PHILADELPHIA HOUSE PRICE INDICES

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

- Phila. County*
- Phila. MSA**
- U.S. Avg.**

* Empirically estimated by Kevin C. Gillen, Ph.D.
**Courtesy of the Federal Housing Finance Agency (FHFA).
HPIs are available through 2015Q4 only.
"MSA"=Metropolitan Statistical Area, which is the entire 9-county region.
## Total House Price Appreciation Rates by Geographic Market

<table>
<thead>
<tr>
<th>Period</th>
<th>Philadelphia County*</th>
<th>Philadelphia MSA**</th>
<th>U.S.A.**</th>
</tr>
</thead>
<tbody>
<tr>
<td>37-Year</td>
<td>161.9%</td>
<td>172.4%</td>
<td>134.1%</td>
</tr>
<tr>
<td>10-Year</td>
<td>10.5%</td>
<td>7.6%</td>
<td>3.6%</td>
</tr>
<tr>
<td>1-Year</td>
<td>13.0%</td>
<td>4.0%</td>
<td>5.5%</td>
</tr>
<tr>
<td>1-Quarter</td>
<td>6.2%</td>
<td>2.2%</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

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

**Source: U.S. Federal Housing Finance Agency (FHFA). These numbers are through 2016Q1 only. “MSA”=“Metropolitan Statistical Area”, which is the entire 10-county region.
*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.
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.
1980Q1=100

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

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Philadelphia House Price Appreciation Rates by Neighborhood

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>36-year</td>
<td>170.4%</td>
<td>160.7%</td>
<td>138.0%</td>
<td>165.5%</td>
<td>176.8%</td>
<td>205.1%</td>
<td>185.7%</td>
<td>165.8%</td>
<td>170.8%</td>
</tr>
<tr>
<td>10-year</td>
<td>5.9%</td>
<td>8.1%</td>
<td>-7.5%</td>
<td>5.4%</td>
<td>1.1%</td>
<td>28.4%</td>
<td>13.2%</td>
<td>-3.4%</td>
<td>10.4%</td>
</tr>
<tr>
<td>1-Year</td>
<td>1.9%</td>
<td>9.5%</td>
<td>8.6%</td>
<td>7.9%</td>
<td>7.1%</td>
<td>12.2%</td>
<td>-6.4%</td>
<td>4.6%</td>
<td>6.3%</td>
</tr>
<tr>
<td>1-Quarter</td>
<td>3.4%</td>
<td>0.8%</td>
<td>3.1%</td>
<td>11.7%</td>
<td>5.1%</td>
<td>4.2%</td>
<td>15.0%</td>
<td>1.7%</td>
<td>11.8%</td>
</tr>
</tbody>
</table>

This table gives the total % change in average house prices by neighborhood, through 2016 Q2, 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
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*Only arms-length transactions between private sector entities were included in these numbers.
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Philadelphia House Sales in 2016 Q2

$Price/SqFt

- $>185
- $130-185
- $95-130
- $50-95
- $<50

Sales are color-coded by the quintiles of the distribution of $Price/SqFt. Hence, each of the five categories covers exactly 20% of all sales.

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Center City House Sales in 2016 Q2

Sales are color-coded by the quintiles of the distribution of $Price/SqFt. Hence, each of the five categories covers exactly 20% of all sales.

Created by Kevin C. Gillen, Ph.D.
Kevin.C.Gillen@Drexel.edu
South Philadelphia House Sales in 2016 Q2

Sales are color-coded by the quintiles of the distribution of $Price/SqFt. Hence, each of the five categories covers exactly 20% of all sales.

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Kensington/Frankford House Sales in 2016 Q2

$Price/SqFt

- >$185
- $130-185
- $95-130
- $50-95
- <$50

Sales are color-coded by the quintiles of the distribution of $Price/SqFt. Hence, each of the five categories covers exactly 20% of all sales.

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West Philadelphia House Sales in 2016 Q2

$Price/SqFt
- >$185
- $130-185
- $95-130
- $50-95
- <$50

Sales are color-coded by the quintiles of the distribution of $Price/SqFt. Hence, each of the five categories covers exactly 20% of all sales.

