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Middle School Version

Focus on **FINANCE**

A Dollar’s Worth: Inflation Is Real

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> “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[1]

Introduction

Did you know there’s a National Tooth Fairy Day? It’s 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 was leaving $1, and then $2, and even more. Today the Tooth Fairy pays an average of almost $4 for one tooth![2] Even in a fantasy world, inflation is real!

In one way or another, inflation affects everyone. News reporters are eager for the monthly release of the inflation rate, which becomes headline news. And when interviewers ask consumers what inflation means, the 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. Inflation reduces purchasing power. This is the amount of goods and services that a unit of currency can buy. 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.

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.

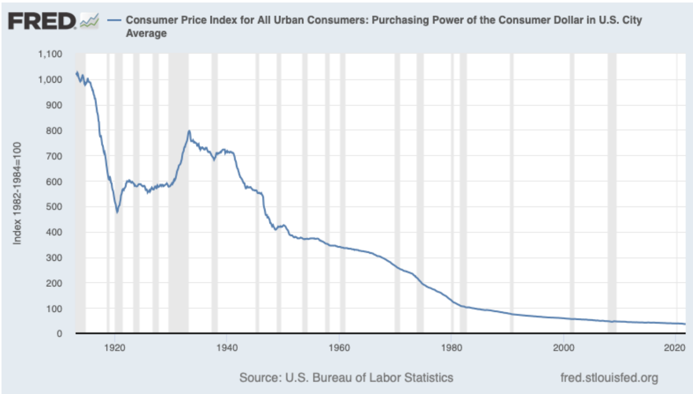
Interest: The price of using someone else’s money. When people place their money in a bank, the bank uses the money to make loans to others. In return, the bank pays interest to the account holder. Those who borrow from banks or other organizations pay interest for the use of the money borrowed.

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.

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 Happens

Inflation can occur when the costs of wages and raw materials used to produce goods and services increase. The costs are sometimes passed on to consumers. For example, if the minimum wage increases, firms may raise prices of their products because of the higher cost of wages. If firms raise prices, consumers will pay more.

Inflation can also occur when consumers have more money and want to spend it. In this case, the quantity of goods and services demanded by consumers exceeds the overall quantity supplied by producers. This is often referred to as "too much money chasing too few goods."

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 inflation. For example, postage rates have increased over the years (Table 1). By itself, this would not indicate inflation.

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.

The prices of some individual goods and services may not have increased at all; some may even have decreased in price since an earlier time period. 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.[3] 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 a better computer for the same amount of money! So you can say that even though the price you pay is the same, the price of the computer has actually decreased because you are getting more for your money.

Measuring Inflation

Inflation is the increase in the average price of many goods and services. 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.[4] The CPI does not measure inflation for people living in rural areas, serving in the Armed Forces, or living in institutions. The **Bureau of Labor Statistics (BLS)** contacts businesses to collect price information 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.

The Market Basket

Although the CPI does not literally include *all* items, the market basket attempts to represent all goods and services purchased by urban consumers.[5] 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).[6] Some items are weighted more heavily than others. For example, housing makes up a large part of consumers' **budgets**, so it is weighted more heavily.

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.

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. It shows that the 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. Economists determine this rate by comparing the percentage increase or decrease in the price level of goods and services. To figure the rate, the BLS sets the price of the market basket during a particular time period equal to "100" and 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.

