

\$1 in 2016 is worth \$1.32 today

Amount

\$ 1

Start year

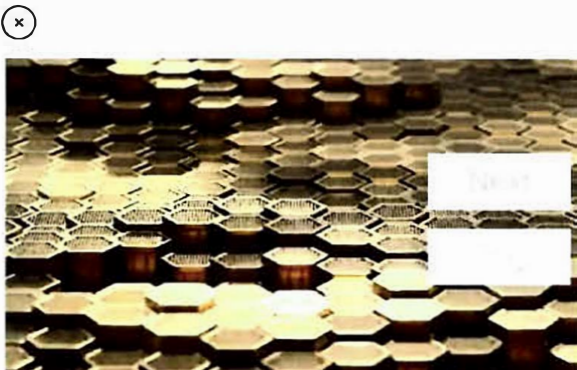
2016

End year

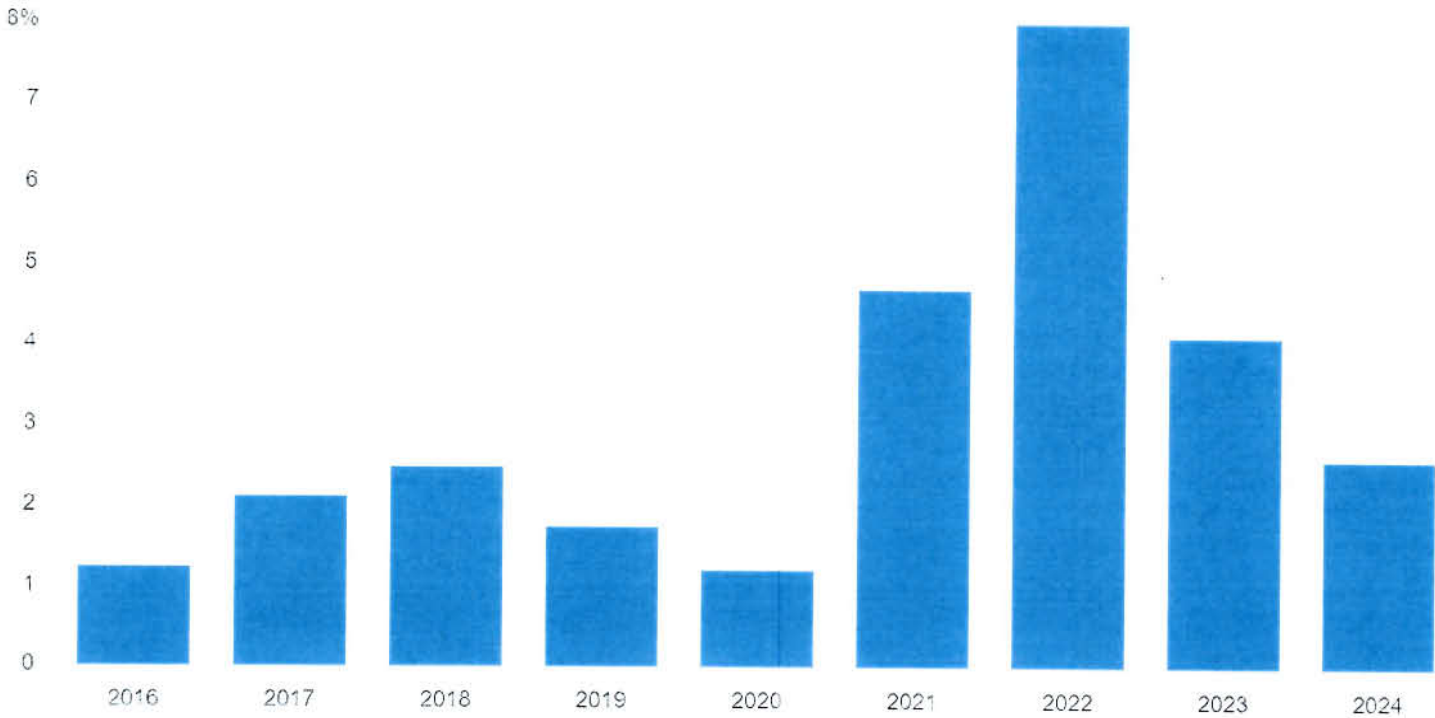
2024

[\\$1 in 2020 → 2024](#)   [\\$1 in 2015 → 2024](#)   [Inflation rate in 2024](#)   [Future inflation calculator](#)

