

# **COST OF LIVING INFLATION vs. REAL ESTATE APPRECIATION**

Do they grow at the same rate or does one grow faster?

## **Research Report #1**

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### **Abstract**

How does median home price growth (appreciation) relate with inflation? The initial theory was that median home prices, as houses are a tangible physical asset, would keep track with inflation and while not at least show a close and consistent increase correlating to inflation (as measured by the consumer price index). This appears not to be the case.

Growth in the median sold prices for Existing Homes and New Homes in the U.S. exceeded the CPI, and that even during recessions the prices fell to inflation adjusted levels and increased again, but the majority of the time it increased faster than inflation.

Housing Sold Prices, appreciation, increased a little more than 1.5 times the speed of inflation from 1990 to 2017, and the numbers back to 1963 for New Homes Sale Prices were even greater. Over time, at the national level, appreciation increases well above inflation.

**Introduction**

The amount of increase of the average median sold price of homes for the year 1990 to 2017 is below. It is the percent of total gain over that time.

These are not the numbers we will be using in this paper (see methodology), but they provide for us an accurate insight of appreciation numbers, as shown by annual real estate price growth and the CPI-Consumer Price Index.

<b>1990 - 2017</b>	<b>% Increase</b>	<b># of Times CPI</b>
<i><b>CPI</b></i>	87.6%	<b>1</b>
<i>U.S. New Homes</i>	161.9%	<b>1.8</b>
<i>U.S. Existing Homes</i>	155.6%	<b>1.8</b>
<i>California</i>	177.0%	<b>2.0</b>
<i>Sacramento</i>	151.1%	<b>1.7</b>

From 1990 to 2017 prices grew between 151% and 177% for the U.S., California, and Sacramento Markets. The CPI over the same time grew 88%. On average real estate sold prices grew 1.8 times the amount inflation grew.

The average annual growth experienced by the real estate markets is 3.6-3.7 nationally, and in California it is 4.7% almost double the annual average CPI growth.

<b>1990 - 2017</b>	<b>Average Annual Growth Rate</b>	<b># of Times CPI Rate</b>
<i><b>CPI</b></i>	2.4%	<b>1</b>
<i>U.S. New Homes</i>	3.7%	<b>1.6</b>
<i>U.S. Existing Homes</i>	3.6%	<b>1.5</b>
<i>California</i>	4.7%	<b>2.0</b>
<i>Sacramento</i>	4.5%	<b>1.9</b>

Here is the annual percent of change for CPI, Existing Housing and New Homes for the years between 1990 and 2017. CPI only experienced one year of deflation, 2009. Real estate, however, experienced several years of price declines, mostly from 2007 to 2011 during the Great Recession.

<b>% Growth</b>	<b><i>CPI</i></b>	<b><i>Existing Homes</i></b>	<b><i>New Homes</i></b>
1991	4.23%	5.34%	-1.85%
1992	3.03%	2.96%	1.07%
1993	2.95%	3.05%	3.99%
1994	2.61%	4.13%	3.38%
1995	2.81%	2.77%	2.32%
1996	2.93%	5.20%	4.75%
1997	2.34%	5.07%	3.78%
1998	1.55%	5.41%	4.77%
1999	2.19%	3.93%	5.18%
2000	3.38%	4.08%	4.19%
2001	2.83%	5.82%	3.64%
2002	1.59%	7.59%	7.19%
2003	2.27%	7.26%	3.44%
2004	2.68%	8.13%	13.81%
2005	3.39%	12.80%	7.53%
2006	3.23%	2.02%	3.78%
2007	2.85%	-2.86%	0.28%
2008	3.84%	-9.16%	-5.47%
2009	-0.36%	-11.89%	-6.90%
2010	1.64%	0.23%	3.14%
2011	3.16%	-4.08%	1.39%
2012	2.07%	5.98%	7.93%
2013	1.46%	11.48%	9.49%
2014	1.62%	5.72%	6.82%
2015	0.12%	6.84%	3.73%
2016	1.26%	5.57%	4.35%
2017	2.13%	5.94%	4.47%

### Comparing Real Estate Price Growth (Appreciation) and CPI Growth (Inflation)

Comparing the U.S. Existing Home Sales Price with the CPI and starting with the market's Median Sold Price on January 1990 and working our way forward to 2017.

