PHILADELPHIA HOUSE PRICE INDICES

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House Price Indices 1980-2018: 1980Q1=100
Philadelphia County v. Philadelphia MSA and U.S. Average

- Red line: Phila. County*
- Green line: Phila. MSA**
- Blue line: U.S. Avg.**

* Empirically estimated by Kevin C. Gillen, Ph.D.
**Courtesy of the Federal Housing Finance Agency (FHFA).
These HPIs are current through 2016Q4 only.
“MSA”=Metropolitan Statistical Area, which is the entire 10-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>38-Year</td>
<td>171.6%</td>
<td>188.1%</td>
<td>148.3%</td>
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<tr>
<td>10-Year</td>
<td>25.3%</td>
<td>19.5%</td>
<td>27.0%</td>
</tr>
<tr>
<td>1-Year</td>
<td>4.2%</td>
<td>7.1%</td>
<td>6.2%</td>
</tr>
<tr>
<td>1-Quarter</td>
<td>1.1%</td>
<td>1.8%</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 2018Q3 only. “MSA” = “Metropolitan Statistical Area”, which is the entire 10-county region.
House Price Appreciation 1987-2018: Philadelphia v. 10-City Composite

% Change | 10-City | Philadelphia
--- | --- | ---
1998 to Peak: | +172% | +137%
From Peak: | 0% | +19%

*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

- CtrCity/Fairmount
- Kensington/Frankford
- Lower NE Phila.
- North Phila.
- NW Phila.
- South Phila.
- Univ. City
- Upper NE Phila.
- West/SW Phila.

* All indices empirically estimated by Kevin C. Gillen, Ph.D.
# Philadelphia House Price Appreciation Rates by Submarket

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>38-year</td>
<td>185.9%</td>
<td>183.6%</td>
<td>162.5%</td>
<td>185.6%</td>
<td>184.0%</td>
<td>222.8%</td>
<td>226.0%</td>
<td>181.7%</td>
<td>188.5%</td>
</tr>
<tr>
<td>10-year</td>
<td>23.4%</td>
<td>33.6%</td>
<td>24.8%</td>
<td>29.2%</td>
<td>8.1%</td>
<td>45.0%</td>
<td>53.7%</td>
<td>15.4%</td>
<td>27.4%</td>
</tr>
<tr>
<td>1-Year</td>
<td>0.2%</td>
<td>4.0%</td>
<td>11.1%</td>
<td>8.4%</td>
<td>2.8%</td>
<td>2.4%</td>
<td>7.5%</td>
<td>6.7%</td>
<td>3.6%</td>
</tr>
<tr>
<td>1-Quarter</td>
<td>-0.3%</td>
<td>1.2%</td>
<td>1.7%</td>
<td>2.8%</td>
<td>-0.1%</td>
<td>-0.1%</td>
<td>2.2%</td>
<td>1.6%</td>
<td>2.4%</td>
</tr>
</tbody>
</table>

This table gives the total % change in average house values by submarket, through 2018 Q4, from different starting points in time.
Median Philadelphia House Price v. Indexed Philadelphia House Price
1980-2018

* Empirically estimated by Kevin C. Gillen, PhD

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*Only arms-length transactions between private sector entities were included in these numbers.
Only arms-length transactions between private sector entities were included in these numbers.
Philadelphia House Sales in 2018 Q4
Center City House Sales in 2018 Q4
South Philadelphia House Sales in 2018 Q4

$Price/SqFt

- >$195
- $145-195
- $105-145
- $55-105
- <$55
Kensington/Frankford House Sales in 2018 Q4

$Price/SqFt

- >$195
- $145-195
- $105-145
- $55-105
- <$55

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West/SW Philadelphia House Sales in 2018 Q4

$Price/SqFt

- >$195
- $145-195
- $105-145
- $55-105
- <$55
North Philadelphia House Sales in 2018 Q4

$Price/SqFt

- >$195
- $145-195
- $105-145
- $55-105
- <$55
Northwest Philadelphia House Sales in 2018 Q4

$Price/SqFt

- >$195
- $145-195
- $105-145
- $55-105
- <$55
Northeast Philadelphia House Sales in 2018 Q4

$Price/SqFt
- >$195
- $145-195
- $105-145
- $55-105
- <$55
2018 Q4 House Price Rate of Change by Submarket

- Upper NE Phila: +1.6%
- Lower NE Phila: +1.7%
- North Phila: +2.8%
- Kensington/Frankford: +1.2%
- Center City/Fairmount: -0.3%
- South Phila: -0.1%
- NW Phila: -0.1%
- Univ. City: +2.2%
- West/SW Phila: +2.4%

Note: Each submarket is extruded by its average change in house values during 2018 Q4 in order to reflect its growth (or depreciation) rate relative to other neighborhoods.
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 1980-2018.
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: 1980-2018

*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*: 1980-2018
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 1980-2018
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
Months Supply of Inventory measures how many months it would take to completely burn off the existing inventory of homes currently listed for sale, given their current pace of sales. 5-7 months is considered a normal, balanced market. More than 7 months indicates a Buyer's market, and less than 5 months indicates a Seller's market.
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.
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.

Sources: U.S. Census, Center City District Population

*Structures with 1-4 dwelling units
**Structures with >=5 dwelling units
***Note: 2018 Numbers are YTD numbers through October 2018.
Zillow.com is currently forecasting Philadelphia house prices to rise an average of 17.3% over the course of the next twelve months. This is a significant upgrade from its previous forecast of 12.8% made three months ago. Curiously, Zillow also downgraded its rating of Philadelphia’s housing market temperature from “Hot” to “Warm” this past month. It had also downgraded the overall level of the market’s hotness three months ago, although it kept its “Hot” status.

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