Value of \$1 from 2016 to 2024



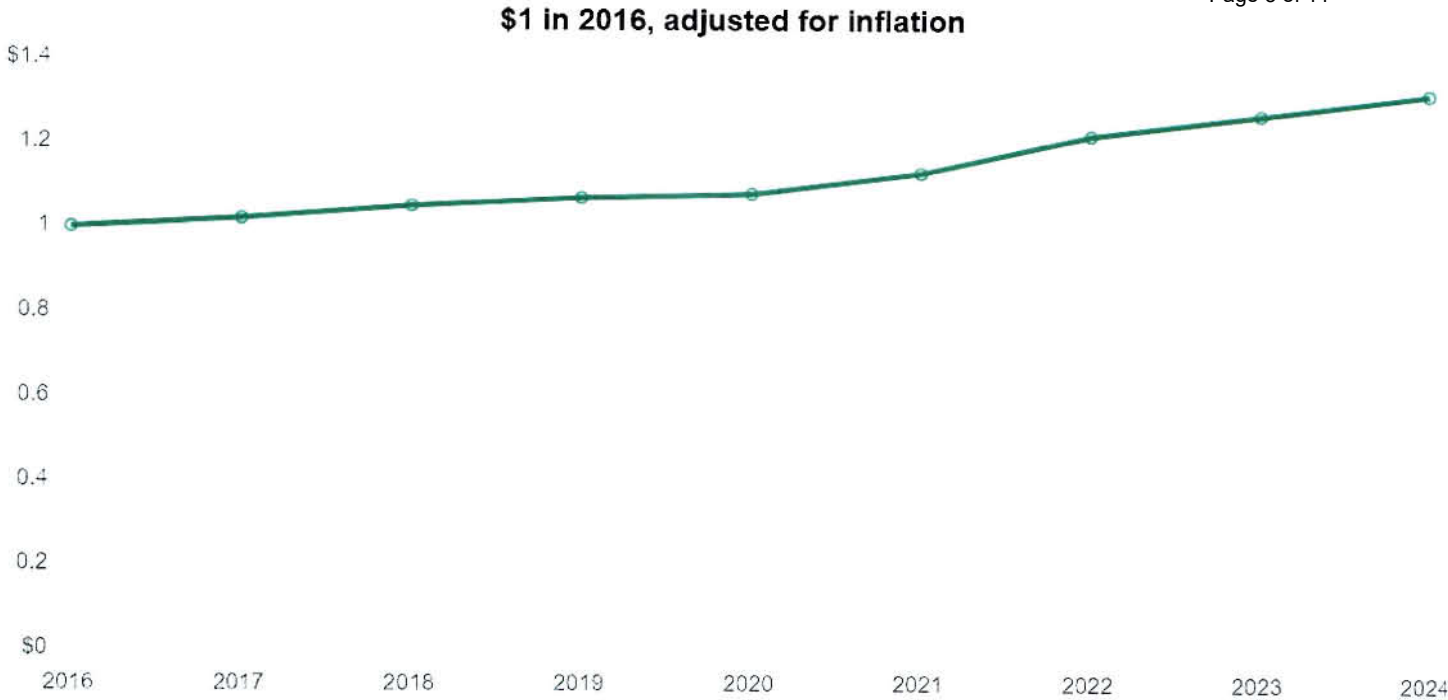
**USD inflation since 2016**  
*Annual Rate, the Bureau of Labor Statistics CPI*



**Buying power of \$1 in 2016**

This chart shows a calculation of buying power equivalence for \$1 in 2016 (price index tracking began in 1635).

For example, if you started with \$1, you would need to end with \$1.32 in order to "adjust" for inflation (sometimes referred to as "beating inflation").



When \$1 is equivalent to \$1.32 over time, that means that the "real value" of a single U.S. dollar decreases over time. In other words, a dollar will pay for fewer items at the store.

This effect explains how inflation erodes the value of a dollar over time. By calculating the value in 2016 dollars, the chart below shows how \$1 is worth less over 8 years.

According to the Bureau of Labor Statistics, each of these USD amounts below is equal in terms of what it could buy at the time:



Dollar inflation: 2016-2020		
Year	Dollar Value	Inf
2016	\$1.00	1.2
2017	\$1.02	2.1
2018	\$1.05	2.49%
2019	\$1.07	1.76%

Year	Dollar Value	Inflation Rate
2020	\$1.08	1.23%
2021	\$1.13	4.70%

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This conversion table shows various other 2016 amounts in today's dollars, based on the 31.52% change in prices:

Conversion: 2016 dollars today

Initial value	Equivalent value
\$1 dollar in 2016	\$1.32 dollars today
\$5 dollars in 2016	\$6.58 dollars today
\$10 dollars in 2016	\$13.15 dollars today
\$50 dollars in 2016	\$65.76 dollars today
\$100 dollars in 2016	\$131.52 dollars today
\$500 dollars in 2016	\$657.61 dollars today
\$1,000 dollars in 2016	\$1,315.23 dollars today