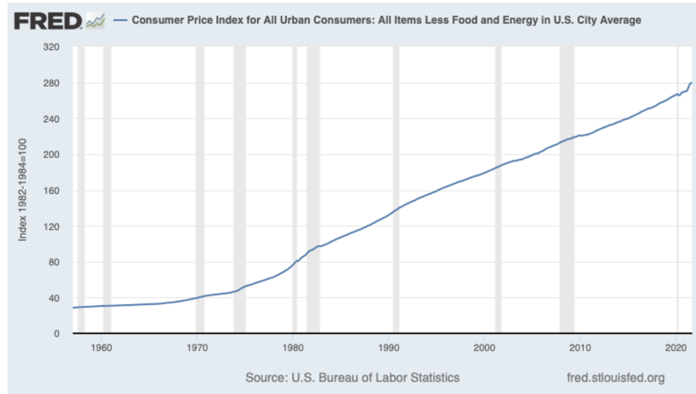
Annual CPI Inflation Rate Formula

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

CPI versus Core CPI

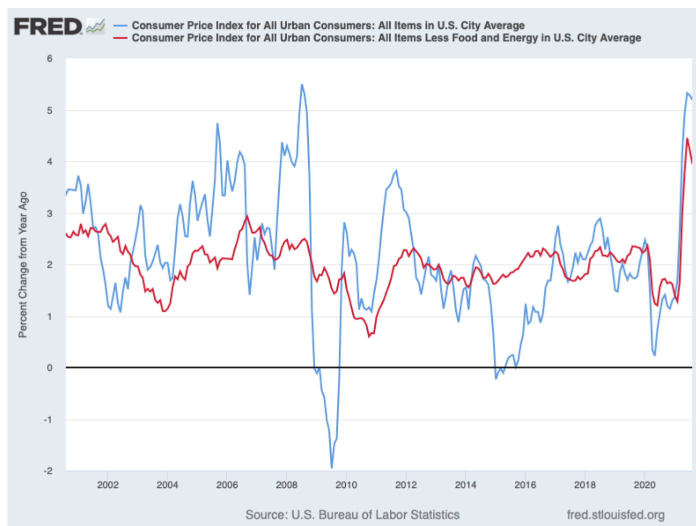
Core CPI is the same as CPI but without food and energy. Food and energy prices are more subject to frequent and sudden changes. For example, weather events like droughts or floods may damage crops, and hurricanes may destroy oil refineries. These events can bring sudden changes in food and fuel prices. Looking at the core inflation rate shows us what is happening to general prices without the distraction of sudden changes in food and energy prices.[7] 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 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.

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

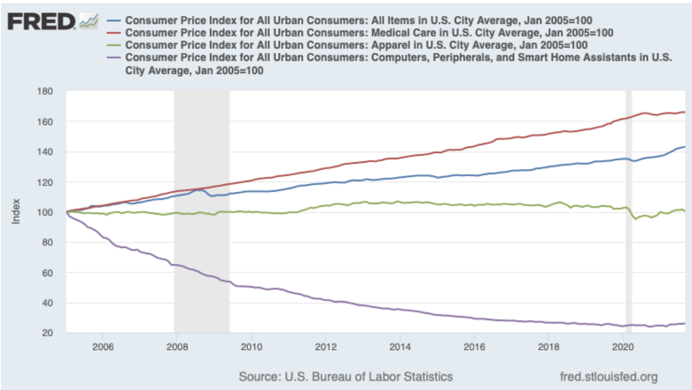


SOURCE: FRED®, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/graph/?g=eYT#0, accessed October 6, 2021.

Inflation and Personal Finance

Inflation affects consumers in different ways. As long as personal **incomes** increase at the same rate as the infla-

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.

tion rate, purchasing power remains the same. Inflation is hardly noticeable. But 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. The reduced purchasing power can affect a consumer's 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 effects of inflation and learn to make adjustments in their personal finances. But consumers are more sensitive to changes in price than to changes in quantity.[8] 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, Fed policymakers seek to achieve inflation that averages 2 percent over time.[9] 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.[10]

When the inflation rate is less than 2 percent, the danger of **deflation** exists. Deflation and falling prices can signal a weak economic condition. An inflation rate greater than zero maintains an "inflation buffer"—that is, some "wiggle room"—to reduce the chances of deflation if the economy starts 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 effects of inflation.[11]

Conclusion

The BLS collects and releases data on inflation monthly. The Fed uses this data to make decisions to maintain stable prices for 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 affects individual consumers in different ways. 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 its real effects in personal finance.

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

[1] 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.

[2] 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/.

[3] 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.

[4] 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.

[5] 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.

[6] U.S. Bureau of Labor Statistics (2021). See footnote 5.

[7] 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/.

[8] 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.

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

[10] Bernanke, Ben S. (2006). See footnote 1.

[11] 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 percentage 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 1 in the article?
   a. The purchasing power of the dollar remained the same in the past 25 years.
   b. The purchasing power of the dollar was more in 1983 than in 2020.
   c. The purchasing power of the dollar increased in the past 25 years.
   d. The purchasing power of the dollar is more in 2021 than in 1983.

4. 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.

5. The CPI market basket
   a. attempts 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 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.

6. The Federal Reserve
   a. does not monitor the inflation rate.
   b. seeks to achieve an inflation rate above 5 percent.
   c. seeks to achieve inflation that averages 2 percent over time.
   d. seeks to achieve an inflation target of 0 percent.

7. All consumers experience the same inflation rate because everyone buys the same market basket.
   a. True
   b. False

8. 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

9. Consumers do not need to be concerned with inflation or inflation rates. These are important only to overall economic conditions.
   a. True
   b. False

10. When personal incomes increase at the same rate as the inflation rate, purchasing power increases.
    a. True
    b. False

11. Inflation reduces the value of people's savings if the interest rate at which the savings grows is less than the rate of inflation.
    a. True
    b. False

12. Consumers are more sensitive to changes in price than to changes in quantity. This tendency allows companies to benefit from shrinkflation.
    a. True
    b. False

13. Inflation is important to consider when revising a personal budget.
    a. True
    b. False

14. Inflation only affects consumers who have high incomes.
    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.		

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?