

[TRADING](#) > [FOREX & CURRENCIES](#)

Inflation

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What is Inflation

Inflation is a quantitative measure of the rate at which the average price level of a basket of selected goods and services in an economy increases over a period of time. Often expressed as a percentage, inflation indicates a decrease in the [purchasing power](#) of a nation's currency. As prices rise, they start to impact the general cost of living for the common public and the appropriate monetary authority of the country, like the [central bank](#), then takes the necessary measures to keep inflation within permissible limits and keep the economy running smoothly. Inflation is measured in a variety of ways depending upon the types of goods and services considered, and is the opposite of [deflation](#) which indicates a general decline occurring in prices for goods and services when the inflation rate falls below 0 percent.

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What Is Inflation?

Example of Inflation

Imagine your grandma stuffed a \$10 bill in her old wallet in the year 1975 and then forgot about it. Cost of gasoline during that year was around \$0.5 per gallon, which means she could have then bought 20 gallons of gasoline with that \$10 note. Twenty-five years later in the year 2000, the cost of gasoline was around \$1.6 per gallon. If she finds the forgotten note in the year 2000 and then went on to purchase gasoline, she would have got only 6.25 gallons. Although the \$10 note remained the same for its value, it lost its purchasing power by around 69 percent over the 25 year period. This simple example explains how money loses its value over time when prices rise. This phenomenon is called inflation.

However, it is not necessary that prices always rise with the passage of time. They may remain steady or even decline. For instance, the cost of wheat in the U.S. hit a record high of



production of wheat. This means that a particular currency note, say of \$100, would have got lesser quantity of wheat in 2008 and more in 2016. In this case, the purchasing power of the same \$100 note increased over the period as the price of commodity declined. This phenomenon is called deflation, and is the opposite of inflation.

While it is easy to measure the price changes of individual products over time, human needs extend much beyond one or two such products. Individuals need a big and diversified set of products as well as a host of services for living a comfortable life. They include commodities like food grains, metal and fuel, utilities like electricity and transportation, and services like healthcare, entertainment and labor. Inflation aims to measure the overall impact of price changes for a diversified set of products and services, and allows for a single value representation of increase in the price level of goods and services in an economy over a period of time.

Causes of Inflation

Price rise is the root of inflation, though it can be attributed to different factors. In the context of causes, inflation is classified into three types: Demand-Pull inflation, Cost-Push inflation and Built-in inflation.

Demand-pull inflation occurs when the overall demand for goods and services in an economy increases more rapidly than the economy's production capacity. It creates a demand-supply gap which higher demand and lower supply, which results in higher prices. For instance, when the oil producing nations decide to cut down on oil production, the supply diminishes. It leads to higher demand, which results in price rises and contributes to inflation. Additionally, increase in money supply in an economy also leads to inflation. With more money available to the individuals, the positive consumer sentiment leads to higher spending. This increases the demand, and leads to price rise. Money supply can be increased by the monetary authorities either by printing and giving away more money to the



Theoretically, [monetarism](#) establishes the relation between inflation and [money supply](#) of an economy. For example, following the Spanish conquest of the Aztec and Inca empires, massive amounts of gold and especially silver flowed into the Spanish and other European economies. Since the money supply had rapidly increased, prices spiked and the value of money fell, contributing to economic collapse.

Cost-push inflation is a result of increase in the prices of production process inputs. Examples include increase in labor costs to manufacture a good or offer a service, or increase in the cost of raw material. These developments lead to higher cost for the finished product or service, and contribute to inflation.

Built-in inflation is the third cause that links to adaptive expectations. As the price of goods and services rises, labor expects and demands more costs/wages to maintain their cost of living. Their increased wages result in higher cost of goods and services, and the spiral continues as one factor induces the other and vice-versa.

Types of Inflation Indexes

Depending upon the selected set of goods and services used, multiple types of inflation values are calculated and tracked as inflation indexes. Most commonly used inflation indexes are the [Consumer Price Index \(CPI\)](#), and the [Wholesale Price Index \(WPI\)](#).

The CPI is a measure that examines the [weighted average](#) of prices of a basket of goods and services which are of primary consumer needs. They include transportation, food and medical care. CPI is calculated by taking price changes for each item in the predetermined basket of goods and averaging them based on their relative weight in the whole basket. The prices in consideration are the retail prices of each item, as available for purchase by the individual citizens. Changes in the CPI are used to assess price changes associated with



basis and has calculated it as far back as 1913.

The WPI is another popular measure of inflation, which measures and tracks the changes in the price of goods in the stages before the retail level. While WPI items vary from one country to other, they mostly include items at producer or wholesale level. For example, it includes cotton prices for raw cotton, cotton yarn, cotton gray goods and cotton clothing. Although many countries and organizations use WPI, many other countries, including the U.S., use a similar variant called the [producer price index \(PPI\)](#).

The producer price index is a family of indexes that measures the average change in selling prices received by domestic producers of goods and services over time. The PPI measures price changes from the perspective of the seller and differs from the CPI which measures price changes from the perspective of the buyer. PPI itself can have a variety which can be on industry-based classification and commodity-based classification.

