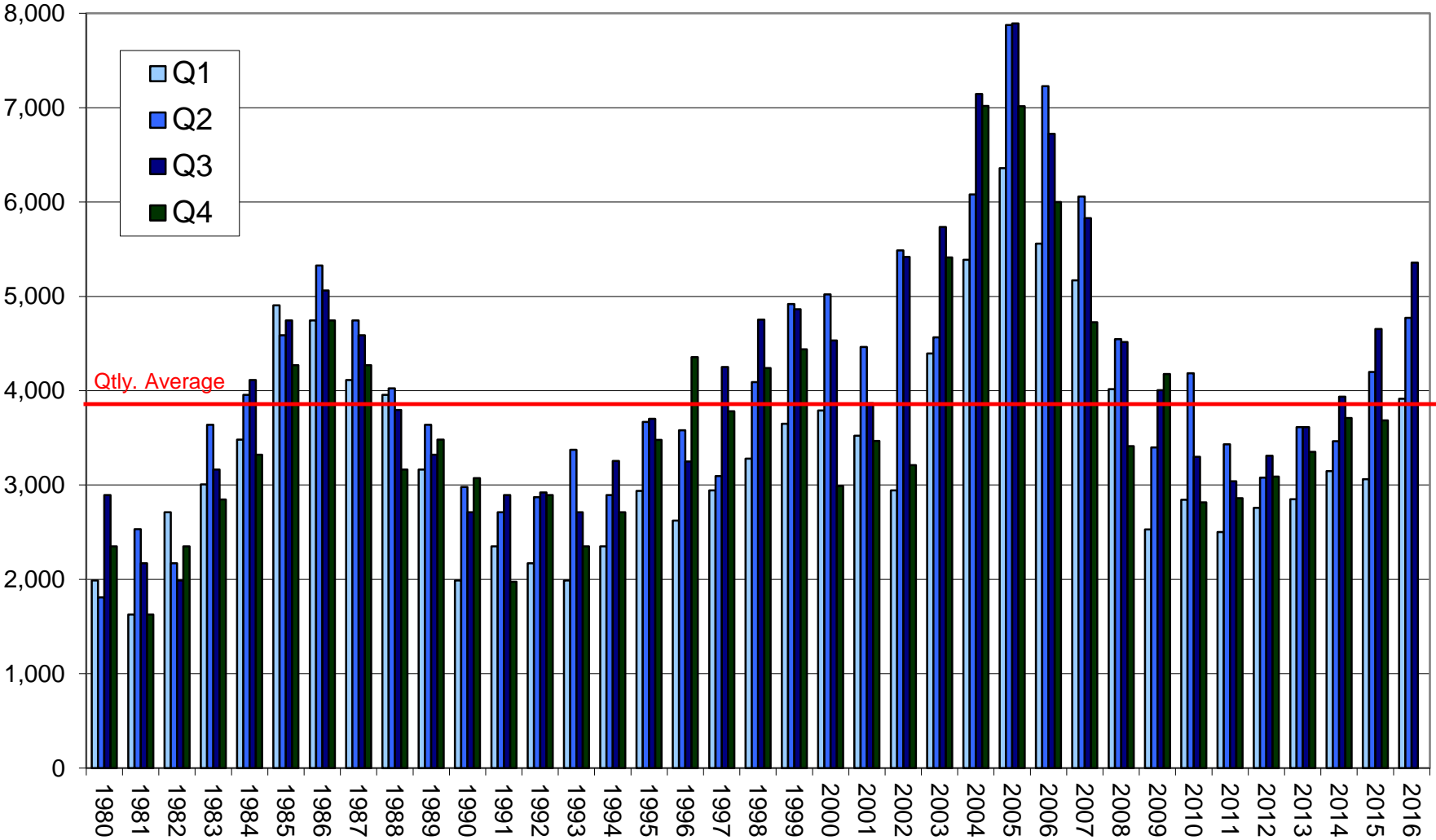


\* Empirically estimated by Kevin C. Gillen, PhD

## Average House Price Minus Median House Price: 1980-2016

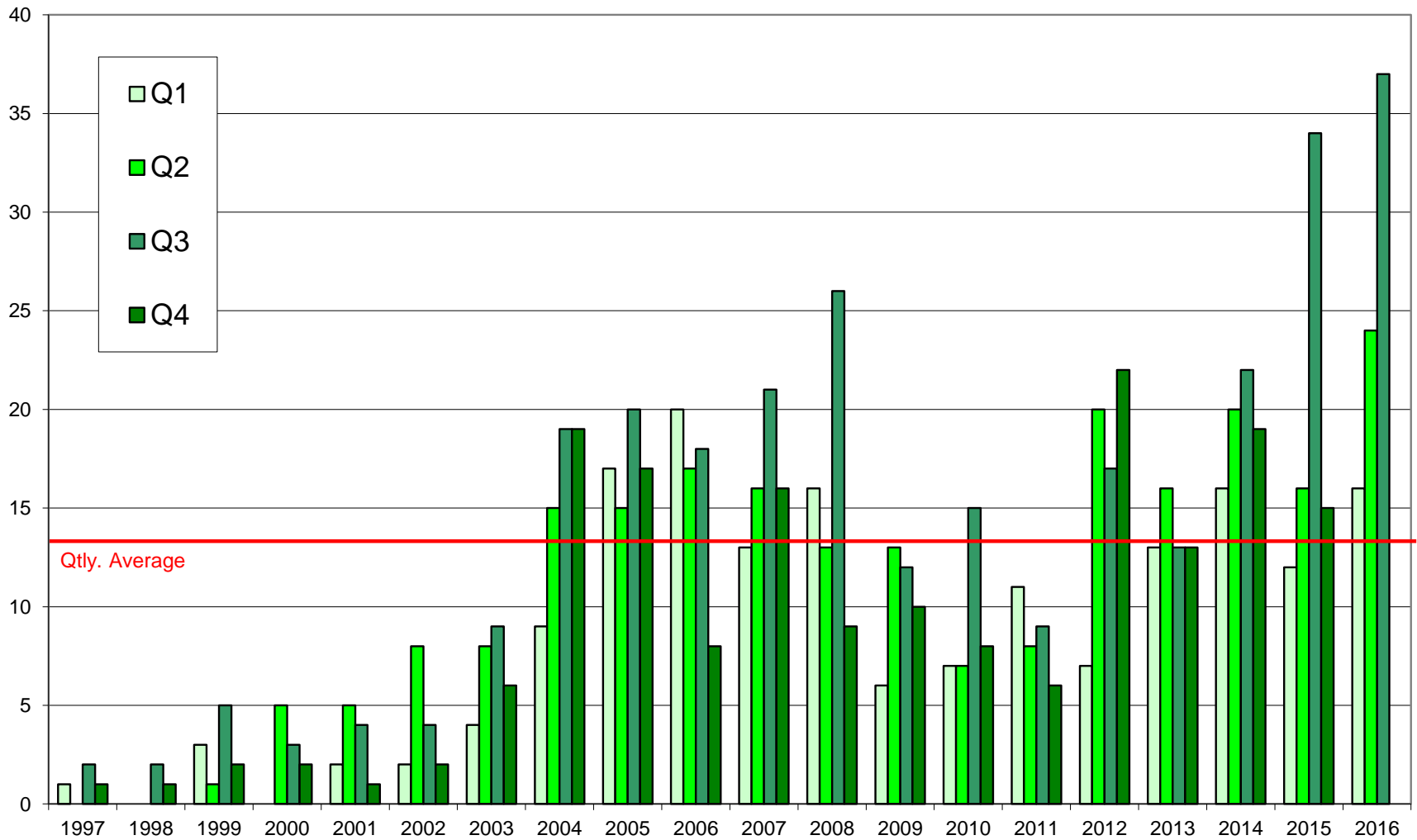


# Number of Philadelphia House Sales\* per Quarter: 1980-2016



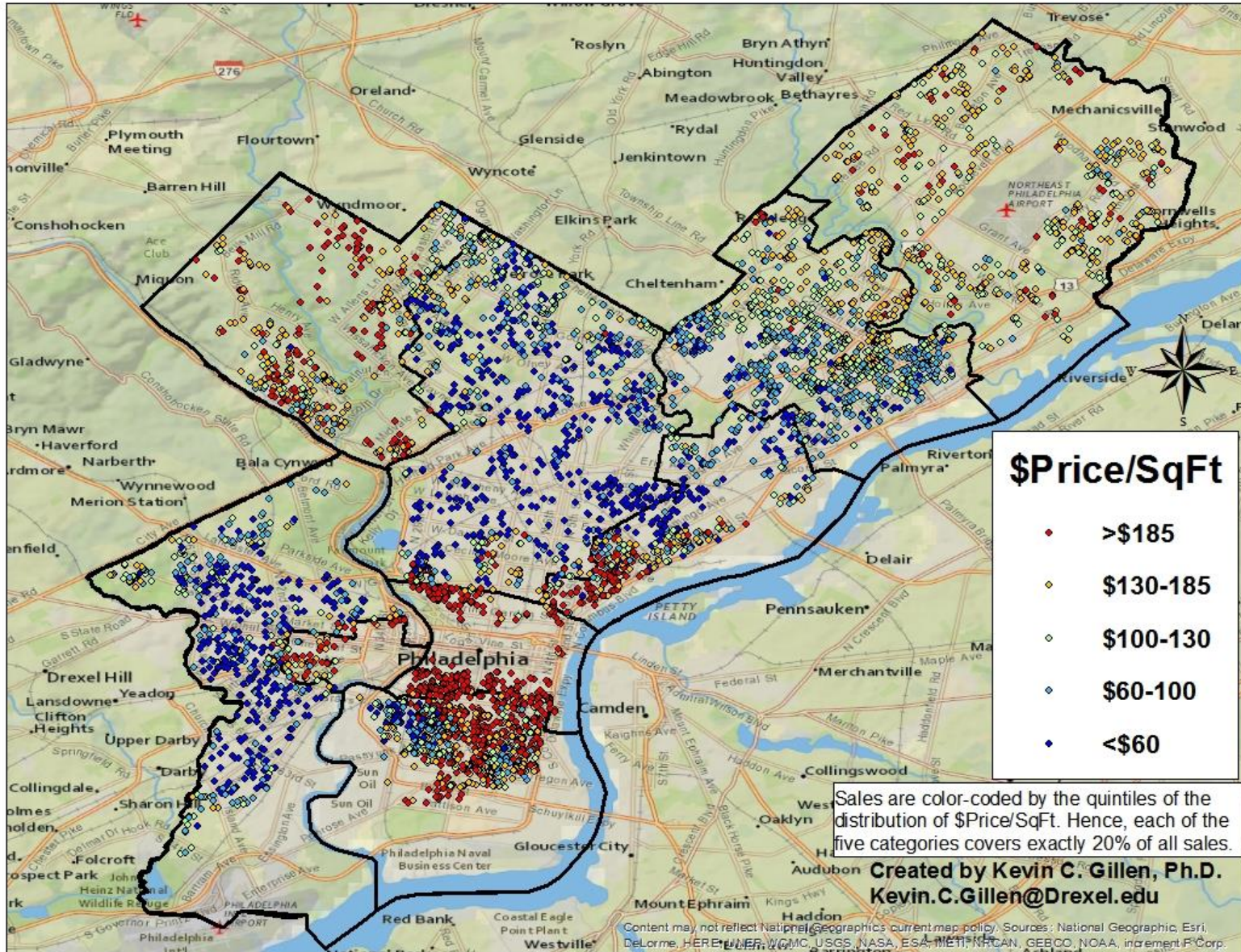
\*Only arms-length transactions between private sector entities were included in these numbers.

