



## Focus on **FINANCE**

# A Dollar's Worth: Inflation Is Real

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### GLOSSARY

**Budget:** An itemized summary of probable income and expenses for a given period. A budget is a plan for managing income, spending, and saving during a given period of time.

**Bureau of Labor Statistics (BLS):** A research agency of the U.S. Department of Labor that compiles statistics on employment, unemployment, and other economic data.

**Deflation:** A general, sustained downward movement of prices for goods and services in an economy.

**Income:** The payment people receive for providing resources in the marketplace. When people work, they provide human resources (labor) and in exchange receive income in the form of wages or salaries. People also earn income in the forms of rent, profit, and interest.

**Interest:** The price of using someone else's money. When people place their money in a bank, the bank uses the money to make loans to others. In return, the bank pays interest to the account holder. Those who borrow from banks or other organizations pay interest for the use of the money borrowed.

**Interest rate:** The percentage of the amount of a loan that is charged for a loan. Also, the percentage paid on a savings account.

**Savings:** The accumulation of money set aside for future spending.

**Savings account:** An account with a bank or credit union in which people can deposit their money for future use and earn interest.

"When prices are stable, people can hold money for transactions and other purposes without having to worry that inflation will eat away at the real value of their money balances."

—Ben Bernanke<sup>1</sup>

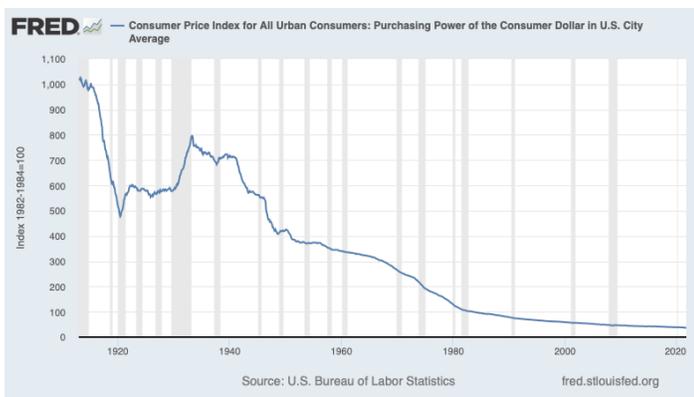
### Introduction

Did you know National Tooth Fairy Day is observed twice each year on February 28 and August 22? It's based on the tradition that when a child loses a tooth and puts it under their pillow, the magical Tooth Fairy visits during the night and leaves money in exchange for the lost tooth. The amount of money the Tooth Fairy leaves varies and has changed over time. A few generations ago, a child might have found 10 cents under their pillow. But over the years, the Tooth Fairy started leaving 25 cents, and then 50 cents. It wasn't long before the Tooth Fairy started leaving \$1, and then \$2, and even more. Today the Tooth Fairy pays an average of almost \$4 for one tooth!<sup>2</sup> Even in a fantasy world, inflation is real!

In one way or another, inflation affects everyone. News reporters anxiously await the monthly release of the inflation rate, which becomes headline news. And when interviewers ask consumers what inflation means, their answers carry the same message: Inflation means the same amount of money buys fewer goods and services, or "inflation means prices go up!"

Inflation is a general, sustained upward movement of prices for goods and services in an economy. It affects purchasing power or the amount of goods and services that a unit of currency can buy; more specifically, inflation reduces purchasing power. Data show the changing value of the dollar and its purchasing power. Figure 1 shows the value of the dollar set at 100 (representing full value) in 1983. The value of the dollar is 37 in 2021. This means that since 1983, the purchasing power of a dollar has been reduced by 63 percent. Put another way, if you lived in 1983 and took a time machine to 2021, a dollar would buy 37 cents worth of 2021 goods and services.

Figure 1  
Purchasing Power of the Dollar



SOURCE: FRED®, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/CUUR0000SA0R#0>, accessed October 6, 2021.

### Inflation Types

One type of inflation is *cost-push inflation*. This occurs when the costs of production (including wages and raw materials) increase and those higher costs are passed on to consumers. For example, if the minimum wage increases from \$9 an hour to \$15 an hour, firms may raise prices of their products because of the higher cost of wages. If firms raise prices, consumers will pay more.