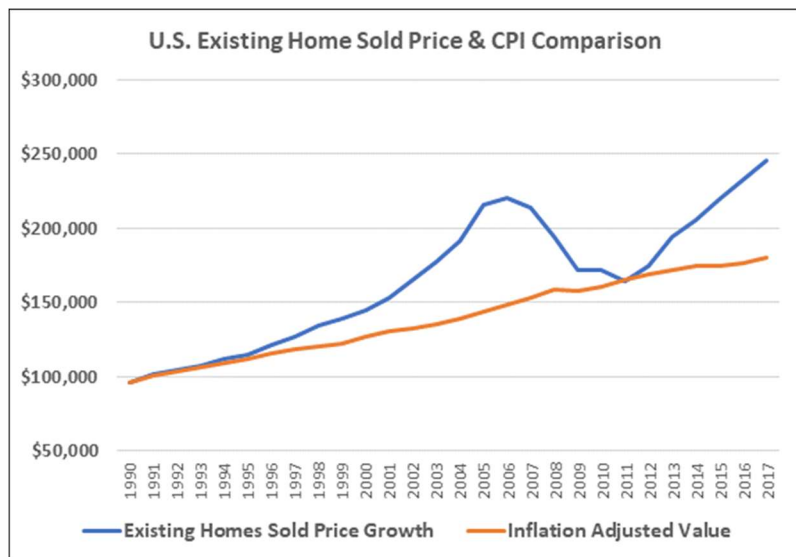
added it to that value the percent of the annual growth times that value. For inflation we started with the same January 1990 value and added that number times the average annual CPI growth rate for the year. Then performing this each year through 2017.

Here is the resulting growth of the real estate markets and the inflation adjusted value in 2017.

Annual Appreciation	Average Growth Rate	1990 Value	2017 Value	Est. CPI Value - 2017
<i>U.S. New Homes</i>	3.7%	\$125,000	\$327,336	\$234,504
<i>U.S. Existing Homes</i>	3.6%	\$96,200	\$245,864	\$180,475
<i>California</i>	4.7%	\$194,952	\$539,963	\$365,737
<i>Sacramento</i>	4.5%	\$123,000	\$308,832	\$230,752

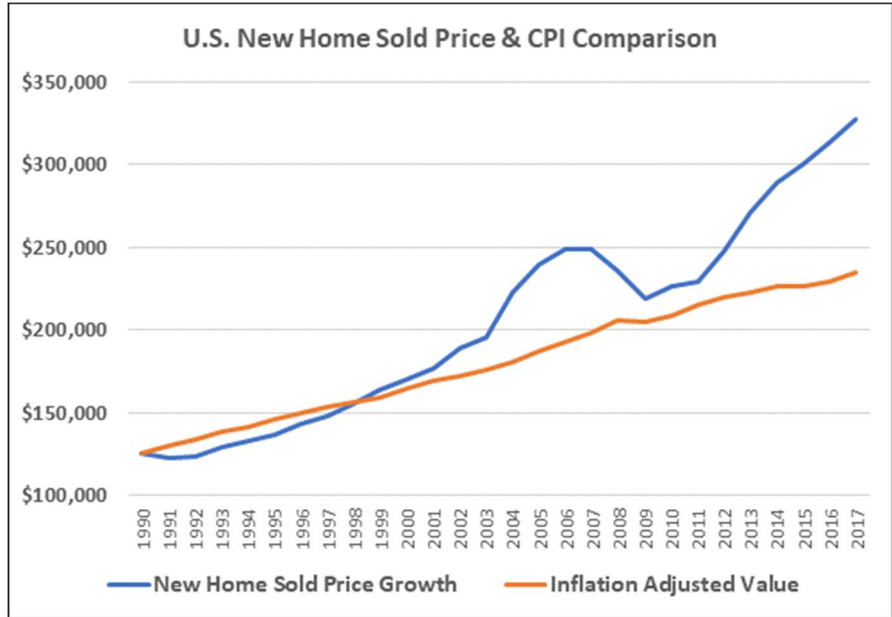
### The U.S. Existing Housing Market

Appreciation in Existing Homes grew at about the same amount as CPI in the early 1990s then broke away in the middle of the decade and inclined dramatically. During the Great Recession values declined to the level projected by the growth of inflation, but once they touched the existing housing market rebounded strongly.