Created by Kevin C. Gillen, Ph.D.
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North Philadelphia House Sales in 2016 Q2

$Price/SqFt

- >$185
- $130-185
- $95-130
- $50-95
- <$50

Sales are color-coded by the quintiles of the distribution of $Price/SqFt. Hence, each of the five categories covers exactly 20% of all sales.
Northwest Philadelphia House Sales in 2016 Q2

$Price/SqFt
- >$185
- $130-185
- $95-130
- $50-95
- <$50

Sales are color-coded by the quintiles of the distribution of $Price/SqFt. Hence, each of the five categories covers exactly 20% of all sales.
Northeast Philadelphia House Sales in 2016 Q2

Sales are color-coded by the quintiles of the distribution of $Price/SqFt. Hence, each of the five categories covers exactly 20% of all sales.
2016 Q2 House Price Rate of Change by Neighborhood

- Upper NE Phila: +1.7%
- Lower NE Phila: +3.1%
- North Phila: +11.7%
- Kensington/Frankford: +0.8%
- Center City/Fairmount: +3.4%
- South Phila: +4.2%
- NW Phila: +5.1%
- Univ. City: +15.0%
- West Phila: +11.8%

Note: Each neighborhood is extruded by its average change in house values during 2016 Q2 in order to reflect its growth (or depreciation) rate relative to other neighborhoods.
+$1 Million Dollar House Sales in 2016 Q2

Price and Address:

- $1,030,000, 2316 Green St
- $1,070,000, 272 S 03rd St
- $1,090,000, 1617 Lombard St
- $1,095,000, 1630 North St
- $1,100,000, 210 Spruce St
- $1,150,000, 30 W Bells Mill Rd
- $1,200,000, 510 Delancey St
- $1,235,000, 8864 Germantown Ave
- $1,255,000, 2135 Green St
- $1,295,000, 616 S American St
- $1,325,000, 2129 Walnut St
- $1,500,000, 1311 Irving St
- $1,500,000, 1211 Noble St
- $1,550,000, 1024 Clinton St
- $1,599,500, 701 S 15th St
- $1,650,000, 823 S Mildred St
- $1,650,000, 2121 Pine St
- $1,693,500, 528 Spruce St
- $1,700,000, 2511 Panama St
- $1,730,000, 2044 Waverly St
- $1,967,000, 1932 Panama St
- $2,800,000, 1832 Delancey Pl
- $3,218,544, 460 W Chestnut Hill Ave
- $3,900,000, 2108 Spruce St
The diffusion index measures how varied the direction of house price changes are across Philadelphia neighborhoods. It is computed as the percent difference between the number of neighborhoods in which prices rose in a given quarter, and the number of neighborhoods in which prices fell. A value of -100% indicates that prices fell in all neighborhoods in a given quarter, while a value of +100% indicates that prices rose in all neighborhoods. A value of 0% indicates that house price changes were evenly split between increases and decreases, across neighborhoods. Diffusion indexes are commonly used in financial economics as a leading indicator of turning points in a market's direction.
This chart compares the Philadelphia House Price Index (in red) to the percent of Philadelphia neighborhoods that experienced house price declines (in blue), in each quarter from 1980-2016.
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.

*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 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.

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.
"%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
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Source: Trend MLS

*Days-on-Market (DOM) is the average number of days it takes for a listed house to sell.
The Index represents the current sentiment of U.S. homebuilders. The index is computed via a regular monthly survey of homebuilders. An index value above 50 indicates that more builders are optimistic than pessimistic, while an index value below 50 indicates that more builders are pessimistic than optimistic.
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 materials, manufactured housing and mortgage insurers.

Note: the index underwent a significant rebalancing in January of 2006.
Building Permits Issued for Construction of Residential Units in Philadelphia: Single-Family v. Multifamily

- Single-Family*
- Multifamily**
- Center City Pop.

*Structures with 1-4 dwelling units
**Structures with >=5 dwelling units
***Note: 2016 Numbers are YTD numbers through June 2016.

Sources: U.S. Census
Center City District

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Zillow.com is currently forecasting Philadelphia house prices to rise an average of 2.9% over the next year, which is an upgrade from its previous annual forecast of 2.2% made three months ago. It has also upgraded its market temperature for Philadelphia from “Hot” to “Very Hot”, and has characterized it as a “Seller’s Market”.

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