Inflation also occurs when the overall quantity of goods and services demanded by consumers exceeds the overall quantity of goods and services supplied by producers. This is called *demand-pull inflation*, and it occurs when consumers have more money and want to spend it. This is often referred to as “too much money chasing too few goods.” In this case, spending increases at a rate that outpaces production and usually occurs in an expanding economy.

### What’s Not Inflation

Prices tend to rise over time. But increases in the price of a single good or service, or even a few goods or services, do not indicate that the economy is experiencing inflation. For example, postage rates have increased over the years (Table 1). By itself, this would not indicate inflation.

Technological improvements and more competition in the marketplace for specific items can also affect prices. In these instances, the price of some individual goods

Table 1 U.S. Postage Rates in Selected Years			
Date	Rate	Date	Rate
July 6, 1932	3¢	January 7, 2001	34¢
August 1, 1958	4¢	May 12, 2008	42¢
March 2, 1974	10¢	January 21, 2018	50¢
November 1, 1981	20¢	August 29, 2021	58¢

SOURCE: <http://www.akdart.com/postrate.html>.

and services may remain the same or even decrease in price over time. For example, the price of a computer is much less today than 20 years ago. Some of this is an actual decrease in price, but part of the decrease is due to quality adjustment.<sup>3</sup> For example, imagine a computer model that is the same price in year 1 and year 2, but the year 2 version of the computer has a faster processor and larger hard drive. In reality you are getting more computer for the same amount of money; in “real” (inflation adjusted) terms, the price of the computer has decreased from year 1 to year 2, even if the price you pay at the cash register is exactly the same.

### Measuring Inflation

Inflation is the increase in the average price of many goods and services, and the most widely reported measure of inflation is the consumer price index, or CPI. The CPI measures the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. Urban consumers represent about 93 percent of the total U.S. population.<sup>4</sup> The CPI does not measure inflation for people living in rural areas, serving in the Armed Forces, or living in institutions. Since 1913, a federal agency, the **Bureau of Labor Statistics (BLS)**, has gathered this information by contacting businesses to collect and record the prices of items. The BLS releases this information monthly, and researchers can use the data to compare the prices of goods and services in a month, in a quarter, or over a span of years.

Table 2 Eight Major Groups in CPI Market Basket	
Food and beverages	Medical care
Housing	Recreation
Apparel	Education and communication
Transportation	Other goods and services
SOURCE: U.S. Bureau of Labor Statistics.	

### The Market Basket

Although the CPI does not literally include all items, it is quite representative of the goods and services consumers buy on a regular basis. It includes a market basket of about 80,000 items that are sorted into more than 200 categories and arranged into eight major groups (Table 2).<sup>5</sup>

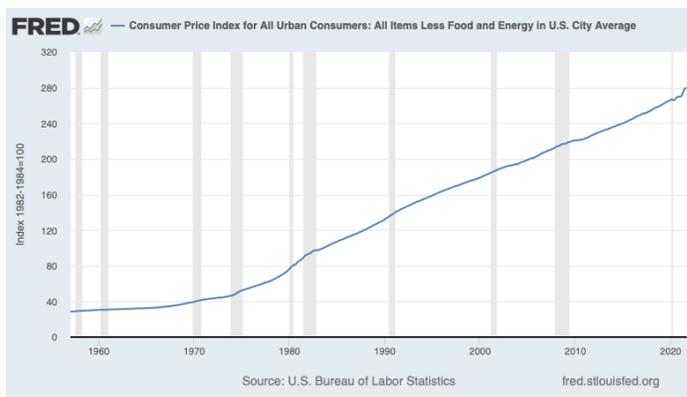
Some items are weighted more heavily than others. For example, housing makes up a significant part of consumers’ **budgets**, so it is weighted more heavily. CPI includes some taxes, such as sales and excise taxes, that are directly associated with the prices of specific goods and services. However, the CPI excludes other taxes, such as income and Social Security taxes, because they are not directly associated with the purchase of consumer goods and services. Financial products like stocks and bonds are not included in the market basket. Essentially, the market basket attempts to represent the goods and services purchased by the population represented by the CPI.<sup>6</sup>

Figure 2 shows the average annual change in the prices paid by urban consumers for a market basket of consumer goods and services since 1983. From the graph we can determine that a market basket of goods or services is set at 100 in 1983 and that the CPI increased to 200 in 2005. This means the cost of the market basket doubled from 1983 to 2005.