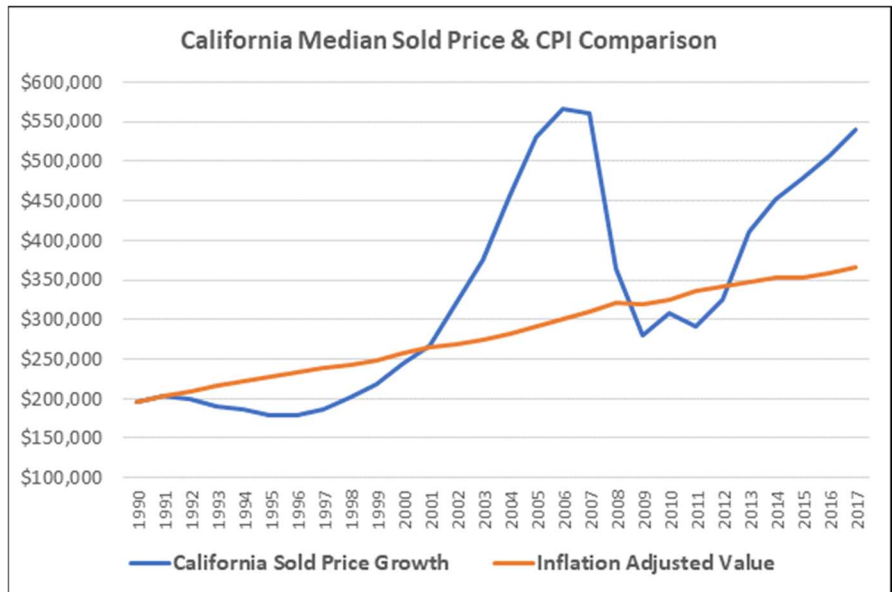
### The U.S. New Home Market

New home values declined initially and remained lower than inflation adjusted value through most of the 1990s. In 1998 median sales prices picked up speed and did not decline until the Great Recession. Then the median sold price did not reach down to the inflation value and in 2012 prices shot back upwards.



### The California Housing Market

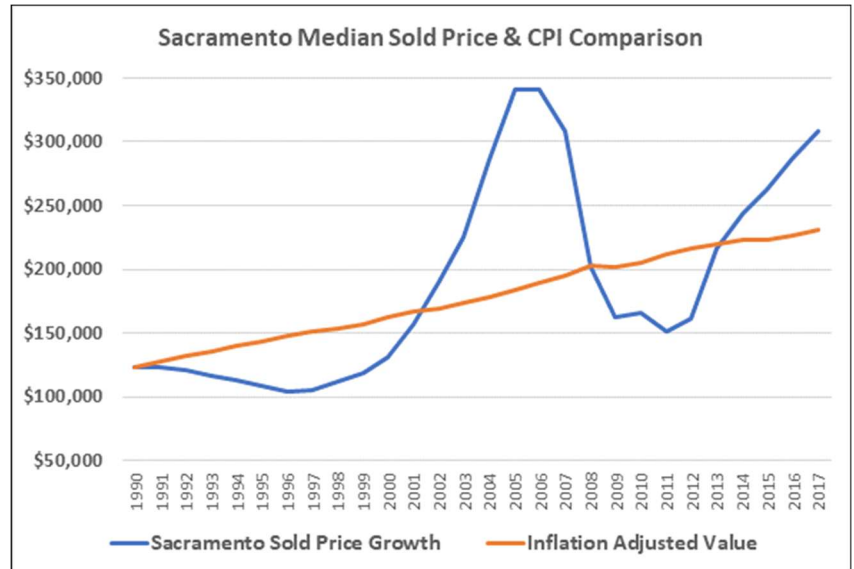
California median sold prices declined below the inflation adjusted price through the 1990s and again from 2008 to 2012, but after each trough it increased rapidly and well over the inflation adjusted value.



**The Sacramento Housing Market**

Sacramento saw a steep decline in the 1990s and did not exceed the inflation adjusted value until 2002. From there it shot up until 2005 and in 2008 during the Great Recession the market again dipped below the inflation line. In 2013 the market exceeded inflation and continued up strongly.

Sacramento’s market is the closer to tracking with inflation but it still spends more time above than below.



**Market fluctuations**

Real estate markets go through up and down cycles as can be seen from the graphs, however, appreciation over time may sometimes be less than the cumulative value of inflation in the market.