## Number of Philadelphia Home Sales\* per Quarter with Price >=\$1 Million: 1997-2016



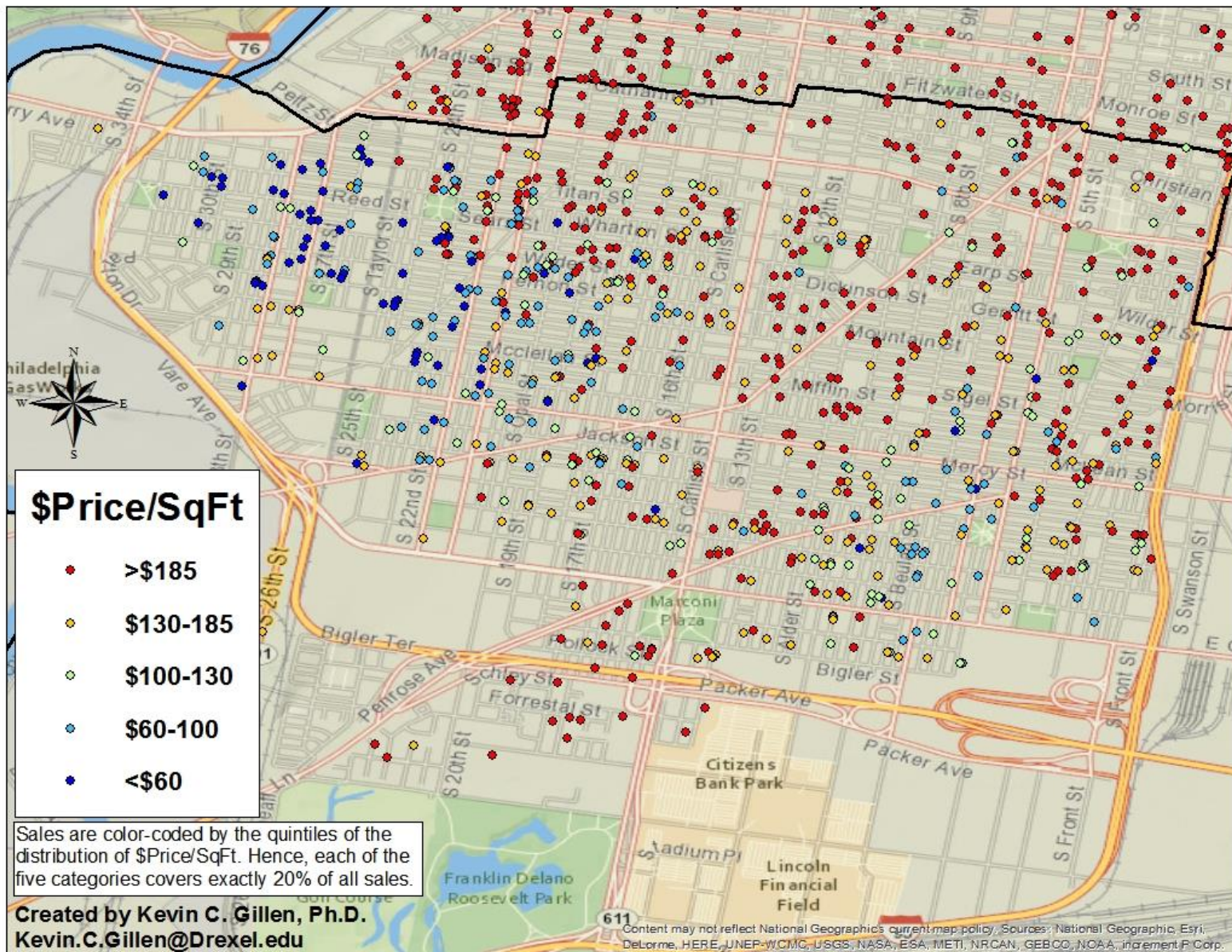
\*Only arms-length transactions between private sector entities were included in these numbers.