### The Inflation Rate

The inflation rate is the percentage increase in the average price level of goods and services over a period of time. To figure the rate, the BLS sets the price of the market basket during a particular time period equal to “100” and

Figure 2  
Annual Consumer Price Index Change



SOURCE: FRED®, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/CPILFESL#0>, accessed October 6, 2021.

calculates the increase in the price of goods in another time. For example, if the value in year 1 is 100 and it rises to 103 in year 2, the percentage increase in the price of goods and services from year 1 to year 2 is equal to a 3 percent annual inflation rate. A 3 percent annual inflation rate means that, on average, a dollar buys 3 percent fewer goods and services than it did the year before.

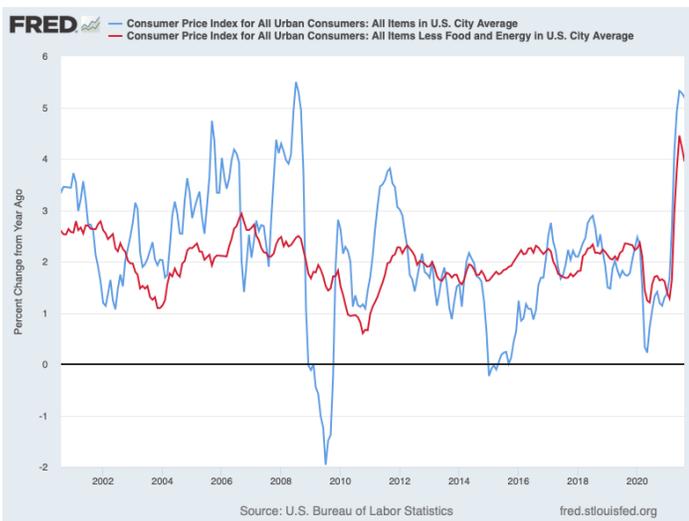
#### Annual CPI Inflation Rate Formula

$$\frac{\text{CPI later year} - \text{CPI earlier year}}{\text{CPI earlier year}} \times 100$$

### CPI versus Core CPI

Core CPI is the CPI excluding food and energy. Core CPI removes food and energy from the market basket because these price categories are more subject to frequent and sudden changes. For example, weather events may disrupt crops, or fluctuations in oil supply can impact fuel prices. Looking at the core inflation rate can make it easier to see the long-term, underlying trends in other categories. In other words, by examining core inflation, economists can analyze what is happening to general prices without being distracted by sudden changes in food and energy prices.<sup>7</sup> Figure 3 illustrates the difference in the measures, as it compares the percent change from year to year in the CPI and core CPI.

Figure 3  
Percent Change from Year to Year: CPI and Core CPI, 2000-2021



SOURCE: FRED®, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/graph/?g=eYT#0>, accessed October 6, 2021.