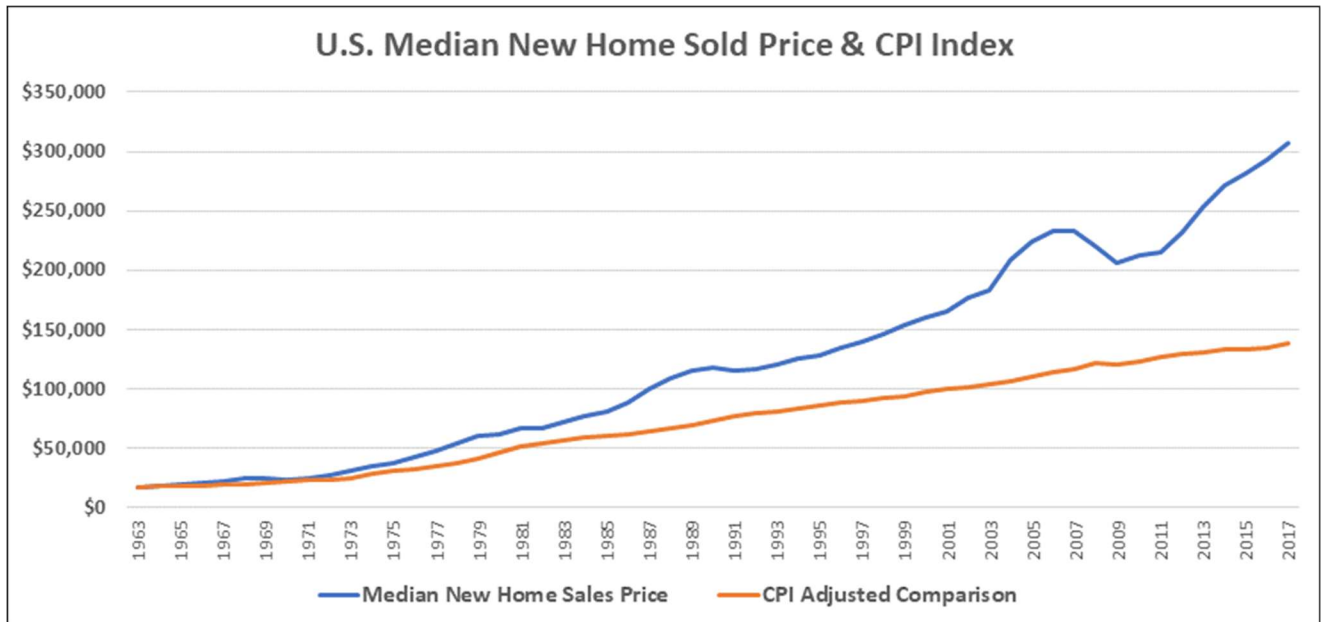
On average the amount of growth in residential real estate is higher than inflation.

**A longer series of data: New Homes – 1963 to 2017**

The longer data set of the Median New Home Sold Price allows us to look at housing in comparison to inflation from 1963 to 2017.

Interestingly, if we take the longer view the comparison between real estate appreciation and inflation becomes even more pronounced.

At the end of the 54 year period the Median New Home Sold Price increased a total of 2.4 times the CPI growth over this period. The annual growth of New Home Prices over the period was 5.6%, while the CPI growth was 3.9% for the same time. In total prices increased a total of 1,682% compared to CPI's increase of 700%.



**Conclusion**

The national housing market has performed better than inflation over the last 27 years, and new home appreciation has done almost as well. Each individual market likely will have a different story, and there may be markets across the U.S. that do not keep up with inflation.

As seen here, appreciation in the national markets (as well as California) performs better than the loss of value inherent within inflation leaving a residential property owner with a net gain in value over time.

**Methodology:**

The data sets were gathered from the following sources:

- Federal Reserve – <https://fred.stlouisfed.org>
- The National Association of Realtors – [www.nar.org](http://www.nar.org)
- California Association of Realtors – [www.car.org](http://www.car.org)

CPI scores and Median Sales Price values were averaged on an annual basis (adding each of the 12 months together and dividing it by 12). Then each year average was calculated to determine the percent of increase/decrease from one year to the next. This was done for each year from 1990 to 2017 (and for the longer case of New Home Prices from 1963 to 2017).

The amount of the Median New Home Sold Price in January 1999 was used as the start of each data set and was multiplied by the percentage of increase for that year, and added to the previous year's value to arrive at the estimated value through the years.

To estimate inflation on housing prices in the market the number that was multiplied was the increase in the CPI for the given year and not the price appreciation. These were then graphed together and 2017 outcomes compared.

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