# Philadelphia House Sales in 2016 Q3





# South Philadelphia House Sales in 2016 Q3

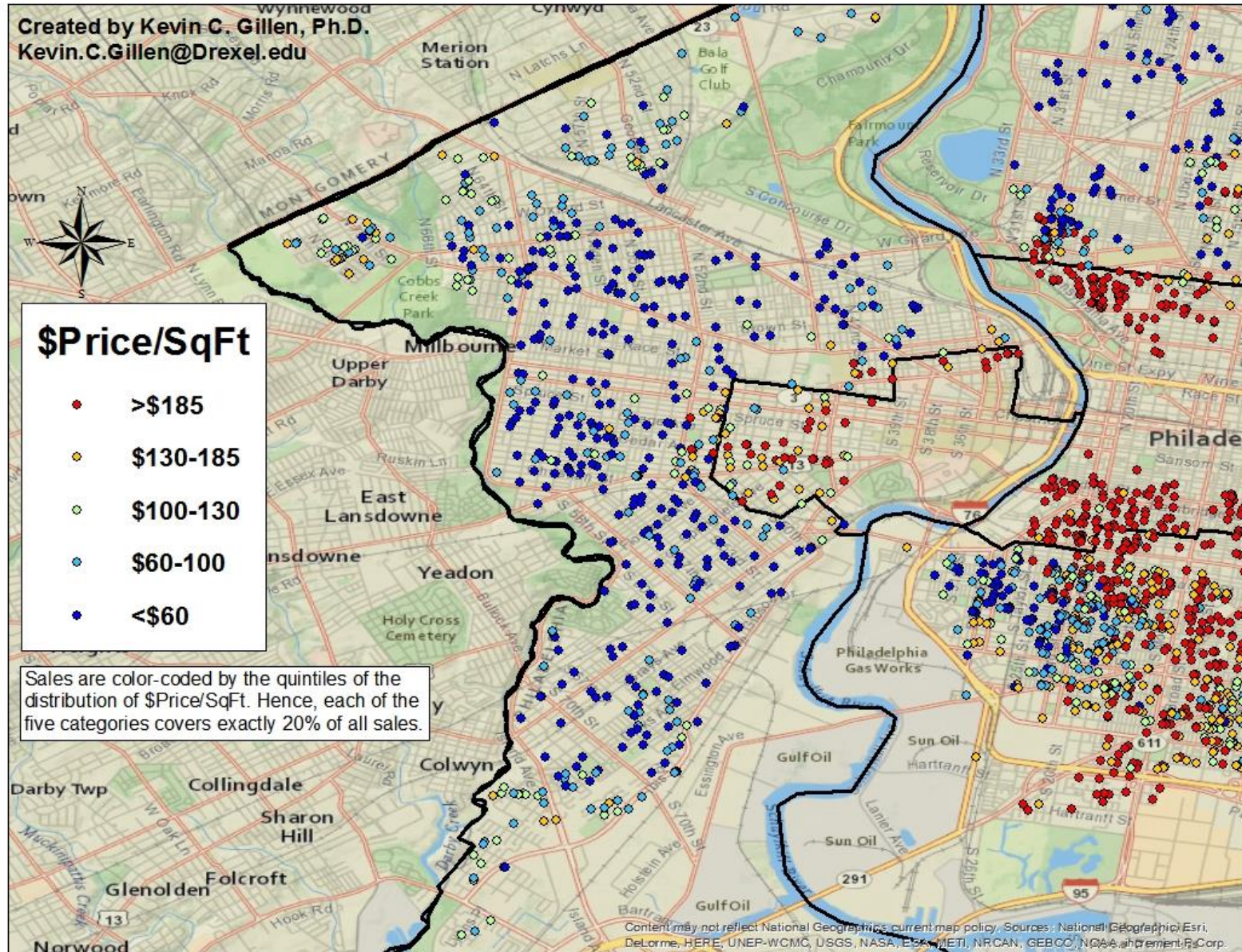




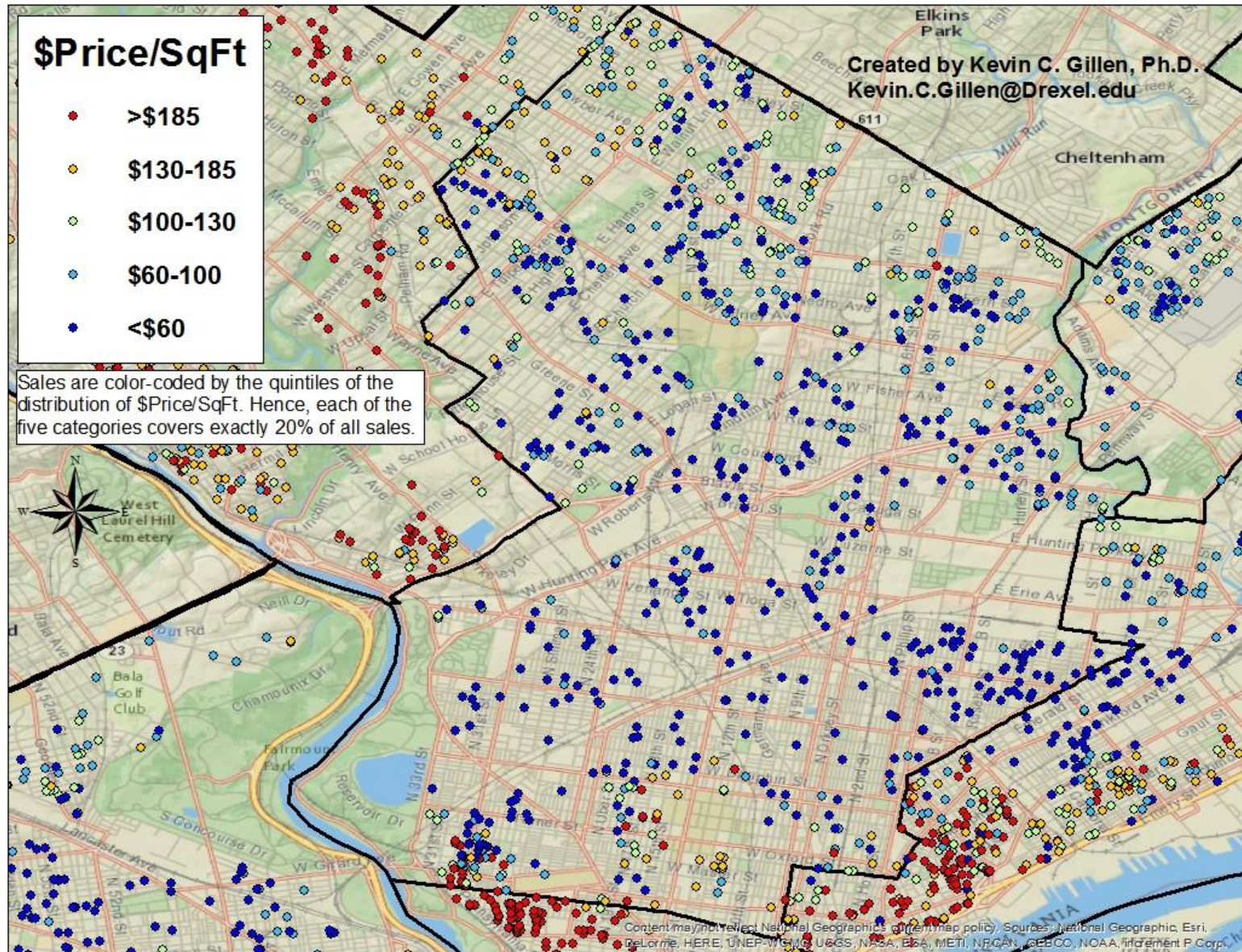


# West Philadelphia House Sales in 2016 Q3

Created by Kevin C. Gillen, Ph.D.  
Kevin.C.Gillen@Drexel.edu

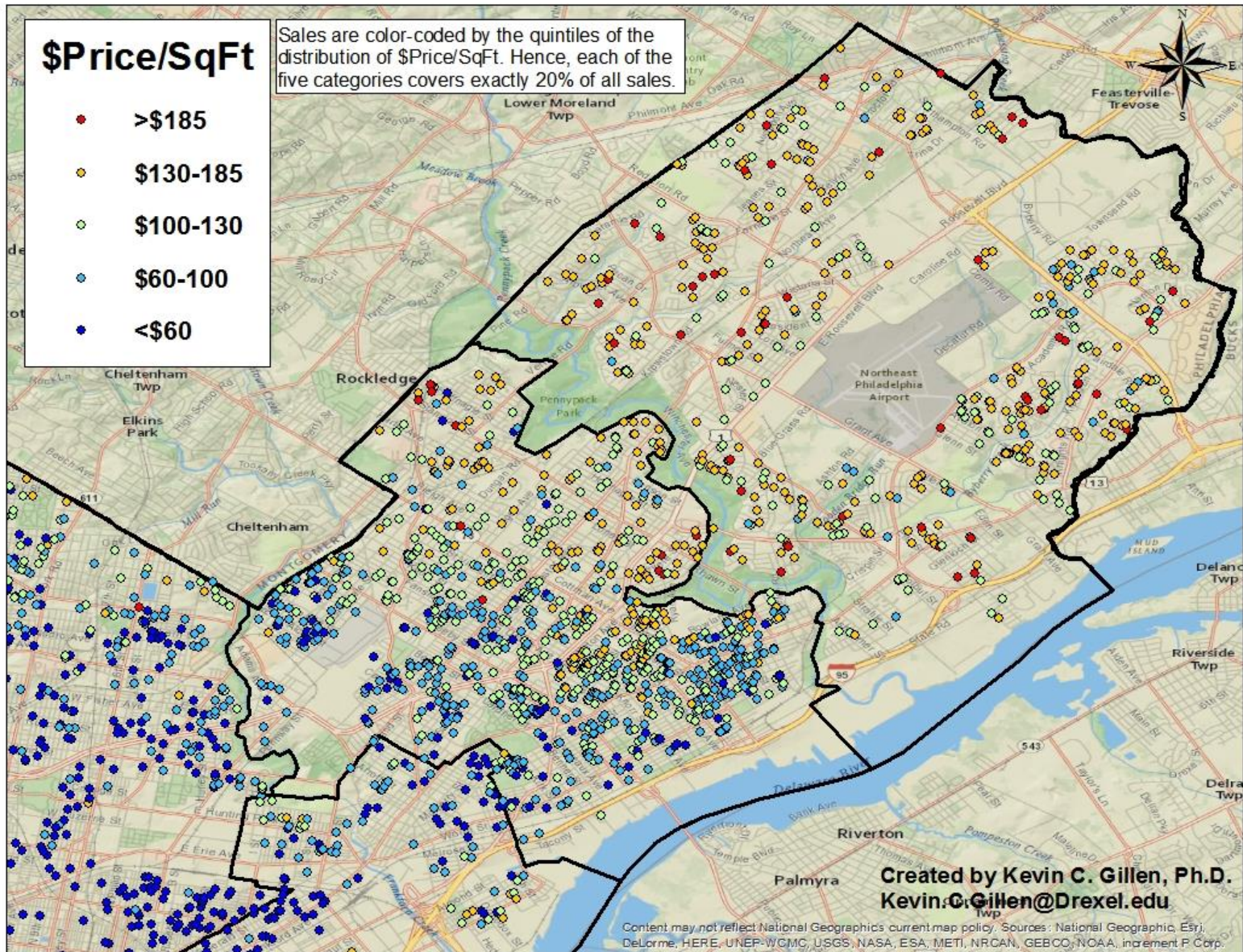


# North Philadelphia House Sales in 2016 Q3

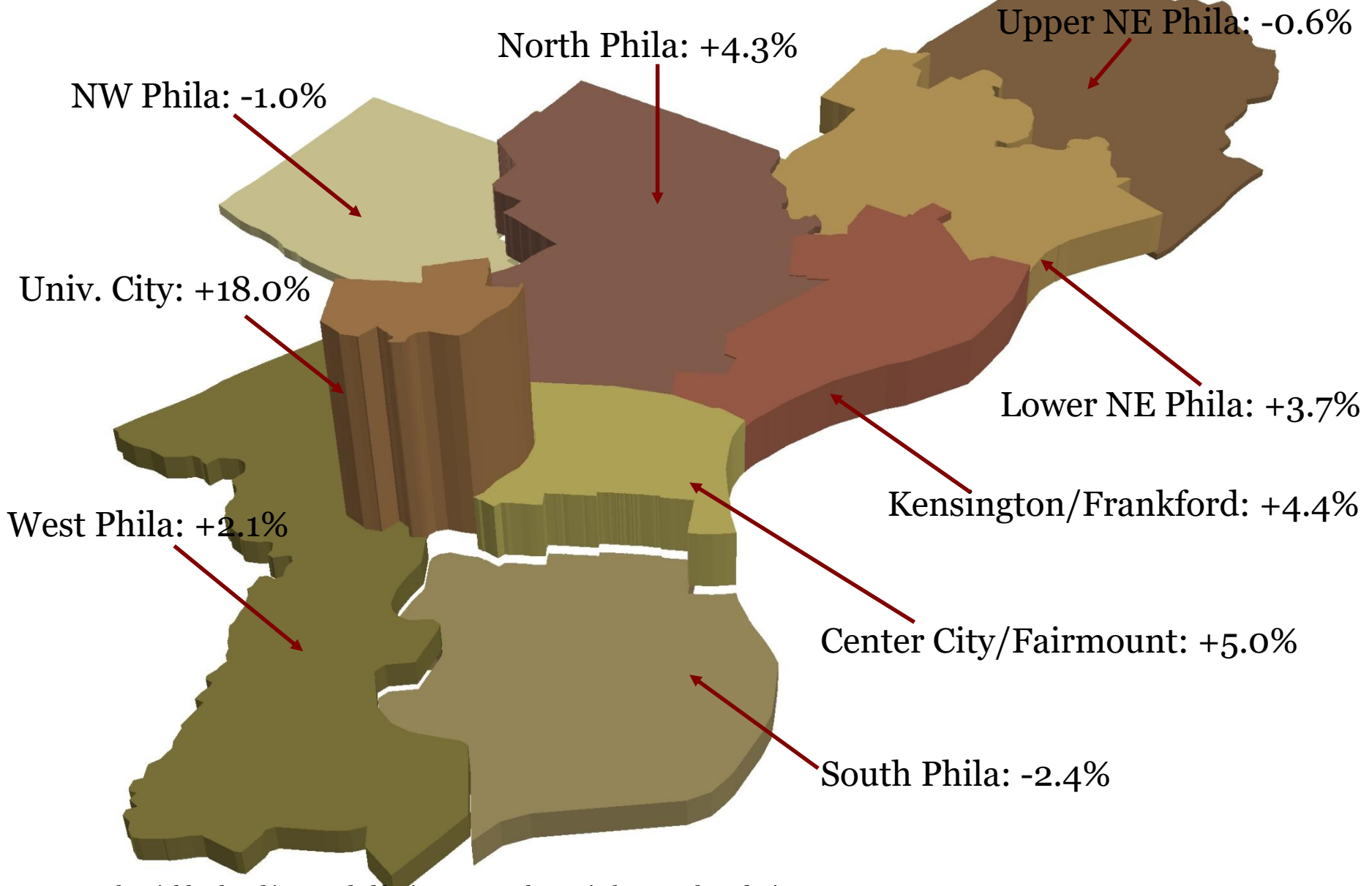




# Northeast Philadelphia House Sales in 2016 Q3



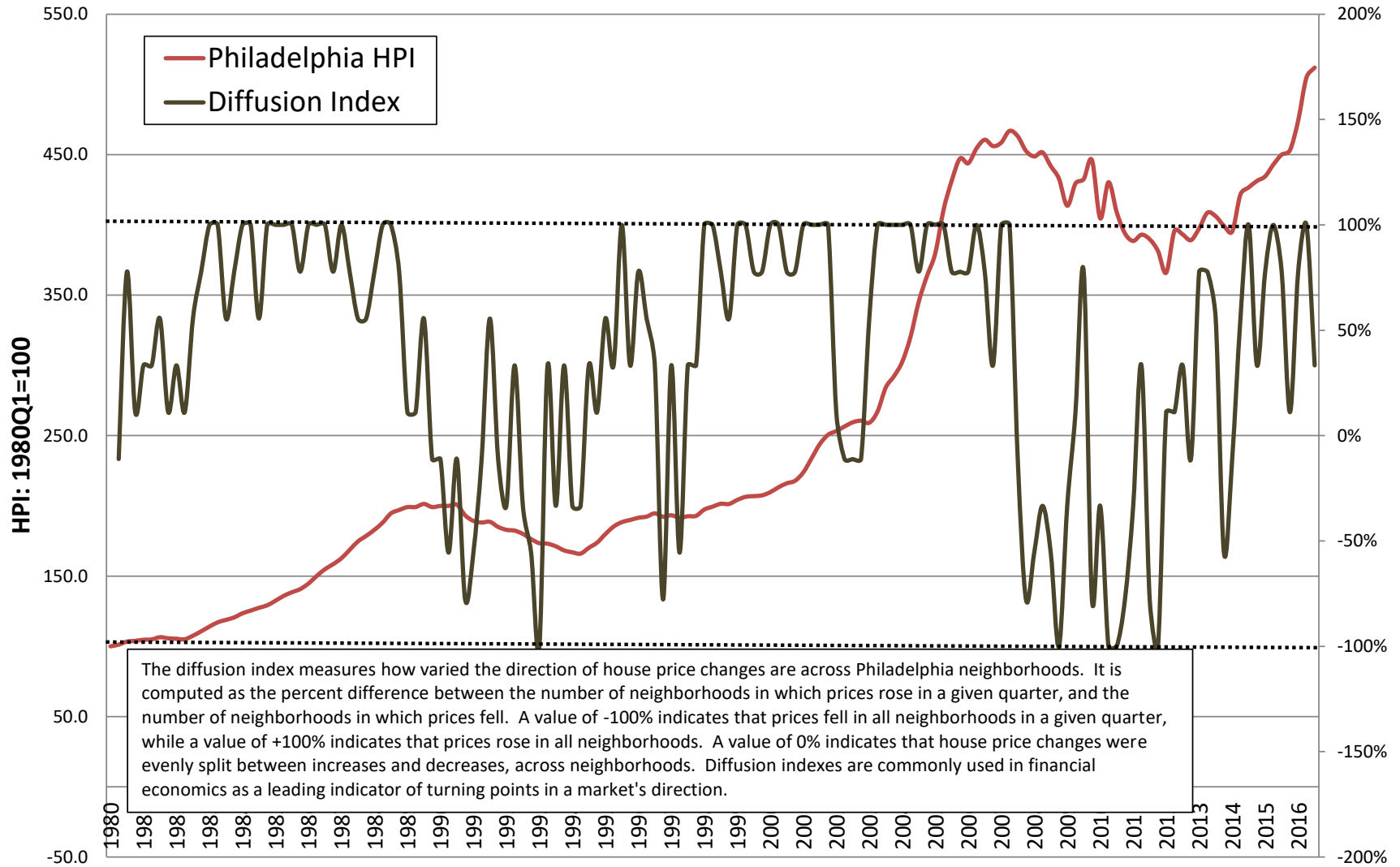