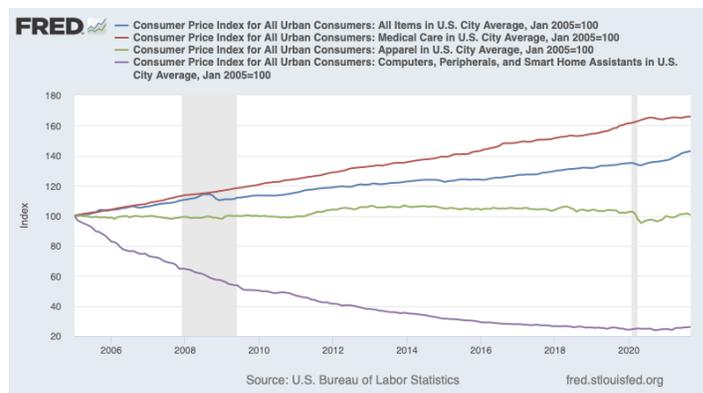
## Inflation and Personal Finance

Inflation affects consumers in different ways. As long as personal **incomes** increase at the same rate as the inflation rate, purchasing power remains constant and inflation is hardly noticeable. However, if consumers' personal income does not increase, or it increases at a slower rate than the inflation rate, consumers aren't able to buy the same amount of goods and services as they could previously. This reduces purchasing power and is an important factor in making a budget. Inflation also reduces the value of people's **savings** if the **interest rate** at which their savings grows is less than the rate of inflation. For example, if a **savings account** is paying 1 percent annual **interest** and the inflation rate is 2 percent, the purchasing power of the money in that savings account is reduced by 1 percent.

Inflation is the average increase in prices for the typical urban consumer, but few people are exactly "typical." Individual consumers experience inflation differently because they buy different items. The price of some items may increase more rapidly than the price of others. Figure 4 illustrates the difference in the overall inflation rate and the rate for individual categories.

As "prices go up," consumers experience the obvious effects of inflation and learn to make adjustments in their

Figure 4  
Percent Change from Year to Year in Overall CPI and CPI for Medical Care, Apparel, and Computers, 2005-2021



SOURCE: FRED®, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/graph/?g=Gpix>, accessed October 6, 2021.

budgets. But consumers are more sensitive to changes in price than to changes in quantity,<sup>8</sup> and this tendency allows companies to benefit from *shrinkflation*. For example, companies might reduce the size or quantity of their products without reducing the price. Shoppers can easily find downsized product packing in grocery store aisles. For example, what used to be a 1 pound package of bacon may look the same and cost the same, but it may have been downsized to only 12 ounces. Or a box of cereal that used to be 18 ounces may have been downsized to 16 ounces. Shrinkflation is inflation that can go unnoticed, but it's real.

## The Fed and Inflation

Inflation is a concern to the Federal Reserve (Fed), the central bank of the United States. Congress has given the Fed a dual mandate—the responsibility to promote maximum employment and price stability. Price stability means maintaining a low and stable rate of inflation. To meet its price stability goal, the Fed seeks to achieve inflation that averages 2 percent over time.<sup>9</sup> Sometimes inflation may be a bit above 2 percent, while at other times it may be a bit below 2 percent; but, on average, it should be 2 percent. Economists generally agree that a low and stable inflation rate creates economic conditions that encourage economic growth and employment.<sup>10</sup>

When the inflation rate is less than 2 percent, the danger of **deflation** exists. Falling prices and deflation can signal

a weak economic condition. An inflation rate greater than zero maintains an “inflation buffer”—that is, some “wiggle room”—which reduces the chances of deflation should the economy start to weaken. Fed policymakers see a 2 percent inflation target as a compromise—high enough to provide a buffer against deflation while low enough to minimize the distortions that arise from high inflation.<sup>11</sup>

## Conclusion

Inflation affects the overall economy and individual consumers alike. The Fed is charged with addressing inflation for maintaining a healthy economy. A desirable goal for inflation and the economy may be described as the “Goldilocks Effect.” This is another way of saying “not too hot and not too cold, *but just right*” as in the fairy tale *The Three Bears*.

Inflation is also embedded in personal finance and has effects in everyday decisions. It affects consumers based on different situations. When inflation increases, savers may lose purchasing power and spenders need more dollars for purchasing goods and services. Yes, everyone knows that inflation means “prices go up,” but there’s a lot to learn about inflation and the real effects on consumers.

So, what’s a dollar worth? To answer this, the Tooth Fairy gives us a clue: Inflation is real and the value of a dollar changes with time. ■

## Notes

<sup>1</sup> Bernanke, Ben S. “The Benefits of Price Stability.” Speech presented at The Center for Economic Policy Studies at Princeton University, Princeton, New Jersey, February 24, 2006; <https://www.federalreserve.gov/newsevents/speech/bernanke20060224a.htm>.