# Inflation by City

Inflation can vary widely by city, even within the United States. Here's how some cities fared in 2016 to 2024 (figures shown are purchasing power equivalents of \$1):

- **San Diego, California:** 5.10% average rate, \$1 → \$1.4
- **Phoenix, Arizona:** 4.70% average rate, \$1 → \$1.38, c
- **Tampa, Florida:** 4.55% average rate, \$1 → \$1.37, cun
- **Miami-Fort Lauderdale, Florida:** 4.19% average rate, \$1 → \$1.39, cumulative change of 38.91%

- **Seattle, Washington:** 4.15% average rate, \$1 → \$1.38, cumulative change of 38.46%
- **Atlanta, Georgia:** 4.12% average rate, \$1 → \$1.38, cumulative change of 38.18%
- **Dallas-Fort Worth, Texas:** 3.89% average rate, \$1 → \$1.36, cumulative change of 35.66%
- **Denver, Colorado:** 3.80% average rate, \$1 → \$1.30, cumulative change of 29.86%
- **Detroit, Michigan:** 3.46% average rate, \$1 → \$1.31, cumulative change of 31.31%
- **San Francisco, California:** 3.42% average rate, \$1 → \$1.31, cumulative change of 30.91%
- **Minneapolis-St Paul, Minnesota:** 3.24% average rate, \$1 → \$1.25, cumulative change of 25.02%
- **Boston, Massachusetts:** 3.22% average rate, \$1 → \$1.29, cumulative change of 28.85%
- **St Louis, Missouri:** 3.12% average rate, \$1 → \$1.28, cumulative change of 27.90%
- **Philadelphia, Pennsylvania:** 3.11% average rate, \$1 → \$1.28, cumulative change of 27.78%
- **Chicago, Illinois:** 3.06% average rate, \$1 → \$1.27, cumulative change of 27.23%
- **Houston, Texas:** 3.01% average rate, \$1 → \$1.27, cumulative change of 26.75%
- **New York:** 2.99% average rate, \$1 → \$1.27, cumulative change of 26.57%

San Diego, California experienced the highest rate of inflation during the 8 years between 2016 and 2024 (5.10%).

New York experienced the lowest rate of inflation during the 8 years between 2016 and 2024 (2.99%).

Note that some locations showing 0% inflation may have not yet <sup>(x)</sup>reported latest data.

## Inflation by Country

Inflation can also vary widely by country. For comparison, in the U.K., £1.00 in 2016 would be equivalent to £1.37 in 2024, an absolute change of £0.37 and a cumulative change of 37.0%.

In Canada, CA\$1.00 in 2016 would be equivalent to CA\$1.24 in 2024, an absolute change of CA\$0.24 and a cumulative change of 23.70%.



Compare these numbers to the US's overall absolute change of \$0.32 and total percent change of 31.52%.

## Inflation by Spending Category

CPI is the weighted combination of many categories of spending that are tracked by the government. Breaking down these categories helps explain the main drivers behind price changes.

Between 2016 and 2024:

- Gas prices increased from \$1.97 per gallon to \$3.28
- Bread prices increased from \$1.43 per loaf to \$1.94
- Egg prices increased from \$2.33 per carton to \$3.37
- Chicken prices increased from \$1.43 per per 1 lb of whole chicken to \$1.99
- Electricity prices increased from \$0.13 per Kwh to \$0.18

This chart shows the average rate of inflation for select CPI categories between 2016 and 2024.



Compare these values to the overall average of 3.48% per year:



Category	Avg Inflation (%)	Total Inflation (%)	\$1 in 2016 → 2024
Food and beverages	3.54	32.07	1.32
Housing	3.98	36.61	1.37
Apparel	0.59	4.80	1.05
Transportation	4.22	39.16	1.39
Medical care	2.45	21.38	1.21
Recreation	2.10	18.07	1.18
Education and communication	0.61	5.03	1.05
Other goods and services	3.52	31.86	1.32

The graph below compares inflation in categories of goods over time. Click on a category such as "Food" to toggle it on or off:



For all these visualizations, it's important to note that not all categories may have been tracked since 2016. This table and charts use the earliest available data for each category.

## Inflation rates of specific categories

Medical Care · Housing · Rent · Food · *More*

## Inflation-adjusted measures

S&P 500 price · S&P 500 earnings · Shiller P/E

# How to calculate inflation rate for \$1 since 2016

Our calculations use the following inflation rate formula to calculate the change in value between 2016 and today:

$$\frac{\text{CPI today}}{\text{CPI in 2016}} \times \text{2016 USD value} = \text{Today's value}$$

Then plug in historical CPI values. The U.S. CPI was 240.007 in the year 2016 and 315.664 in 2024:

$$\frac{315.664}{240.007} \times \$1 = \$1.32$$

(x)

\$1 in 2016 has the same "purchasing power" or "buying power" as

To get the total inflation rate for the 8 years between 2016 and 2024



$$\frac{\text{CPI in 2024} - \text{CPI in 2016}}{\text{CPI in 2016}} \times 100 = \text{Cumulative inflation rate (8 years)}$$

Plugging in the values to this equation, we get:

$$\frac{315.664 - 240.007}{240.007} \times 100 = 32\%$$

## Alternate Measurements of Inflation

There are multiple ways to measure inflation. Published rates of inflation will vary depending on methodology. The Consumer Price Index, used above, is the most common standard used globally.