# 2016 Q3 House Price Rate of Change by Neighborhood



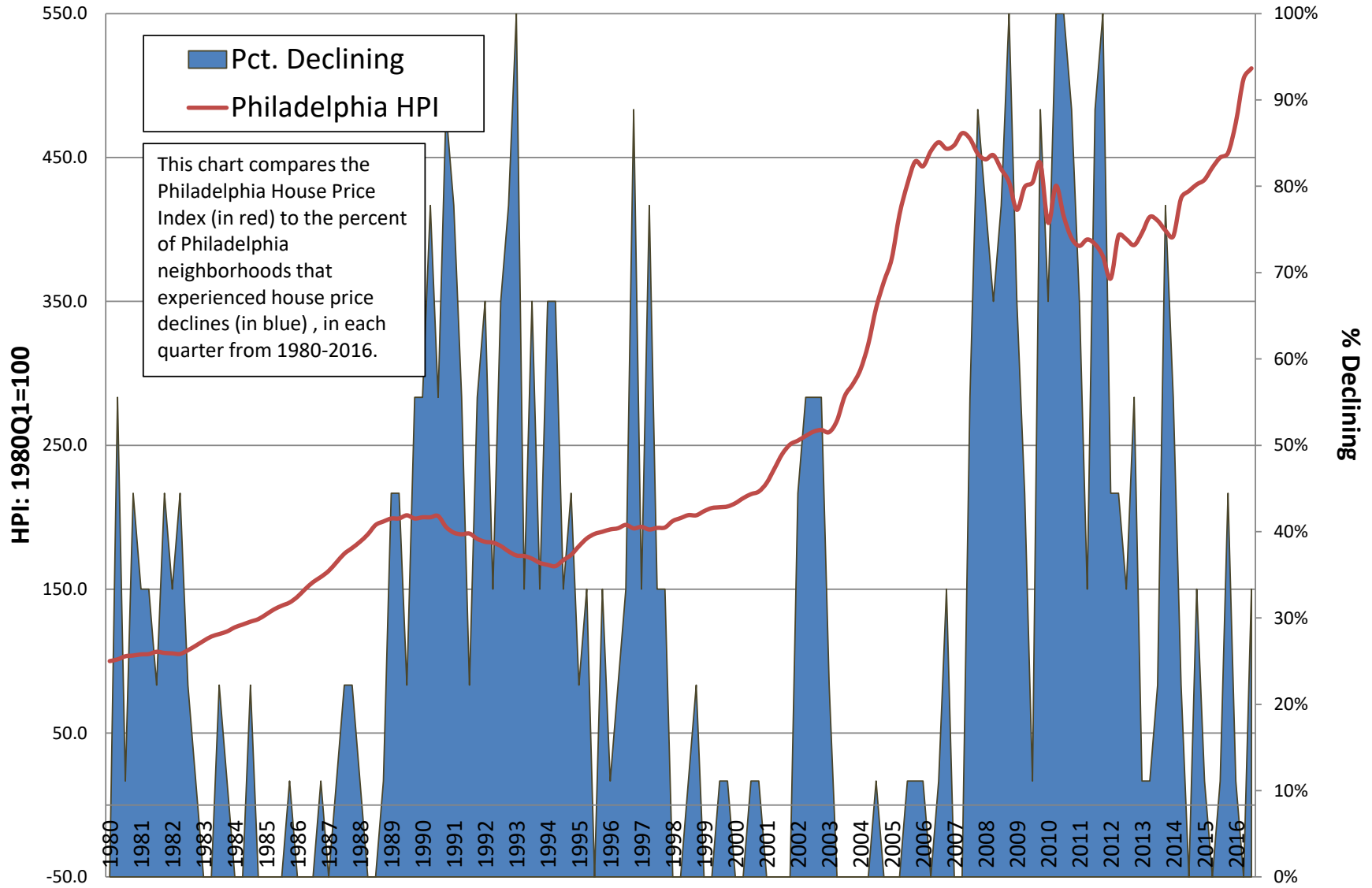
Note: Each neighborhood is extruded by its average change in house values during 2016 Q3 in order to reflect its growth (or depreciation) rate relative to other neighborhoods.



# Philadelphia House Price Diffusion Index



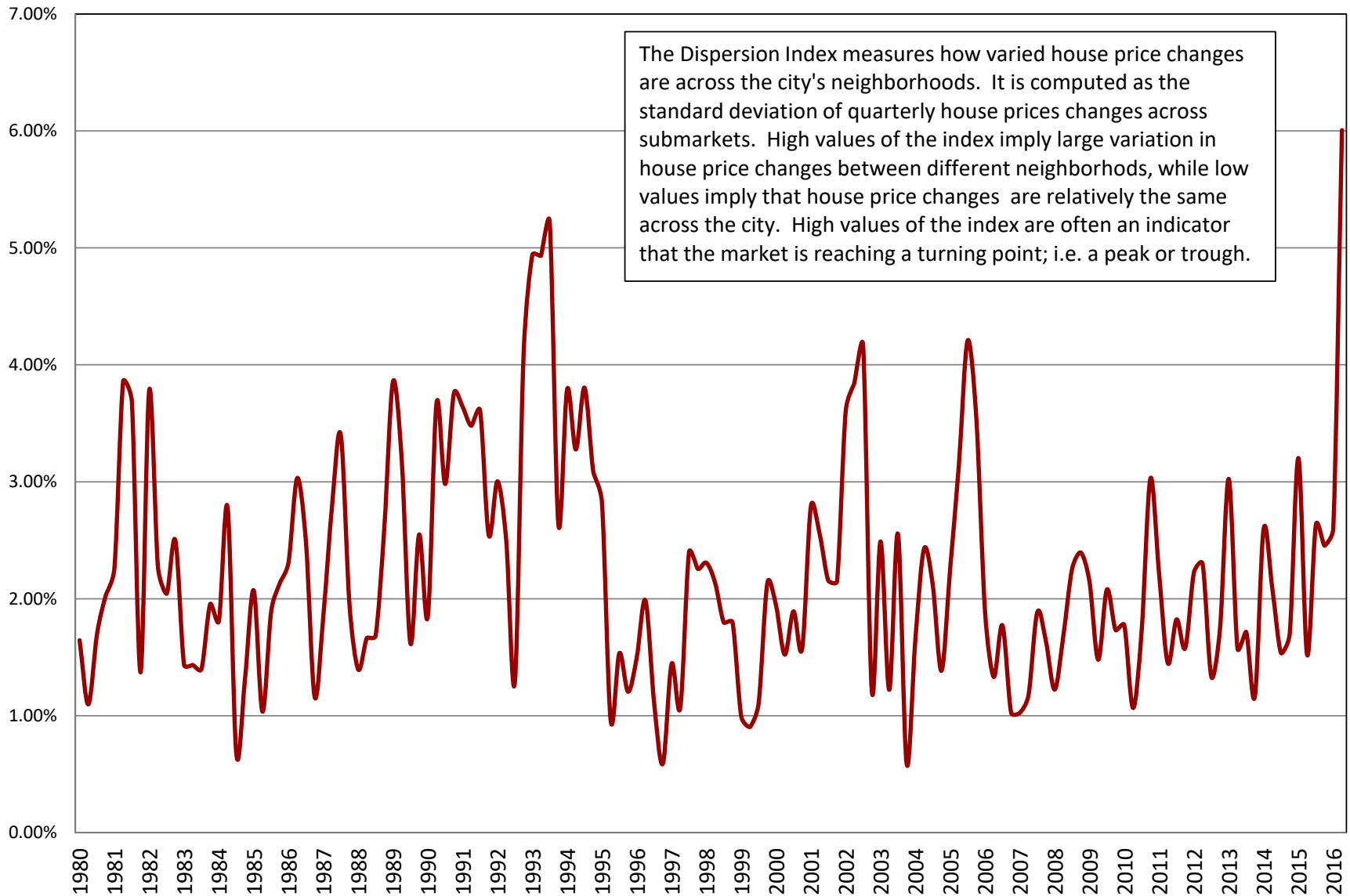
# Philadelphia House Prices: Declines v. House Price Index