<sup>2</sup> Tyko, Kelly. “How Much Does the Tooth Fairy Pay for a Lost Tooth? It May Depend On What’s In Your Wallet.” *USA Today*, August 22, 2019; <https://www.usatoday.com/story/money/2019/08/22/national-tooth-fairy-day-2019-heres-going-rate-lost-tooth/2075890001/>.

<sup>3</sup> U.S. Bureau of Labor Statistics. “Measuring Price Change in the CPI: Computers, Peripherals, and Smart Home Assistant Devices.” September 3, 2021; <https://www.bls.gov/cpi/factsheets/personal-computers.htm>.

<sup>4</sup> U.S. Bureau of Labor Statistics. “Consumer Price Index Frequently Asked Questions: Whose Buying Habits Does the CPI Reflect?” July 15, 2021; [https://www.bls.gov/cpi/questions-and-answers.htm#Question\\_6](https://www.bls.gov/cpi/questions-and-answers.htm#Question_6).

<sup>5</sup> U.S. Bureau of Labor Statistics. “Consumer Price Index Frequently Asked Questions: What Goods and Services Does the CPI Cover?” July 15, 2021; [https://www.bls.gov/cpi/questions-and-answers.htm#Question\\_10](https://www.bls.gov/cpi/questions-and-answers.htm#Question_10).

<sup>6</sup> U.S. Bureau of Labor Statistics (2021). See footnote 5.

<sup>7</sup> See “What Is ‘Core Inflation,’ and Why Do Economists Use It Instead of Overall or General Inflation To Track Changes in the Overall Price Level?” Federal Reserve Bank of San Francisco, October 2004; <https://www.frbsf.org/education/publications/doctor-econ/2004/october/core-inflation-headline/>.

<sup>8</sup> Rosalsky, Greg. “Beware Of ‘Shrinkflation,’ Inflation’s Devious Cousin.” *NPR Planet Money*, July 6, 2021; <https://www.npr.org/sections/money/2021/07/06/1012409112/beware-of-shrinkflation-inflations-devious-cousin>.

<sup>9</sup> The Federal Reserve uses the personal consumption expenditures price index (PCEPI) to assess whether it is achieving its dual mandate.

<sup>10</sup> Bernanke, Ben S. (2006). See footnote 1.

<sup>11</sup> Ihrig, Jane; Peneva, Ekaterina and Wolla, Scott. “Inflation Expectations, the Phillips Curve, and the Fed’s Dual Mandate.” Federal Reserve Bank of St. Louis *Page One Economics*, Summer 2021; <https://research.stlouisfed.org/publications/page1-econ/2021/07/15/inflation-expectations-the-phillips-curve-and-the-feds-dual-mandate>.

Name \_\_\_\_\_ Period \_\_\_\_\_

Federal Reserve Bank of St. Louis *Page One Economics*®:**“A Dollar’s Worth: Inflation Is Real”****After reading the article, select the best answer to each question.**

1. Which statement is an example of inflation?
  - a. The price of gasoline increases by \$1 a gallon after a weather disaster.
  - b. The average price level of many things you buy decreases over time.
  - c. The price of a gallon of milk increases by 50 cents in one week.
  - d. The average price level of many things you buy increases over time.
2. Louisa has a savings account that pays interest at an annual rate of 2 percent. The current annual inflation rate is 4 percent. Based on this information, and assuming these rates stay constant in the future, which statement is true?
  - a. The purchasing power of Louisa’s savings account income increases by 2 percent each year.
  - b. The purchasing power of Louisa’s savings account income decreases by 2 percent each year.
  - c. The purchasing power of Louisa’s savings account income remains the same each year.
  - d. The purchasing power of Louisa’s savings account income decreases by 6 percent each year.
3. Which statement is true based on Figure 4 in the article?
  - a. Apparel prices increased more than medical care prices.
  - b. Medical care prices increased while computer prices decreased.
  - c. The overall CPI is the same as the CPI for computers.
  - d. Medical care prices increased at the same rate as computer prices.
4. Which statement is true based on Figure 1 in the article?
  - a. The purchasing power of the dollar remained the same in the past 10 years.
  - b. The purchasing power of the dollar was more in 1995 than in 2020.
  - c. The purchasing power of the dollar increased in the past 5 years.
  - d. The purchasing power of the dollar increased from 1983 to 1993.
5. Inflation
  - a. is a concern for the nation’s economy but not for individuals.
  - b. affects individual consumers in different ways.
  - c. is a concern for individuals but not for the overall economy.
  - d. causes the value of a dollar to increase over time.
6. Which statement is true based on Figure 2 in the article?
  - a. The average annual change in the prices paid by urban consumers for a market basket of consumer goods and services remained the same from 1983 to 2010.
  - b. The figure shows the annual change in the prices paid by rural consumers for a market basket of consumer goods and services from 1983 to 2020.
  - c. Consumers needed more dollars to buy the same goods and services in 2020 than they needed in 1983.
  - d. Consumers needed fewer dollars to buy the same goods and services in 2020 than they needed in 1983.