In all such variants, it is possible that price rise in one component (say oil) cancels out the price decline in another (say wheat) to a certain extent. Overall, each index represents the average weighted cost of inflation for the given constituents which may apply at the overall economy, sector or commodity level.

Formula for Measuring Inflation using Inflation Index

The above mentioned variants of inflation indexes can be used to calculate the value of inflation between two particular months (or year). While a lot of readymade [inflation calculators](#) are already available on various financial portal and websites, it is always better to be aware of the underlying methodology to ensure accuracy with a clear understanding of the calculations. Mathematically,

Rise in Inflation = (Final CPI Index Value/Initial CPI Value)

Say, you wish to know how the purchasing power of \$10,000 changed between September 1975 and September 2018. One can find inflation index data on various portals in a tabular form (like [inflationdata.com](#)). From that table, pick up the corresponding CPI figures for of the given two months. For September 1970, it was 54.6 (Initial CPI value) and for September 2018, it was 252.439 (Final CPI value). Plugging in the formula yields

Rise in Inflation = $(252.439 / 54.6) = 4.6234 = 462.34\%$



Change in dollar value = $4.4234 * \$10,000 = 46,234.25$

To get the final dollar value of the end period, add the original dollar amount (\$10,000) to the change in dollar value,

Final dollar value = $\$10,000 + \$46,234.25 = \$56,234.25$

It means that \$10,000 of September 1975 will be worth \$56,234.25. Essentially, if you purchased a basket of goods and services (as included in CPI definition) worth \$10,000 in 1975, the same basket would cost you \$56,234.25 in September 2018.

Effects of Inflation

Inflation is both good and bad, depending upon which side one takes.

For example, individuals with tangible assets, like property or stocked commodities, may like to see some inflation as that raises the value of their assets which they can sell at a higher rate. However, the buyers of such assets may not be happy with inflation, as they will be required to shell out more money.

People holding cash may also not like inflation, as it erodes the value of their cash holdings. Inflation promotes investments, both by businesses in projects and by individuals in stocks of companies, as they expect better returns than inflation.

However, an optimum level of inflation is required to promote spending to a certain extent instead of saving. If the purchasing power of money remains the same over the years, there may be no difference in saving and spending. It may limit spending, which may negatively impact the overall economy as decreased money circulation will slow overall economic activities in a country. A balanced approach is required to keep the inflation value in an optimum and desirable range.

High, negative or uncertain value of inflation negatively impacts an economy. It leads to uncertainties in the market, prevents businesses from making big investment decisions, may lead to unemployment, promotes hoarding as people flock to stock necessary goods at the earliest amid fears of price rise and the practice leads to more price increase, may result in imbalance in international trade as prices remain uncertain, and also impacts foreign exchange rates.



check. It is done by implementing measures through [monetary policy](#), which refers to the actions of a central bank or other committees that determine the size and rate of growth of the money supply. In the U.S., the Fed's [monetary policy](#) goals include moderate long-term interest rates, price stability and maximum employment, and each of these goals is intended to promote a stable financial environment. The Federal Reserve clearly communicates long-term inflation goals in order to keep a steady long-term rate of inflation, which in turn, maintains price stability. Price stability — or a relatively constant level of inflation — allows businesses to plan for the future, since they know what to expect. It also allows the Fed to promote maximum employment, which is determined by non-monetary factors that fluctuate over time and are therefore subject to change. For this reason, the Fed doesn't set a specific goal for maximum employment, and it is largely determined by members' assessments.

Maximum employment does not mean zero unemployment, as at any given time there is a certain level of [volatility](#) as people vacate and start new jobs.

Monetary authorities also take exceptional measures in extreme conditions of the economy. For instance, following the 2008 financial crisis, the U.S. Fed has kept [interest rates](#) near zero and pursued a bond-buying program — now discontinued — called [quantitative easing](#). Some critics of the program alleged it would cause a spike in inflation in the U.S. dollar, but inflation peaked in 2007 and declined steadily over the next eight years. There are many complex reasons why QE didn't lead to inflation or [hyperinflation](#), though the simplest explanation is that the recession itself was a very prominent deflationary environment, and quantitative easing supported its effects.

Consequently, the U.S. policy makers have attempted to keep inflation steady at around 2 percent per year. The [European Central Bank](#) has also pursued aggressive quantitative easing to counter deflation in the Eurozone, and some places have experienced [negative interest rates](#), due to fears that deflation could take hold in the eurozone and lead to economic stagnation. Moreover, countries that are experiencing higher rates of growth can absorb higher rates of inflation. India's target is around 4 percent, while Brazil's aims for 4.5 percent.

Extreme Examples of Inflation

A handful of currencies are fully backed by gold or silver. Since most world currencies are [fiat money](#), the money supply could increase rapidly for political reasons, resulting in inflation. The most famous example is the hyperinflation that struck the German Weimar Republic in