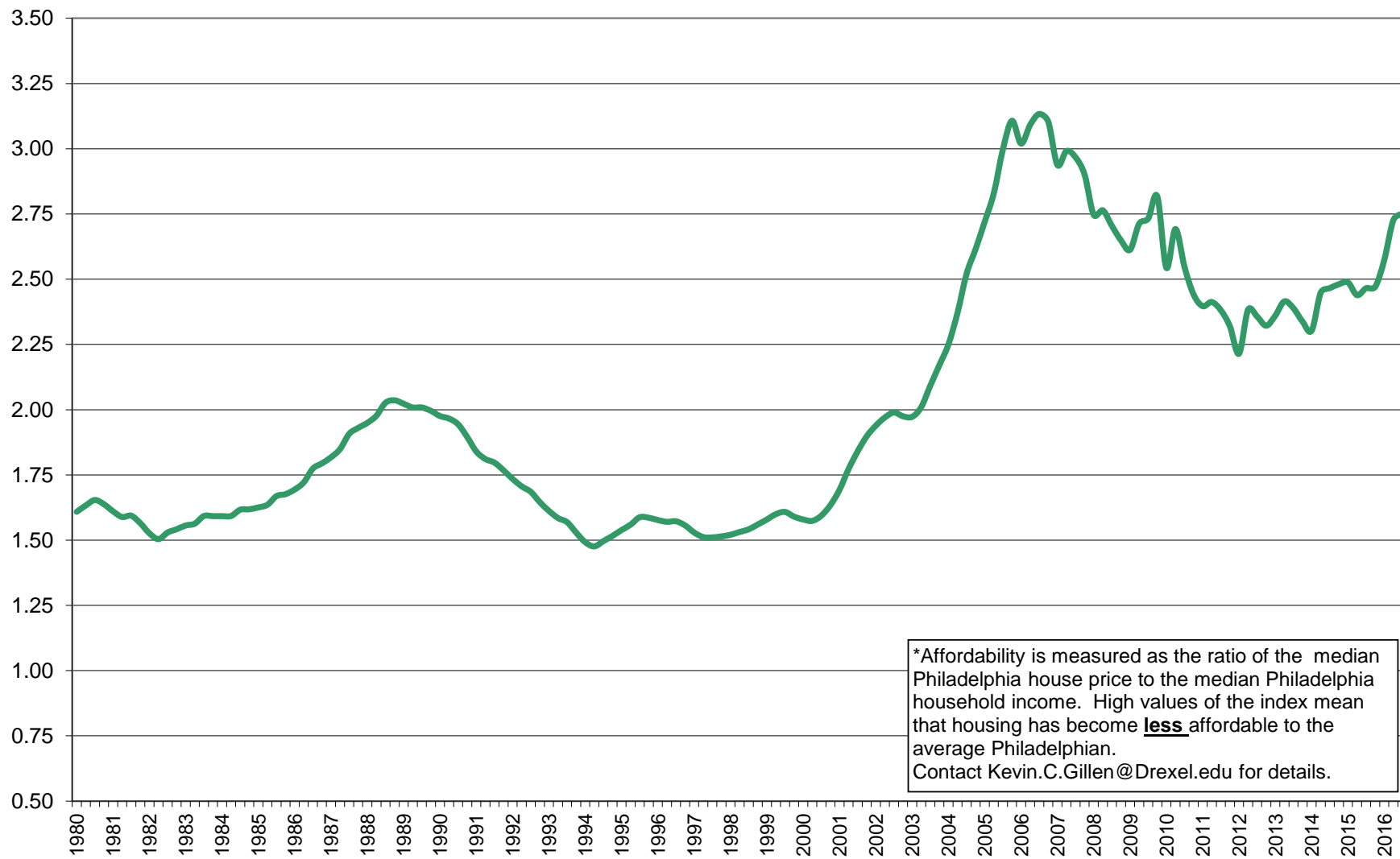


# Dispersion Index of Philadelphia Housing

The Dispersion Index measures how varied house price changes are across the city's neighborhoods. It is computed as the standard deviation of quarterly house prices changes across submarkets. High values of the index imply large variation in house price changes between different neighborhoods, while low values imply that house price changes are relatively the same across the city. High values of the index are often an indicator that the market is reaching a turning point; i.e. a peak or trough.