7. Kara's annual income is \$32,000. She feels financially secure knowing she will receive a 2 percent raise each year. The current inflation rate is 3 percent. Which statement best describes Kara's purchasing power going forward?
  - a. Kara's purchasing power depends on the inflation rate each year.
  - b. Kara's purchasing power will decrease 3 percent each year.
  - c. Kara's purchasing power will increase 2 percent each year.
  - d. Kara's purchasing power will remain the same each year.
8. The CPI market basket
  - a. intends to be representative of the goods and services an average urban consumer buys on a regular basis.
  - b. is made up of eight major groups of goods and services that 93 percent of the people in rural areas and in the Armed Forces buy most often.
  - c. includes fewer major groups of goods and services than the number of groups measured by the core CPI.
  - d. is made up of six major groups of goods and services that 93 percent of the people in urban areas buy most often.
9. Cost-push inflation
  - a. is often referred to as "too much money chasing too few goods."
  - b. is the same type of inflation as demand-pull inflation.
  - c. does not affect the individual consumer.
  - d. is caused by an increase in production costs.
10. The Federal Reserve
  - a. seeks to achieve inflation that is as close to 0 percent as possible.
  - b. seeks to achieve an inflation rate above 5 percent to promote economic growth.
  - c. seeks to achieve inflation that averages 2 percent over time.
  - d. does not monitor the inflation rate in any way.
11. All consumers experience the same inflation rate because everyone buys the same market basket.
  - a. True
  - b. False
12. Tanika loaned her friend \$5,000. Her friend paid back \$5,020 at the end of the year. This paid the loan in full and included \$20 for interest. If the inflation rate for the year was 2 percent, Tanika actually lost purchasing power by making this loan.
  - a. True
  - b. False
13. The BLS collects data on the price of a market basket of goods. The information is released on a monthly basis.
  - a. True
  - b. False
14. Consumers do not need to be concerned with inflation or inflation rates. These are important only to overall economic conditions.
  - a. True
  - b. False

## Extension Activities

1. Open the online CPI inflation calculator found at the following link: <http://data.bls.gov/cgi-bin/cpicalc.pl>.
2. Increases in the price of a single good or service, or even a few goods or services, do not indicate that the economy is experiencing inflation, and individual price increases may not follow the same increase as the inflation rate. But it's interesting to use the CPI calculator to determine what the inflation-adjusted prices of individual items might be based on the inflation rate. Use the CPI inflation calculator to find what the price of each item in the chart might be in the current year based on their prices in 1981.

Item	Price in 1981	Inflation-adjusted price (20__)
First-class stamp	\$0.20	\$
Gallon of gas	\$1.38	\$
Dozen eggs	\$0.90	\$
Gallon of milk	\$2.22	\$
TOTAL		

SOURCE: [www.1980sflashback.com/1981/economy.asp](http://www.1980sflashback.com/1981/economy.asp).

3. What was the total price of the four items in 1981?
4. If the prices of these items increased at the rate of inflation, what would the total price of the items be in the current year?
5. Is the price of any of the four items actually more now than the inflation-adjusted price? If so, what items? Are any prices actually less now than the inflation-adjusted price? If so, what items?
6. Why is it important for personal income to increase at least at the same rate as inflation?