Alternative measurements are sometimes used based on context and economic/political circumstances. Below are a few examples of alternative measurements.

### Personal Consumption Expenditures (PCE) Inflation

The PCE Price Index is the U.S. Federal Reserve's preferred measure of inflation, compiled by the Bureau of Economic Analysis. It measures the change in prices of goods and services purchased by consumers.

The PCE Price Index changed by 2.86% per year on average between 2016 and 2024. The total PCE inflation between these dates was 25.32%. In 2016, PCE inflation was 2.86%.

This means that the PCE Index equates \$1 in 2016 with \$1.25 in 2024 compared to the standard CPI measurement, which equates \$1 with \$1.32. This is a 20% difference compared to standard CPI.

For more information on the difference between PCE and CPI, see Labor Statistics.

## Core Inflation

Also of note is the **Core CPI**, which uses the standard CPI but omits the more volatile categories of food and energy.

Core inflation averaged 3.19% per year between 2016 and 2024 (vs all-CPI inflation of 3.48%), for an inflation total of 28.59%. In 2016, core inflation was 2.21%.

When using the core inflation measurement, \$1 in 2016 is equivalent in buying power to \$1.29 in 2024, a difference of \$0.29. Recall that the converted amount is \$1.32 when all items including food and energy are measured.

## Chained Inflation

**Chained CPI** is an alternative measurement that takes into account how consumers adjust spending for similar items. Chained inflation averaged 3.09% per year between 2016 and 2024, a total inflation amount of 27.59%.

According to the Chained CPI measurement, \$1 in 2016 is equal in buying power to \$1.28 in 2024, a difference of \$0.28 (versus a converted amount of \$1.32/change of \$0.32 for All Items).

In 2016, chained inflation was 0.93%.

## Comparison to S&P 500 Index

The average inflation rate of 3.48% has a compounding effect between 2016 and 2024. As noted above, this yearly inflation rate compounds to produce an overall price difference of 31.52% over 8 years.

To help put this inflation into perspective, if we had invested \$1 in the S&P 500 index in 2016, our investment would be nominally worth approximately \$3.33 in 2024. This is a return on investment of 232.65%, with an absolute return of \$2.33 on top of the original \$1.

These numbers are not inflation adjusted, so they are considered *nominal*. In order to evaluate the *real* return on our investment, we must calculate the return with inflation taken into account.

The compounding effect of inflation would account for 23.97% of the total return, which means the inflation-adjusted real return of our \$1 investment is \$2.53, or 152.92% after capital gains tax, which would take your real return down to around 128.95%.

Investment in S&P 500 Index, 2016-2024			
	Original Amount	Final Amount	Return
Nominal	\$1	\$3.33	232.65%
Real Inflation Adjusted	\$1	\$2.53	152.92%

Information displayed above may differ slightly from other S&P 500 calculators. Minor discrepancies can occur because we use the latest CPI data for inflation, annualized inflation numbers for previous years, and we compute S&P price and dividends from January of 2016 to latest available data for 2024 using average monthly close price.

For more details on the S&P 500 between 2016 and 2024, see the [stock market returns calculator](#).

## Data source & citation

Raw data for these calculations comes from the Bureau of Labor Statistics' Consumer Price Index (CPI), established in 1913. Price index data from 1774 to 1912 is sourced from a [historical study](#) conducted by political science professor Robert Sahr at Oregon State University and from the American Antiquarian Society. Price index data from 1634 to 1773 is from the American Antiquarian Society, using British pound equivalents.

You may use the following MLA citation for this page: "\$1 in 2016 → 2024 | Inflation Calculator." Official Inflation Data, Alioth Finance, 14 Nov. 2024, <https://www.officialdata.org/us/inflation/2016?amount=1>.

Special thanks to QuickChart for their [chart image API](#), which is used for chart downloads.

[in2013dollars.com](#) is a reference website maintained by the [Official Data Foundation](#).



### About the author



Ian Webster is an engineer and data expert based in San Mateo, CA, worked at NASA, and consulted for governments around the world on data analytics. Disappointed by the lack of clear resources on the impacts of inflation, he believes this website serves as a valuable public tool. Ian earned his Bachelor's degree from Dartmouth College.

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