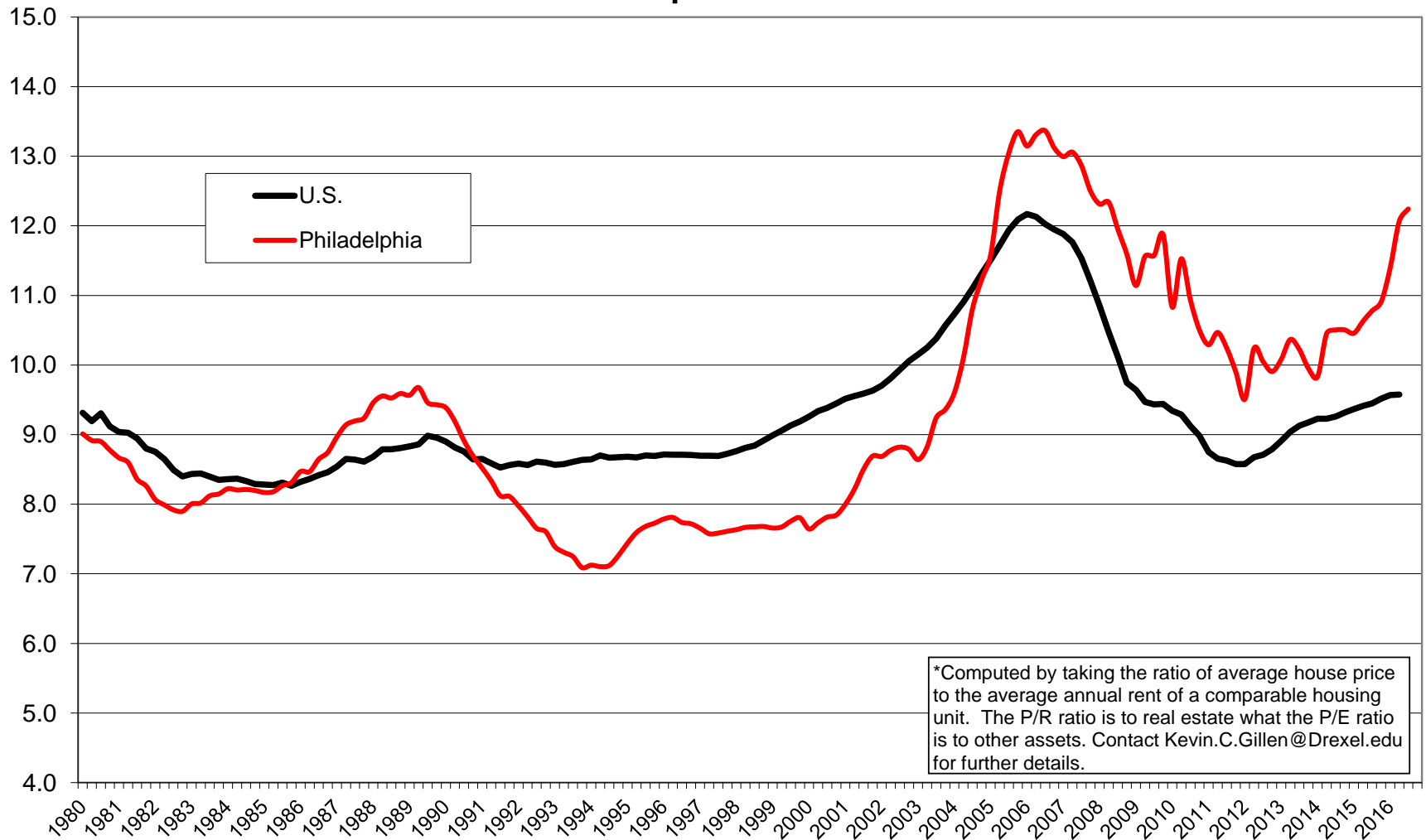


## Philadelphia Housing Affordability\* Index: 1980-2016



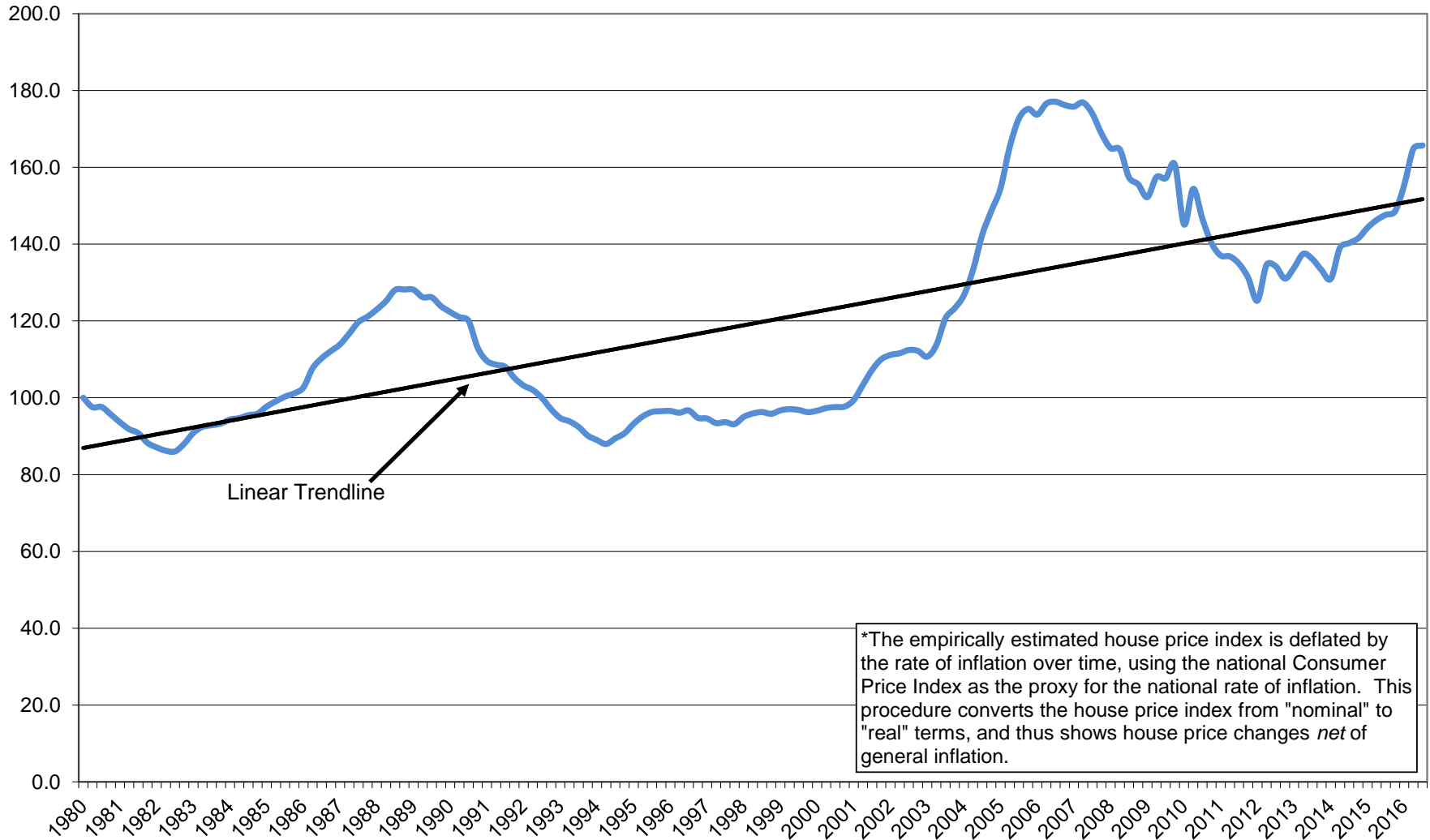
\*Affordability is measured as the ratio of the median Philadelphia house price to the median Philadelphia household income. High values of the index mean that housing has become **less** affordable to the average Philadelphian. Contact [Kevin.C.Gillen@Drexel.edu](mailto:Kevin.C.Gillen@Drexel.edu) for details.

## Average House Price-to-Rent Ratios\*: 1980-2016 Philadelphia v. U.S.



\*Computed by taking the ratio of average house price to the average annual rent of a comparable housing unit. The P/R ratio is to real estate what the P/E ratio is to other assets. Contact Kevin.C.Gillen@Drexel.edu for further details.

# Inflation-Adjusted\* Philadelphia House Price Index 1980-2016 1980Q1=100

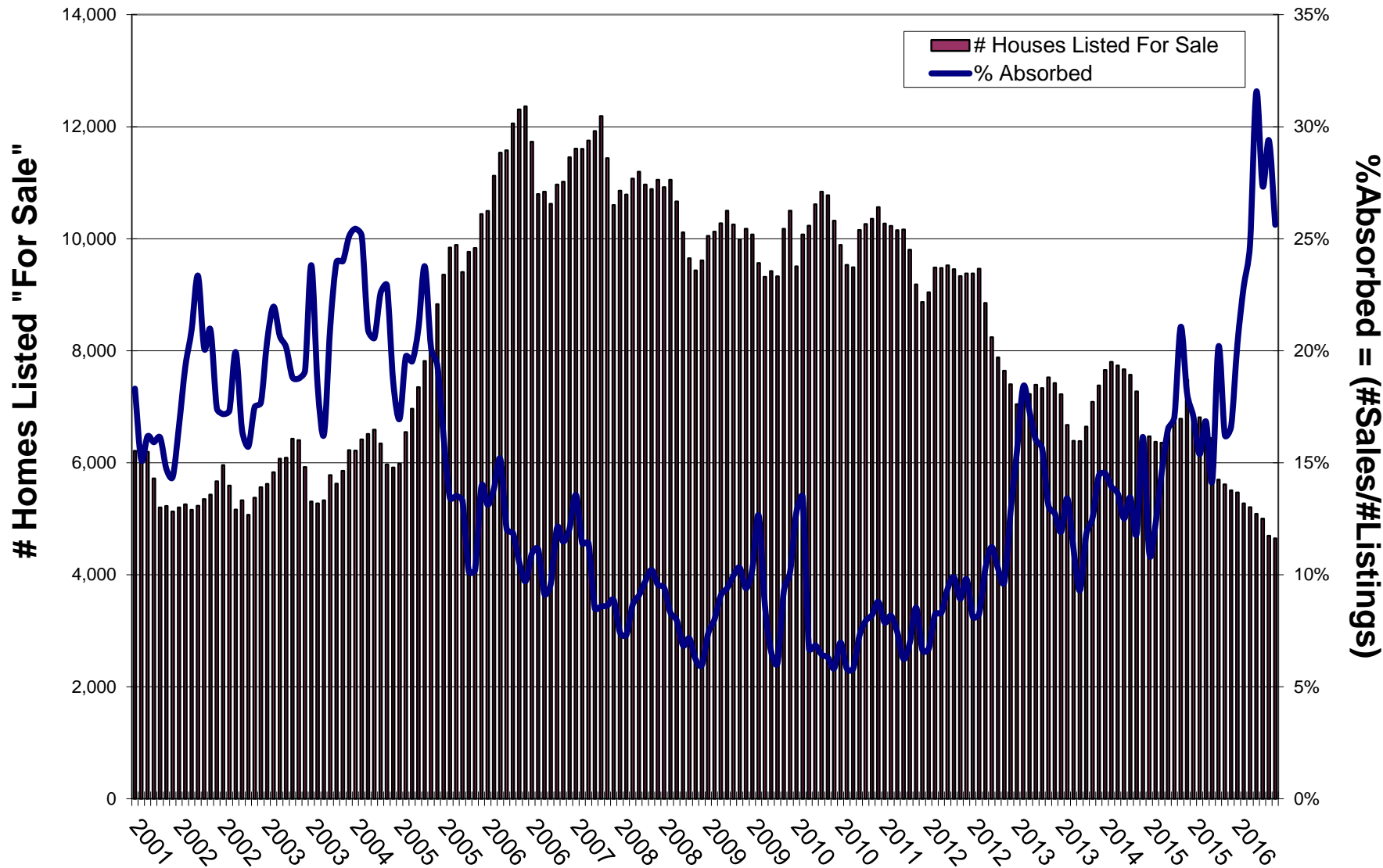


\*The empirically estimated house price index is deflated by the rate of inflation over time, using the national Consumer Price Index as the proxy for the national rate of inflation. This procedure converts the house price index from "nominal" to "real" terms, and thus shows house price changes *net* of general inflation.

Source: US Bureau of Labor Statistics



# Philadelphia Houses Listed For Sale: Inventory v. Absorption Rate

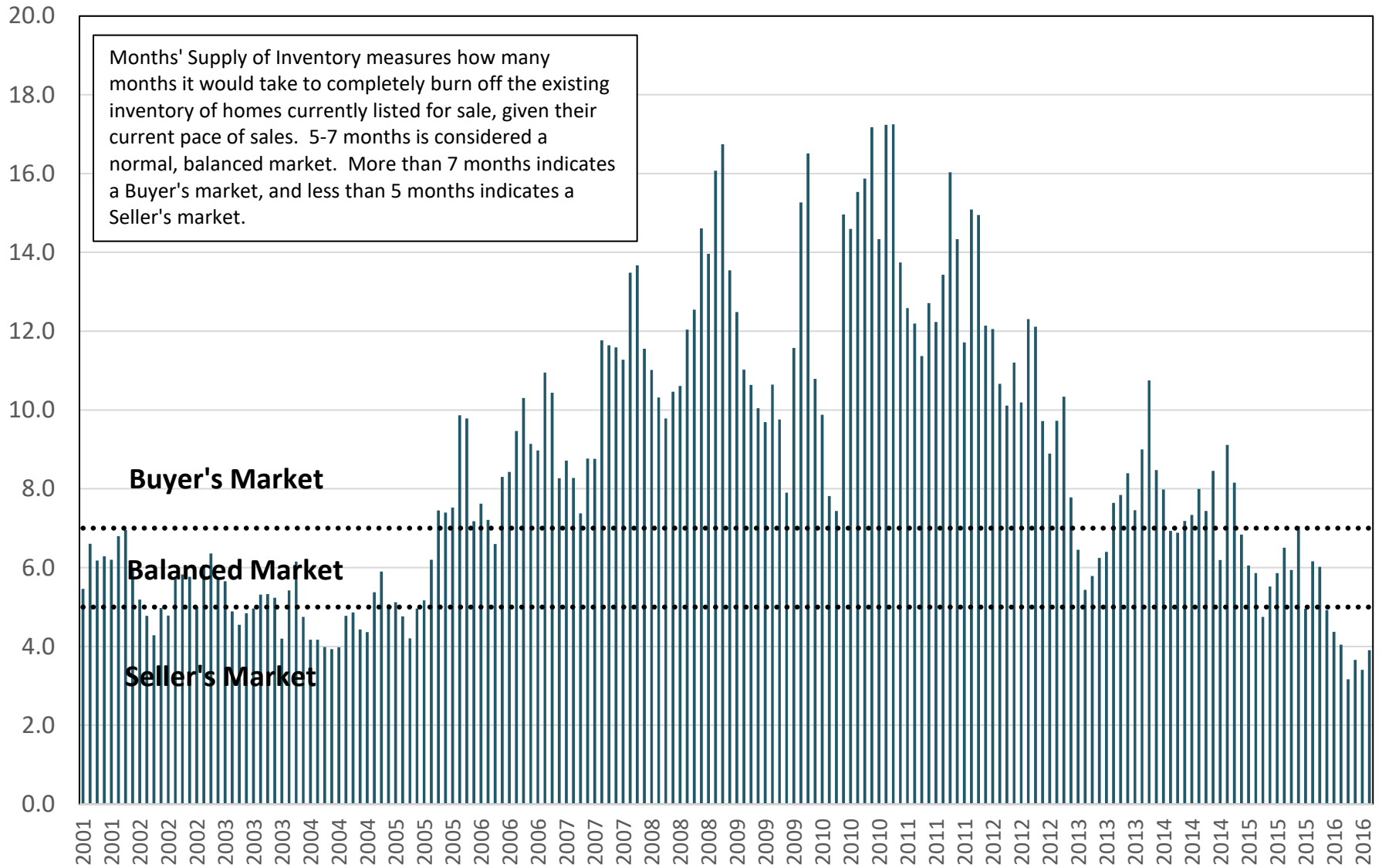


“%Absorbed” is defined as the percent of homes listed for sale in a given month that also sold in that same month.

Source: Trend MLS



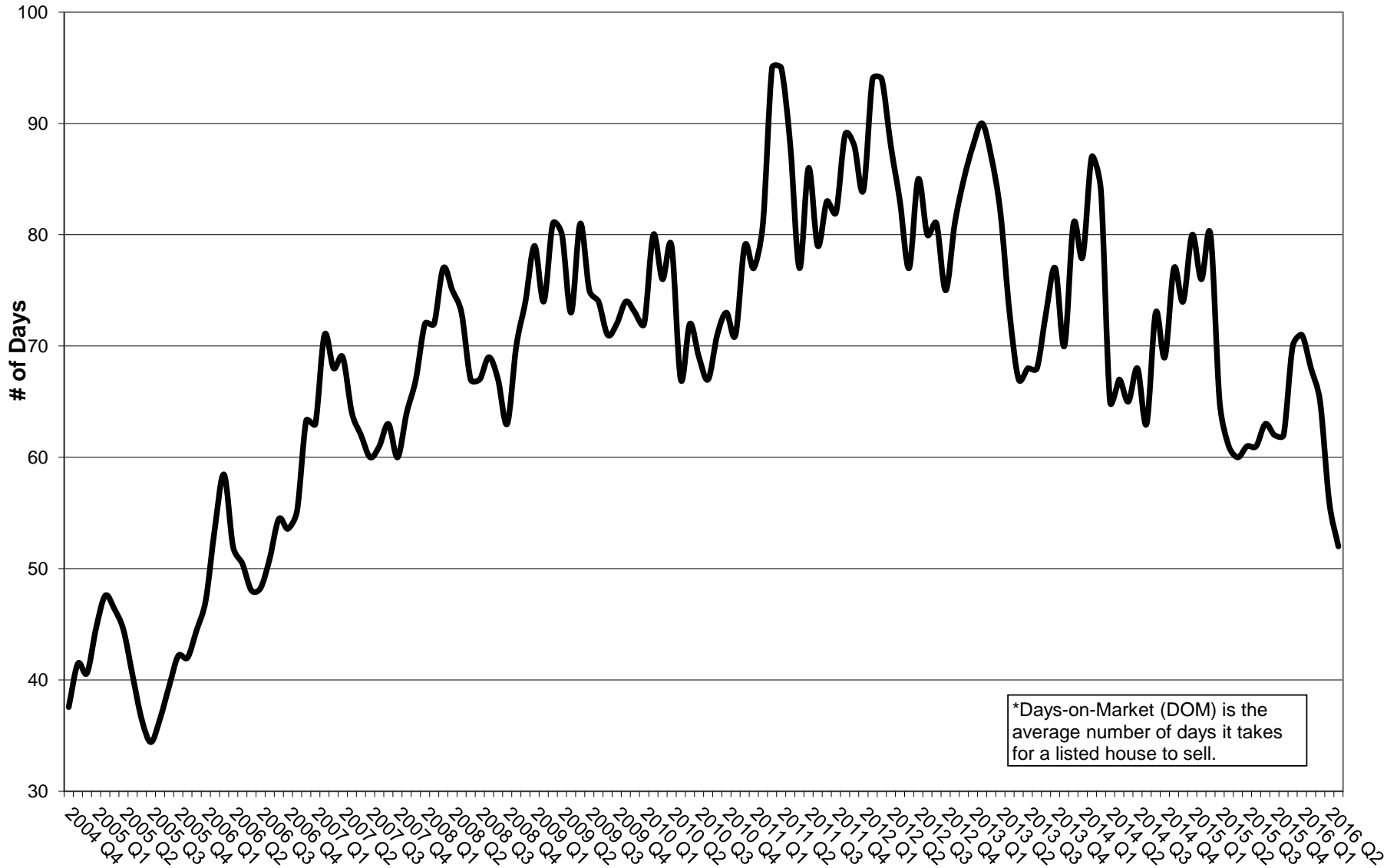
# Months' Supply of Inventory in Philadelphia



Source: Trend MLS



# Average Days-on-Market\* for Philadelphia Homes

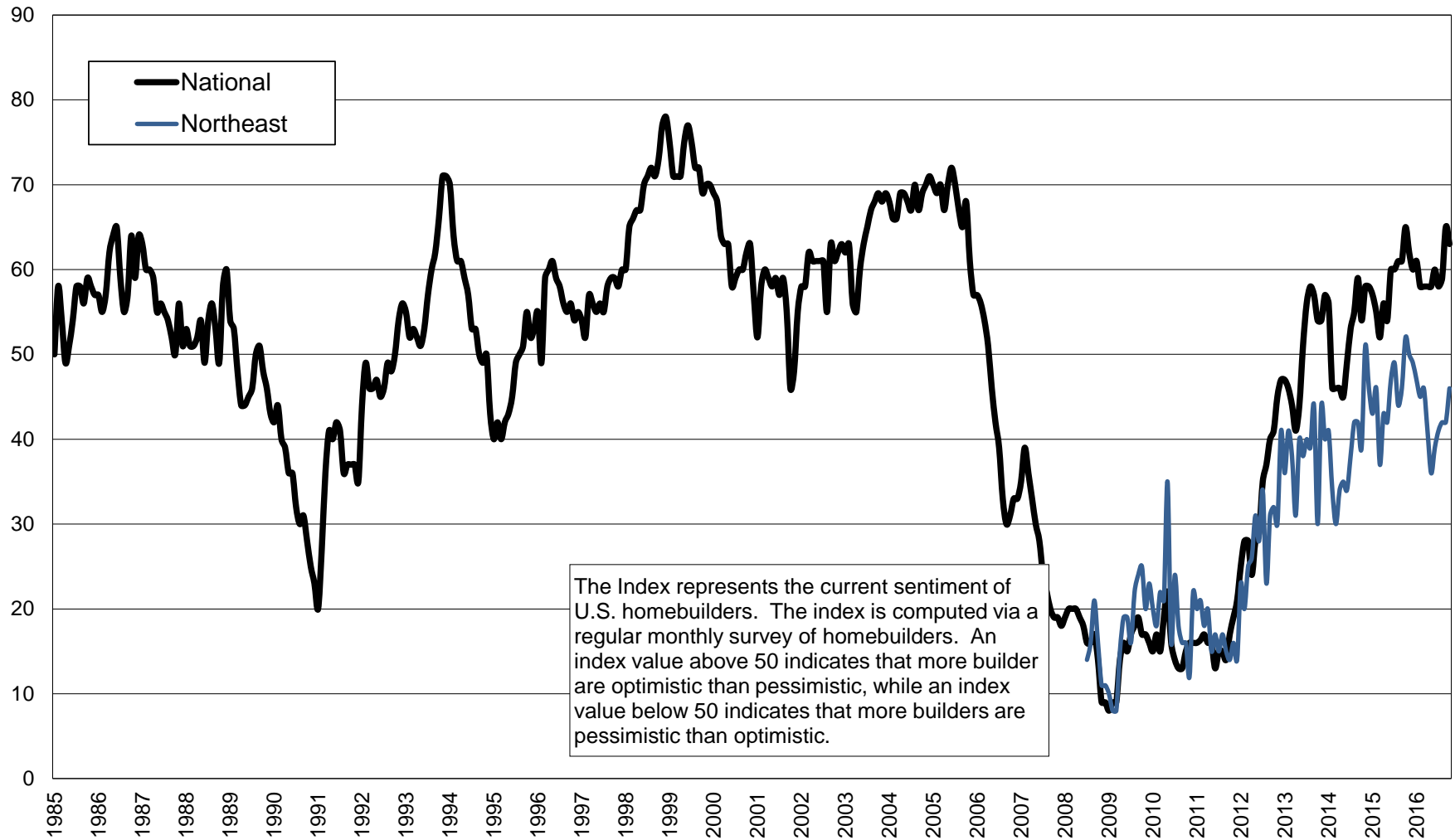


\*Days-on-Market (DOM) is the average number of days it takes for a listed house to sell.

Source: Trend MLS



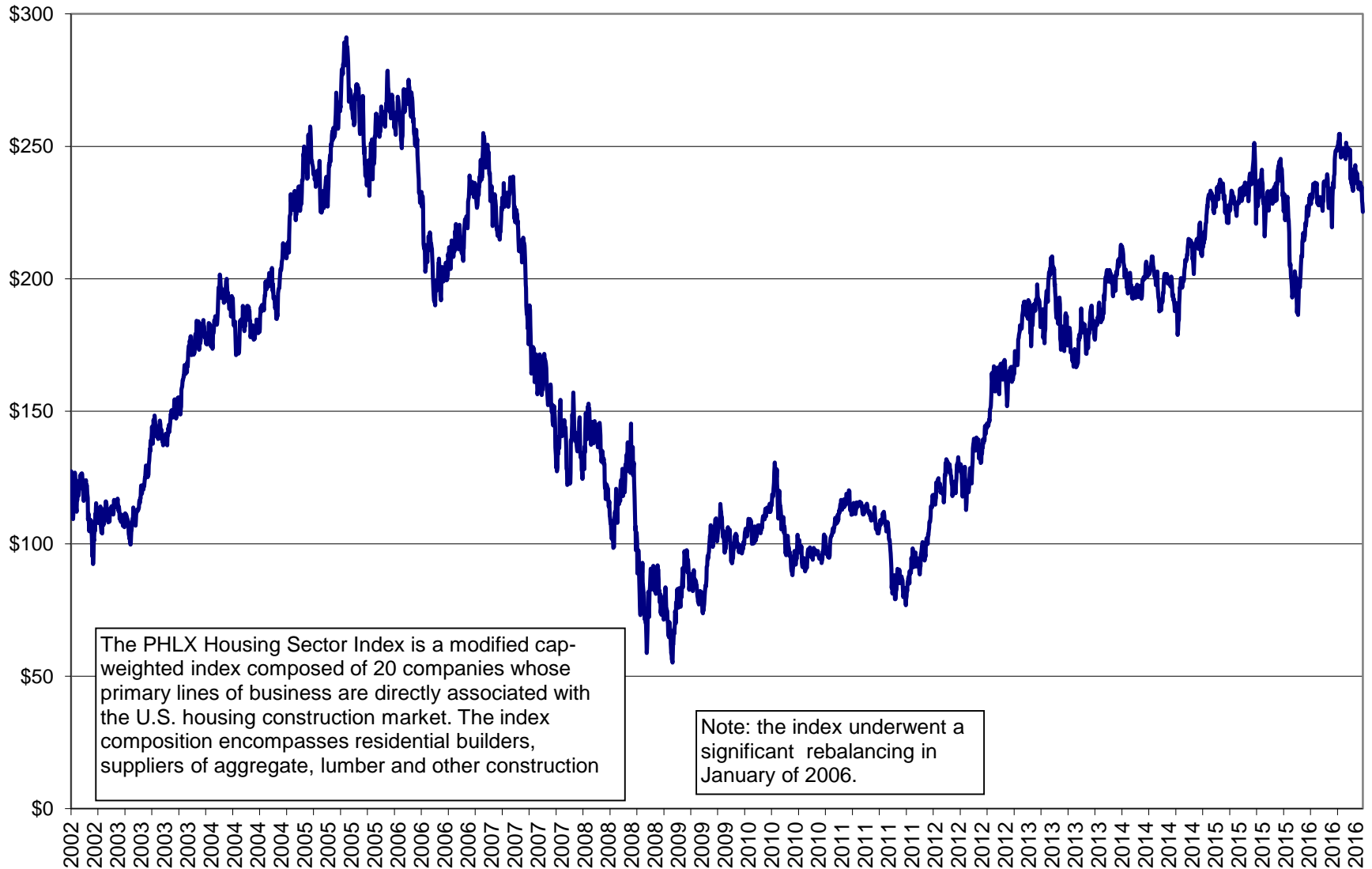
## Index of Homebuilder Sentiment: 1985-2016 (Seasonally Adjusted)



Source: National Assoc. of Homebuilders (NAHB)/Wells Fargo



# Philadelphia Stock Exchange Housing Sector Index: 2002-2016



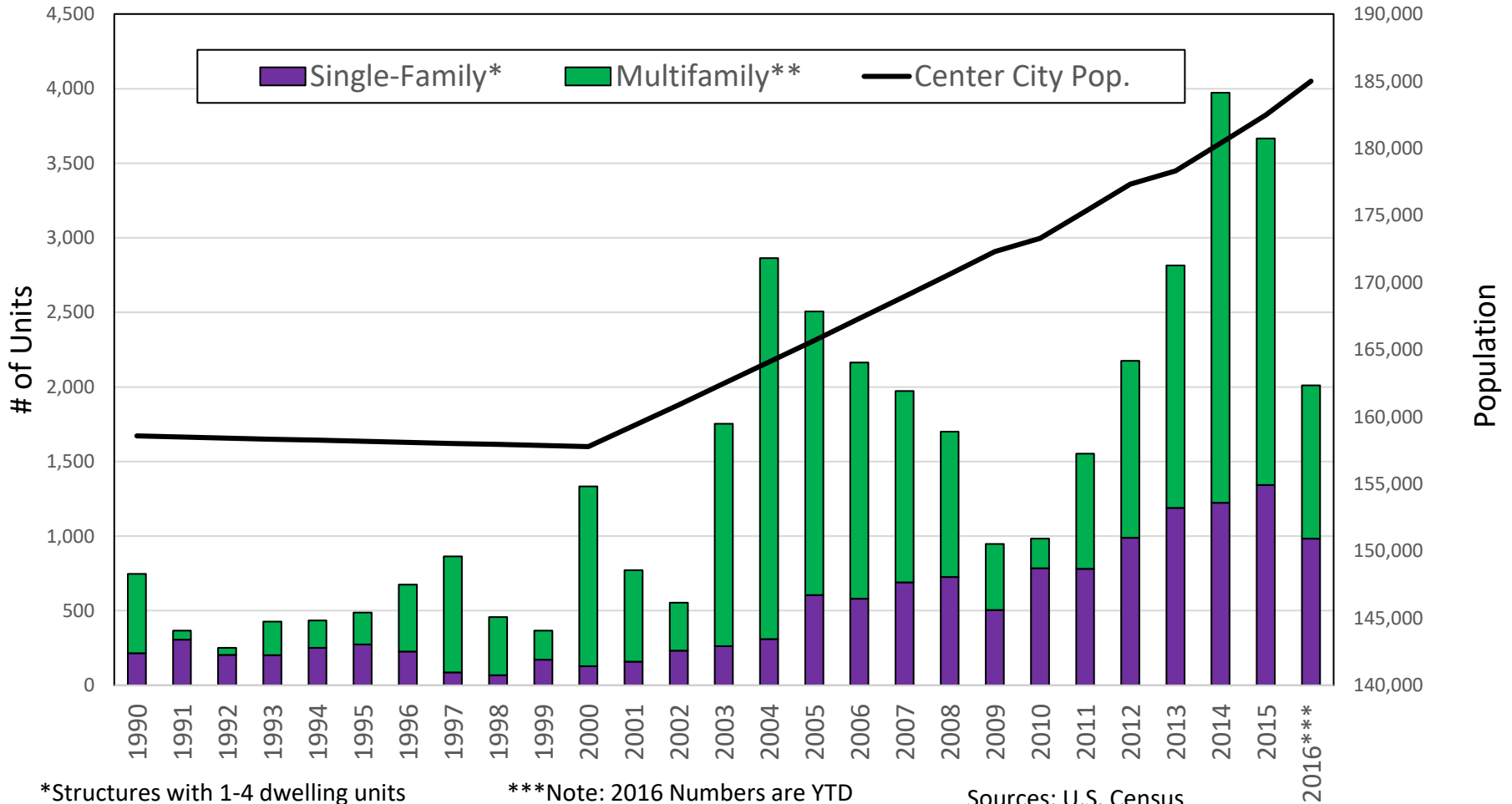
The PHLX Housing Sector Index is a modified cap-weighted index composed of 20 companies whose primary lines of business are directly associated with the U.S. housing construction market. The index composition encompasses residential builders, suppliers of aggregate, lumber and other construction

Note: the index underwent a significant rebalancing in January of 2006.

Source: finance.yahoo.com



## Building Permits Issued for Construction of Residential Units in Philadelphia: Single-Family v. Multifamily



\*Structures with 1-4 dwelling units

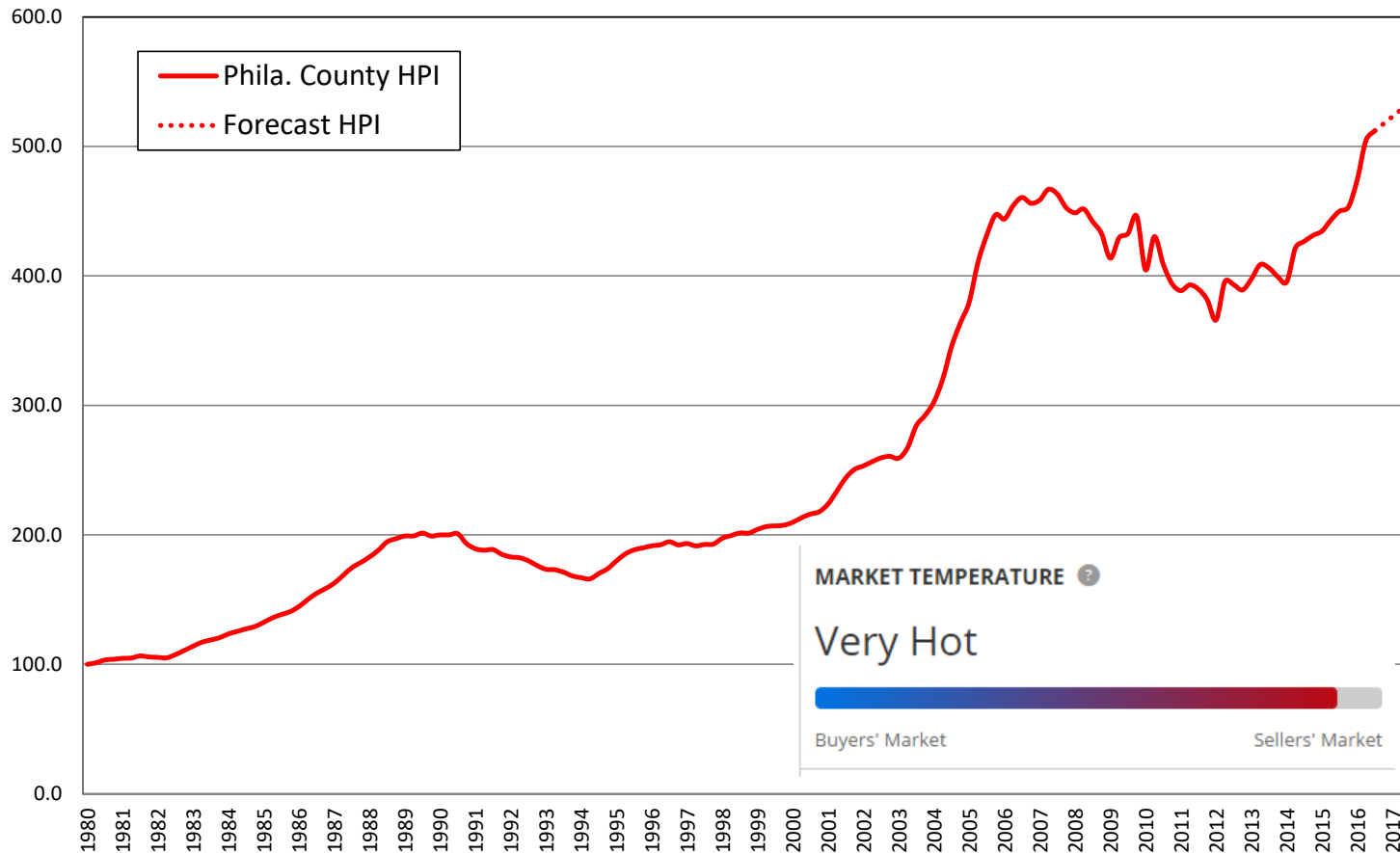
\*\*Structures with >=5 dwelling units

\*\*\*Note: 2016 Numbers are YTD numbers through August 2016.

Sources: U.S. Census  
Center City District

# Philadelphia House Price Index and 1-Year Forecast

## Philadelphia House Price Index: Actual v. Forecast



Zillow.com is currently forecasting Philadelphia house prices to rise an average of 4.2% over the next year, which is an upgrade from its previous annual forecast of 2.9% made three months ago. It has maintained its rating of Philadelphia's market temperature as "Very Hot", and currently characterizes it as a "Seller's Market".

Source: <http://www.zillow.com/philadelphia-pa/home-values/>  
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